



AGENDA

February 1, 2023

CITY COUNCIL
6:00 p.m.
Council Chambers
311 Vernon Street
Roseville, California
www.roseville.ca.us

The meeting may be viewed on Comcast channel 14, Consolidated Communications channel 73, and AT&T U-Verse. City Council meetings are also video streamed live on the City's website at roseville.ca.us/watch and roseville.ca.us/agenda, and the City's YouTube channel at youtube.com/CityofRosevilleCa.

If you need a disability-related modification or accommodation to participate in this meeting, please contact Voice: 916-774-5200, TDD: 916-774-5220. Requests must be made as early as possible.

THE CITY OF ROSEVILLE WELCOMES YOUR PARTICIPATION

If an agenda item is open to public comment, such public comment shall be addressed to the chair of the meeting.

Public Comment - Speakers have three minutes under Public Comment to speak on issues that are not listed on the agenda and are within the City's jurisdiction. The Brown Act does not permit any action or discussion on items not listed on the agenda.

Consent Calendar - If applicable, the Consent Calendar consists of routine items that may be approved by one motion. Any person can remove an item from the Consent Calendar to be discussed separately.

Agenda Items - Speakers have five minutes to address items that are listed on the agenda.

Americans with Disabilities Act - Notify the City Clerk or Secretary at least 72 hours in advance if special assistance is required to participate in a meeting including the need of auxiliary aids or services.

Audio/Visual Presentations - If making a presentation regarding an agenda item, audio/visual materials must be submitted to the City Clerk or Secretary at least 72 hours in advance.

Security procedures are in place to attend Roseville City Council meetings. All attendees must successfully pass through a security metal detector. Any person with a prohibited item will not be

allowed entry. Prohibited items include, but are not limited to: firearms (even with valid CCW), knives, pepper spray/mace, explosives of any kind/ any weapons and/or dangerous devices of any kind, illegal drugs and alcohol.

Roseville City Clerk 311 Vernon Street, Roseville, CA 916-774-5200 TDD 916-774-5220

1. CALL TO ORDER

2. ROLL CALL

3. PLEDGE OF ALLEGIANCE

4. MEETING PROCEDURES

5. PRESENTATIONS

5.1. Resolution - Denio's 75th Anniversary

Congratulate Denio's Roseville Farmers Market on the celebration of their 75th anniversary and extended best wishes for continued success in the future.

CONTACT: Blair Hutchison 916-774-5266 bmhutchison@roseville.ca.us

6. PUBLIC COMMENTS

7. CONSENT CALENDAR

BEGINNING OF CONSENT CALENDAR

Bids / Purchases / Services

7.1. Barton Road Water Treatment Plant Fiber Optic Network Upgrade Project - Contract Purchase Agreement

Memo from Preventative Maintenance Supervisor Jeremy Snyder and Environmental Utilities Director Richard Plecker recommending the City Council adopt RESOLUTION NO. 23-040 APPROVING A CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND K S TELECOM, INC., AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE (3002666). Staff requests Council approve a contract purchase agreement with KS Telecom, Inc. to provide fiber optic cabling services in the amount of \$98,790 for the Water Treatment Plant Fiber Optic Facilities Rehabilitation project. Funding for this agreement is provided by the project's approved budget which is funded from the Water Rehabilitation Fund.

CC #: 2510

File #: 0203-09

CONTACT: Jeremy Snyder 916-774-1829 jsnyder@roseville.ca.us

7.2. Regional Pump Station 26 Force Main and Capacity Improvement Project - Approval of Plans and Specifications and Authorization to Call for Bids

Memo from Associate Engineer Rana Moore and Environmental Utilities Director Richard Plecker recommending the City Council approve the project's construction plans and specifications and authorize staff to advertise the Regional Pump Station 26 Force Main and Capacity Improvement Project and

accept bids from prospective bidders. The estimated construction cost of the project is \$2,940,000. Funding is provided by the South Placer Wastewater Authority and can be accommodated within the existing project budget.

CC #: 2513

File #: 0203-09

CONTACT: Rana Moore 916-774-5581 rcmoore@roseville.ca.us

7.3. Advanced Metering Infrastructure Project - Sole Source Contract Purchase Agreement

Memo from Advanced Metering Infrastructure Project Manager Caitlin Ornelas and Electric Utility Director Daniel Beans recommending the City Council adopt RESOLUTION NO. 23-045 APPROVING A SOLE SOURCE CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND CONCORD ENVIRONMENTAL ENERGY, INC. DBA CONCORD UTILITY SERVICES, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE (3002674). Staff requests Council approve a sole source contract purchase agreement with Concord Environmental Energy, Inc. dba Concord Utility Services to perform both the electric and water meter installation and exchanges for Advanced Metering Infrastructure project support, development and implementation services. The total cost of this agreement is \$5,612,677.78 with authorization for contract change orders that could increase the agreement amount by no more than 10%, or \$561,267.78, for a not-to-exceed value of \$6,173,945.56. This project is funded by the Electric and Environmental Utilities' capital improvement project budgets in the Electric and Water Operations funds.

CC #: 2518

File #: 0203-07

CONTACT: Caitlin Ornelas 916-774-5178 cornelas@roseville.ca.us

7.4. Fleet Vehicle and Truck Purchases – Purchase Orders

Memo from Fleet Manager Brandy LeBeau and Public Works Director Jason Shykowski recommending the City Council approve a purchase order to Knight Sacramento CD Inc. dba Elk Grove Dodge for two (2) Subaru Ascent SUVs utilizing RFQ 10-3339 in the amount of \$86,325; and approve a purchase order to Dobbs Heavy Duty Holdings, LLC dba Western Truck Center for two (2) Autocar CNG trucks with Wittke Starlight front-end loading bodies utilizing Sourcewell contract # 060920-ATC for the Autocar chassis and Sourcewell contract # 091219-LEG for the Wittke body in the amount of \$1,001,797; and approve a purchase order to Dobbs Heavy Duty Holdings, LLC dba Western Truck Center for two (2) Autocar CNG trucks with New Way Mammoth front-end loading bodies utilizing Sourcewell contract # 060920-ATC for the Autocar chassis and Sourcewell contract # 091219-NWY for the New Way body in the amount of \$939,102. The funding for these purchases is included in the FY2022-23 Fleet Replacement budget.

CC #: 2512

File #: 0203-01

CONTACT: Brandy LeBeau 916-774-5531 blebeau@roseville.ca.us

7.5. Flooring Repair and Installation Services – Contract Purchase Agreement

Memo from Administrative Technician Darci Carpenter and Public Works Director Jason Shykowski recommending the City Council adopt RESOLUTION NO. 23-049 APPROVING A CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND SIMAS FLOOR COMPANY, INC. DBA SIMAS FLOOR & DESIGN COMPANY, INC., AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE (3002660). Staff requests Council approve a contract purchase agreement with Simas Floor & Design Company Inc., for flooring repair and installation. This is the first year with four optional renewal years on this contract. Funding for this agreement is available in the adopted FY2022-23 budget and will be included in the proposed FY2023-24 budget for the Facility Rehabilitation Fund.

CC #: 2522

File #: 0203-04

CONTACT: Darci Carpenter 916-727-5702 drcarpenter@roseville.us.ca

7.6. Johnson Pool House Renovation Project - Reject all Bids, Approve Plans and Specifications, and Authorize Staff to Call for Bids

Memo from Park Development Project Manager Heather Buck and Parks, Recreation & Libraries Director Jill Geller recommending the City Council adopt RESOLUTION NO. 23-043 REJECTING ALL BIDS FOR THE JOHNSON POOL HOUSE RENOVATION PROJECT, and approve the plans and specifications for the Johnson Pool House Renovation Project (re-bid), and authorize staff to call for bids. Staff requests Council approve the rejection of all bids for the Johnson Poolhouse Renovation Project due to bid results coming in well above the project budget and authorize staff to call for bids. Johnson Pool is located on .47 acres at the intersection of Vernon and D Streets in the Cherry Glen/Theiles Manor neighborhood. This project is the first phase of the Johnson Pool Vision Plan implementation and upgrades will provide needed accessibility improvements and code required upgrades focused on the building entrance and interior. Initial funding (\$150,000) for the first phase of the project was approved in the FY2020-21 budget. Additional grant funds (\$280,000) were awarded from the Department of Housing and Urban Development's Community Development Block Grant in August 2022 for a total first phase budget of \$430,000 for soft and hard costs. Ongoing maintenance costs are funded through the Parks, Recreation & Libraries operating budget in the General Fund. There will be no additional maintenance cost as a result of this project.

CC #: 2515

File #: 0707 & 0203-21

CONTACT: Heather Buck 916-774-5254 hcbuck@roseville.ca.us

Resolutions

7.7. City Council Law and Regulation Committee - Meeting Amendment

Memo from Government Relations Administrator Mark Wolinski and Deputy City

Manager Megan Scheid recommending the City Council adopt RESOLUTION NO. 23-048 ESTABLISHING A REGULAR MEETING DAY AND TIME FOR THE LAW AND REGULATION COMMITTEE. Staff requests Council approve the fourth Thursday of the month at 9:00 a.m. as the regular meeting day and time for the City Council Law and Regulation Committee. The City's Council/Boards, Commissions, & Committees Administrative Standards defines that the regular day and time for meetings for the Law and Regulation Committee shall be established by resolution adopted by the City Council.

CC #: 2521

File #: 0103-32

CONTACT: Mark Wolinski 916-774-5179 mwolinski@roseville.ca.us

7.8. Four Corners Park Project - Notice of Completion

Memo from Park Development Project Manager Joel De Jong and Parks, Recreation & Libraries Director Jill Geller recommending the City Council adopt RESOLUTION NO. 23-041 ACCEPTING THE PUBLIC WORK KNOWN AS THE FOUR CORNERS PARK PROJECT, APPROVING THE "NOTICE OF COMPLETION", AND AUTHORIZING THE PARKS, RECREATION AND LIBRARIES DIRECTOR TO EXECUTE SAID NOTICE ON BEHALF OF THE CITY OF ROSEVILLE. The Parks, Recreation & Libraries Department has made a final inspection of the Four Corners Park Project and has found that all contract work has been completed in accordance with the approved plans and specifications. The project is now ready for acceptance. Funding for the project was provided through the West Roseville Neighborhood Park Fund and was allocated in the FY2020-21 budget. Maintenance of the park is funded from the Westpark Community Facilities District No. 2 (Public Services). There is no impact to the General Fund.

CC #: 2514

File #: 0704-01

CONTACT: Joel De Jong 916-774-5924 jdejong@roseville.ca.us

7.9. 2018 Parks Bond Act Per Capita Grant Program - Grant Award

Memo from Park Planning & Development Manager Tara Gee and Parks, Recreation & Libraries Director Jill Geller recommending the City Council adopt RESOLUTION NO. 23-044 ACCEPTING A 2018 PARKS BOND ACT PER CAPITA GRANT AWARD FROM THE STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY, DEPARTMENT OF PARKS AND RECREATION'S OFFICE OF GRANTS AND LOCAL SERVICES. The per capita amount for the City is \$177,952 and is being applied to the replacement and upgrade of the Royer Park play structure. While the grant award contract was executed in October 2021, City procedure requires the Council to formally accept the grant. The grant will be applied to the Royer Park play structure replacement associated improvements surrounding the play area. This includes offsets to the play structure, rubber surfacing to ensure Americans with Disabilities Act access and an expanded picnic area with shade. There will be no additional maintenance costs since costs to maintain the play area are already accounted for in the Parks, Recreation and Libraries operations budget

in the General Fund.

CC #: 2517

File #: 0704 & 0214

CONTACT: Tara Gee 916-774-5253 tgee@roseville.ca.us

7.10. Sierra Vista Specific Plan Baseline Road Segment 3 and a Portion of Segment 2 - Reimbursement Agreement

Memo from Principal Engineer Matthew Todd and Development Services Director Mike Isom recommending the City Council adopt RESOLUTION NO. 23-051 APPROVING A REIMBURSEMENT AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND LENNAR HOMES OF CALIFORNIA, LLC, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE. Staff requests Council approve a reimbursement agreement with Lennar Homes of California, LLC in the amount of \$1,506,322 for roadway infrastructure improvements along Baseline Road, that are within the Sierra Vista Specific Plan and beyond the developer's obligations. The funding source is the City/County Traffic Mitigation Fund, resulting in no impact to the City General Fund.

CC #: 2524

File #: 0400-04-12-1 & 0800-06

CONTACT: Matthew Todd 916-774-5562 mtodd@roseville.ca.us

7.11. Communication Software Maintenance - License Agreement Amendment

Memo from Management Analyst Mark Peinado and Police Chief Troy Bergstrom recommending the City Council adopt RESOLUTION NO. 23-046 APPROVING A LICENSE AGREEMENT AMENDMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND TYLER TECHNOLOGIES INC. Staff requests Council approve an amendment to an existing agreement with Tyler Technologies to provide 4 years of software maintenance for Brazos software, which is used to issue electronic citations and to help store demographic information as required by the Racial & Identity Profiling Act. The total amount over 4 years is \$140,957.56. Funding to cover the FY2022-23 cost of \$33,692.67 has been approved in the Information Technology Operations Fund budget.

CC #: 2519

File #: 0323

CONTACT: Claudia Harlan 916-774-5003 charlan@roseville.ca.us

Mark Peinado 916-774-5021 mcpeinado@roseville.ca.us

Ordinances (for introduction and adoption - appropriation/urgency measures)

7.12. Sierra Vista Solaire Phase 6, Village 5 Bike Trail Project - Reimbursement Agreement and Budget Adjustment

Memo from Transportation Grants Analyst Cameron Schreiter and Public Works Director Jason Shykowski recommending the City Council adopt RESOLUTION NO. 23-050 APPROVING A REIMBURSEMENT

AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND PULTE HOME COMPANY, LLC, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE; and adopt ORDINANCE NO. 6609 AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23 BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY EFFECTIVE AS AN APPROPRIATION MEASURE. Staff requests Council approve the Reimbursement Agreement for Sierra Vista Solaire Phase 6, Village 5 Bike Trail project between the City and Pulte Home Company LLC. The developer, Pulte Home Company LLC, will pay upfront costs for the construction of the trail at an estimated cost of \$282,613. Staff also requests Council approve a budget adjustment in the amount of \$282,613 to cover costs to construct the Sierra Vista Solaire Phase 6, Village 5 Bike Trail project within Parcels FD-85, FD-84 and LOT G of FD-5 of the Sierra Vista Specific Plan (SVSP). Reimbursement will be provided through bike trail development fees collected for SVSP. There is no fiscal impact to the General Fund.

CC #: 2523

File #: 0721-05 & 0201-01

CONTACT: Cameron Schreiter 916-746-1302 ctscreiter@roseville.ca.us

7.13. Edward Byrne Memorial Justice Assistance Grant Program - Grant Award and Budget Adjustment

Memo from Management Analyst Mark Peinado and Police Chief Troy Bergstrom recommending the City Council adopt RESOLUTION NO. 23-047 ACCEPTING A GRANT AWARD FROM THE UNITED STATES DEPARTMENT OF JUSTICE, OFFICE OF JUSTICE PROGRAMS AND AUTHORIZING THE MAYOR TO EXECUTE THE REQUIRED DOCUMENTS ON BEHALF OF THE CITY OF ROSEVILLE; and adopt ORDINANCE NO. 6607 AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23 BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY EFFECTIVE AS AN APPROPRIATION MEASURE. Staff requests Council accept a grant award from the United States Department of Justice, Office of Justice Programs and authorize the Mayor to execute the grant award document on behalf of the City. The Roseville Police Department has been awarded a grant in the amount of \$21,343 from the U.S. Department of Justice, Office of Justice Programs. The grant will be used to support the department's crime prevention, marketing, and public outreach programs. The recommended budget adjustment will appropriate \$21,343 of grant funding in the City's Grants Fund. The budget adjustment will have no net impact on the City's General Fund.

CC #: 2520

File #: 0214 & 0201-01

CONTACT: Mark Peinado 916-774-5021 mcpeinado@roseville.ca.us

Ordinances (for second reading and adoption)

7.14. Second Reading - 2022 Speed Limit Ordinance Update

ORDINANCE NO. 6610 AMENDING SECTION 11.28.010 OF CHAPTER

11.28 OF TITLE 11 OF THE ROSEVILLE MUNICIPAL CODE REGARDING SPEED LIMITS, for second reading and adoption.

CC #: 2525

File #: 0316-04

CONTACT: Jana Cervantes 916-774-5498 jcervantes@roseville.ca.us

7.15. Second Reading - Advanced Metering Infrastructure - Roseville Municipal Code Amendment

ORDINANCE NO. 6611 OF THE COUNCIL OF THE CITY OF ROSEVILLE ADDING SECTION 14.24.053 TO CHAPTER 14.24 OF TITLE 14 OF THE ROSEVILLE MUNICIPAL CODE REGARDING ELECTRICAL ENERGY, for second reading and adoption.

CC #: 2526

File #: 0800-03

CONTACT: Joanna Cucchi 916-746-1609 jcucchi@roseville.ca.us

END OF CONSENT CALENDAR

8. ORDINANCES

8.1. Royer Park Play Area Expansion Project - Award of Contract and Budget Adjustment

Memo from Park Development Project Manager Heather Buck and Parks, Recreation & Libraries Director Jill Geller recommending the City Council adopt RESOLUTION NO. 23-043 APPROVING AN AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND SITEWISE CONSTRUCTION, INC., AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE; and adopt ORDINANCE NO. 6608 AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23 BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY EFFECTIVE AS AN APPROPRIATION MEASURE. Staff requests Council award an agreement in the amount of \$216,600 with change order authority in an amount not to exceed 10% for the contracted amount to Sitewise Construction, Inc. for rubber surfacing for increased accessibility into and around the play area and expansion of the adjacent picnic area with additional picnic tables, a shade shelter, and landscape planting. Staff also requests approval of a budget adjustment to redirect \$128,000 from the Royer Park Maintenance Building Upgrades Project to the Royer Park Play Structure Replacement Project for the Americans with Disabilities Act (ADA) access within the play area and an added shade structure, both of which were included to address public outreach requests for a more accessible playground. The budget adjustment also includes allocation of \$177,952 from the Per Capita State Grant Program (Prop 68) for a total project budget of \$728,952. The project was approved in FY2020-21 using funds from the Parks, Recreation & Libraries Capital Fund. The school-aged play structure at Royer Park has reached the end of its useful life, as it is 24 years old. Ongoing maintenance costs are anticipated to remain the same and are already included in the Parks, Recreation & Libraries budget in the General Fund.

CC #: 2516

File #: 0704 & 0201-01

CONTACT: Heather Buck 916-774-5254 hcbuck@roseville.ca.us

8.2. Cash for Grass Program - Budget Adjustment

Memo from Water Conservation Administrator Bobby Alvarez and Environmental Utilities Director Richard Plecker recommending the City Council adopt ORDINANCE NO. 6606 AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23 BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY EFFECTIVE AS AN APPROPRIATION MEASURE. Staff requests Council approve a budget adjustment in the amount of \$200,000 for the Cash for Grass Program rebates. Funding for this budget adjustment is available in the Water Operations Fund.

CC #: 2511

File #: 0800-02 & 0201-01

CONTACT: Bobby Alvarez 916-746-1710 balvarez@roseville.ca.us

9. COUNCIL REPORTS / PUBLIC COMMENTS

10. ADJOURNMENT



COUNCIL COMMUNICATION

CC #:

File #:

Title: Meeting Heading

Contact:

Meeting Date: 2/1/2023

Item #: 0.1.



COUNCIL COMMUNICATION

CC #: 2527
File #: 0102-10

Title: Resolution - Denio's 75th Anniversary
Contact: Blair Hutchison 916-774-5266 bmhutchison@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 5.1.

RECOMMENDATION TO COUNCIL

Commend Denio's Roseville Farmers Market on the celebration of their 75th anniversary and extended best wishes for continued success in the future.

BACKGROUND

Not applicable.

FISCAL IMPACT

Not applicable.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Ceremonial documents meet the above criteria and are not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Not applicable.

Respectfully Submitted,

Blair Hutchison, City Clerk Technician

Carmen Avalos, City Clerk



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution - Denio's 75th Anniversary

Resolution

WHEREAS, Denio's Roseville Farmers Market was founded in 1947 by Jim and Marilee Denio; and

WHEREAS, it began small, with a single individual selling produce near the Southern Pacific Railroad Yard. Before long, the Saturday "Auction" by Mr. Denio became the main highlight at Denio's. Soon, other vendors began to rent space from Mr. Denio and sell their products. In time, the Farmer's Market developed into a local Saturday event; and

WHEREAS, by the early 1960s, Denio's was known as the largest, cleanest, and most efficiently run Farmer's Market, Auction, and Bazaar in California. In the 1960s Denio's grew in size and reputation but remained open only on Saturdays. It wasn't until 1969 that Sunday operations were implemented; and

WHEREAS, The 1970s and 1980s saw an influx of weekend vendors selling all types of merchandise. To accommodate these people, a portion of the sales lot was reserved for them to set up and sell directly from their vehicles on a daily basis. Denio's was built on the premise that an open air market provides the opportunity for a seller to operate a retail business in a high traffic area with the lowest possible overhead costs, and in turn, to pass those savings on to the customers. It is the primary goal of Denio's to provide guests and vendors a clean, friendly atmosphere with the best possible service, unique products, and great deals. Denio's is dedicated to maintaining a relaxed, family-friendly environment, which lends itself to the mixture of the thousands of people who attend each weekend; and

WHEREAS, Denio's has always been a family-oriented venture. As the auction grew, so did the Denio family. Soon, Denio children and grandchildren could be seen working at the auction; and

WHEREAS, in January 2000, James A. Denio, founder, passed away and in August 2019, Marilee H. Denio, co-founder, passed away; and

WHEREAS, Jim & Marilee Denio never stopped working to improve the business. They knew the importance of family, honesty, and hard work. Just as importantly, they appreciated each and every vendor and employee. They realized that they all had helped to make their business a success; and

WHEREAS, Today, Jim and Marilee's son, Ken, along with his children Eric & Tracie, carry on the family business by maintaining the same values and traditions started by Jim & Marilee 75 years ago; and

WHEREAS, With four generations on hand to serve the community, and the fifth not far behind, Denio's will continue to offer fresh produce and bargain merchandise for years to come.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF ROSEVILLE, CALIFORNIA, that **DENIO'S ROSEVILLE FARMERS MARKET** be commended on the celebration of their 75th anniversary and extended best wishes for continued success in the future.

SIGNED AND APPROVED this 1st day of February 2023.



BRUCE HOUDSHELDT, MAYOR



COUNCIL COMMUNICATION

CC #: 2510
File #: 0203-09

Title: Barton Road Water Treatment Plant Fiber Optic Network Upgrade Project - Contract Purchase Agreement
Contact: Jeremy Snyder 916-774-1829 jsnyder@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.1.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council approve the Contract Purchase Agreement with KS Telecom, Inc. for the Water Treatment Plant Fiber Optic Facilities Rehabilitation project and adopt a resolution authorizing the City Manager to execute it on behalf of the City.

BACKGROUND

The Environment Utilities Department released the Fiber Optic Network Upgrade Request for Proposals (RFP) 08-100 to solicit proposals for Fiber Optic Network Rehabilitation at the Barton Road Water Treatment Plant located at 9595 Barton Road.

The Fiber Optic Network is used for the Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) network communications. The Network was installed in various stages and, in some cases, "daisy-chained". Because of this configuration, a failure in a problematic location might not be isolated and could affect a large portion of the plant. Much of the Network's ancillary equipment is antiquated and obsolete, requiring replacement. The scope of work for the RFP includes fiber optic cabling services, installing new fiber, replacing old equipment, terminating connections, and demolishing and removing old connections.

Four proposals were received and evaluated by Environmental Utilities' SCADA and Water Treatment Plant Maintenance staff on experience/qualifications, understanding of the project/project plan, and proposed cost. KS Telecom, Inc. was ranked first in overall scoring.

FISCAL IMPACT

The estimated cost of this service is \$98,790 and will be funded from the Water Treatment Plant Fiber Optic Facilities Rehabilitation project's approved budget of \$200,000. The project is funded from the Water Rehabilitation Fund (Fund 6130).

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) only applies to projects which have the potential to cause a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. (CEQA Guidelines §15061(b)(3)).

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal E - Deliver exceptional city services

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Jeremy Snyder, Preventative Maintenance Supervisor

Richard Plecker, Environmental Utilities Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-040

Signed Contract

Proposal

RESOLUTION NO. 23-040

APPROVING A CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND K S TELECOM, INC., AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, a contract purchase agreement (3002666) for the Barton Road Water Treatment Plant Fiber Optic Network Upgrade project, by and between the City of Roseville and K S Telecom, Inc., has been reviewed by the City Council.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said contract purchase agreement is approved and that the City Manager is authorized to execute it on behalf of the City of Roseville.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



Contract Purchase Agreement 3002666

Supplier Details:

Company K S Telecom Inc
Contact Bradley Metcalf
Address PO Box 330

Penryn, California 95663

Submit your response to:

Company City of Roseville
Contact Tiffany Valdez
Address Purchasing Division
311 Vernon St
Roseville, CA 95678
Phone (916) 746-1109
Fax (916) 746-1115
E-mail TValdez@roseville.ca.us

This Contract Purchase Agreement is sent for your review and acceptance. Notify the Buyer via email of any needed changes to the company name, address, and contact information. The Buyer will update the agreement prior to you signing the document.

Return two (2) signed originals of the agreement to the Buyer noted on the agreement. Alterations or modifications to the agreement are not allowed. Upon receipt of all necessary documents, the City will sign the agreement and return a fully executed copy to you. Receipt of the signed copy will be your notice to proceed with the work in accordance with the terms and conditions of the agreement. Work must not begin until the contract has been fully executed.

The following guidelines must be followed for the signature block on the agreement:

Sole proprietorship - By owner

Partnership - Any general partner

Corporation - Two options:

(1) A signature from the President and the corporate seal; OR

(2) One signature from the Chairman of the Board, President, or any Vice President AND one signature from the Secretary, any Assistant Secretary, Chief Financial Officer, or any Treasurer or Assistant Treasurer of the corporation

***General Manager, Office Manager and/or Sales Manager are not corporate officer titles.** The agreement will be rejected if not signed in accordance with these guidelines.

Insurance requirements:

The City's insurance requirements are referenced on Attachment A of the agreement. By signing the agreement, you are confirming that your company has the minimum insurance limits required.



Contract Purchase Agreement 3002666

Agreement	3002666
Agreement Date	07-DEC-2022
Revision	0
Agreement Amount	98,790.00 USD

Invoice To **City of Roseville**
Accounts Payable
311 Vernon St
ROSEVILLE CA 95678

Phone: (916) 774-5488
Fax: (916) 784-3796
Email: accountspayable@roseville.ca.us

Supplier **K S Telecom Inc**
PO Box 330

Penryn, California 95663
Phone: (916) 652-4735
Fax: (916) 652-4296
Email: BradM@KSTelecominc.com

Description of Labor, equipment and/or materials THE SERVICES CALLED FOR UNDER CITY OF ROSEVILLE REQUEST FOR PROPOSAL #08-100 AND CONTRACTOR'S PROPOSAL THERETO TITLED BARTON ROAD WATER TREATMENT PLANT FIBER OPTIC NETWORK UPGRADE RFP 08-100 CITY OF ROSEVILLE, CA NEGOTIATED REVISIONS PER MEETING ON TUESDAY, NOVEMBER 16, 2022 INCLUDING THE ADD OPTION 1 PRICE FOR SINGLE MODE FIBER PATCH CORDS (HEREINAFTER "PROPOSAL"). THE TERMS AND SCOPE OF WORK OF CITY OF ROSEVILLE REQUEST FOR PROPOSAL #08-100 AND CONTRACTOR'S PROPOSAL ARE HEREIN MADE PART OF THIS CONTRACT PURCHASE AGREEMENT AND FULLY INCORPORATED BY REFERENCE.

START DATE: EXECUTED AGREEMENT
 END DATE: FINAL PAYMENT

PLEASE CONTACT JEREMY SNYDER AT 916-746-1829 OR BY EMAIL AT JSNYDER@ROSEVILLE.CA.US FOR QUESTIONS REGARDING THIS AGREEMENT.

Customer #	Supplier #	Payment Terms	Freight Terms	FOB	Shipping Method
15493		Net 30	Freight on Board at the destination	Destination	Best Method
Start Date	End Date	Confirm To			

Tiffany Valdez Phone 1-916-746-1109

Attention: Total Cost not to exceed the agreement amount without prior approval of the Purchasing office.

Contract Terms and Conditions

1. To the fullest extent allowed by law, Contractor shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees and volunteers from any claims, suits or actions of every name, kind and description brought forth, or on account of, injuries to or death of any person (including but not limited to workers and the public), or damage to property, resulting from or arising out of Contractor's willful misconduct or negligent act or omission while engaged in the performance of obligations or exercise of rights created by this Agreement, except those matters arising from City's sole or active negligence or willful misconduct. The parties intend that this provision shall be broadly construed. Contractor's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law. The defense and indemnity obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.
2. Contractor is an independent contractor, and shall not be considered an officer, agent or employee of the City.
3. Without the written consent of the City, this Agreement is not assignable by Contractor either in whole or in part.
4. Time is of the essence of this Agreement.
5. At any time during the term of this Agreement, the City has the right to terminate this Agreement, provided Contractor is given thirty (30) days written notice. City's termination shall be without further liability to City; however, Contractor shall be entitled to all costs reasonably incurred prior to the date of termination. Contractor acknowledges that City may terminate this Agreement should funds not be appropriated by its governing body to continue services under this Agreement.
6. This Agreement may only be amended or modified in writing. It is integrated and contains the complete understanding of the parties.
7. All equipment, supplies and services sold to the City of Roseville shall conform to the general safety orders of the State of California.
8. Unless notified to the contrary, in writing, the City assumes that the Contractor has accepted the work in accordance with the plans and specifications (if any) and agrees to do the work in compliance with this Agreement.
9. All prevailing wages and fair employment practices must be adhered to. For prevailing wage contracts over \$25,000, copies of certified payroll must be submitted with invoices. Prevailing wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>.
10. Contractor agrees to the below insurance requirements:
 - a. Unless otherwise specified, the Contractor shall maintain the policies of insurance outlined in Attachment A, incorporated herein by this reference, in full force and effect during the term of this Agreement. The City of Roseville retains sole discretion in determining the types and proper levels of insurance coverage.
 - b. Form. Contractor shall submit a certificate evidencing such coverage for the period covered by this Agreement in a form satisfactory to Risk Management and the City Attorney, prior to undertaking any work hereunder. Any insurance written on a claims made basis is subject to the approval of Risk Management and the City Attorney.
 - c. Additional Insureds. Contractor shall also provide a separate endorsement or

section of the policy showing City, its officers, agents, employees, and volunteers as additional insureds for each type of coverage (except Workers' Compensation) and for ongoing and completed operations. Such insurance shall specifically cover the contractual liability of Contractor. The additional insured coverage under the Contractor's policy shall be primary and noncontributory, as evidenced by a separate endorsement or section of the policy, and shall not seek contribution from City's insurance or self-insurance. In addition, the additional insured coverage shall be at least as broad as the Insurance Services Office (ISO) CG 20 01 Endorsement. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be:

- (1) the minimum coverage and limits specified in this Agreement; or
 - (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.
- d. Cancellation/Modification. Contractor shall provide ten (10) days written notice to City prior to cancellation or modification of any insurance required by this Agreement.
 - e. Umbrella/Excess Insurance. The limits of insurance required in this Agreement may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of City (if agreed to in a written contract) before City's own insurance shall be called upon to protect it as a named insured.
 - f. Subcontractors. Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Agreement, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor's work. Furthermore, Contractor shall require its subcontractors to agree to be bound to Contractor and City in the same manner and to the same extent as Contractor is bound to City under this Agreement. Additionally, Contractor shall obligate its subcontractors to comply with these same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request.
 - g. Self-Insured Retentions. All self-insured retentions (SIR) must be disclosed to Risk Management for approval and shall not reduce the limits of liability. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.
 - h. Waiver of Subrogation. Contractor hereby agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss under a Workers Compensation, Commercial General Liability or Automobile Liability policy. All Workers Compensation, Commercial General Liability and Automobile Liability policies shall be endorsed with a waiver of subrogation in favor of City, its officers, agents, employees and volunteers for all work performed by Contractor, its employees, agents and subcontractors.
 - i. Liability/Remedies. Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve Contractor of liability in excess of such coverage, nor shall it preclude City from taking such other actions as are available to it under any other provisions of this Agreement or law.
11. Contractor shall comply with all federal, state and local laws and ordinances, including but not limited to the City's storm water regulations, as may be applicable to the

performance of services under this Agreement. Failure to comply with local ordinances may result in monetary fines and cancellation of this Agreement. Refer to www.roseville.ca.us/stormwater for links to more information on the City's storm water regulations.

12. In the event that the terms of any attachment or exhibit conflict with any terms of this Agreement, the terms of this Agreement shall control.
13. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.
14. If either party commences any legal action against the other party arising out of this Agreement or the performance thereof, the prevailing party in such action shall be entitled to recover its reasonable litigation expenses, including but not limited to, court costs, expert witness fees, discovery expenses, and attorneys' fees. Any action arising out of this Agreement shall be brought in Placer County, California, regardless of where else venue may lie. This Agreement shall be governed by and construed in accordance with the laws of the State of California.
15. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.
16. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.
17. For purposes of this Agreement, the terms "Contractor," "Consultant," and "Supplier" are used interchangeably.
18. No contractor or subcontractor may work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. During the performance of this agreement, Contractor and its subcontractors shall have a continuing legal obligation to maintain current registration with the Department of Industrial Relations. Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
19. Contractor must submit all claims as defined in and in accordance with the claim resolution process set forth in Section 9204 of the Public Contract Code. Each such claim must be sent to the City by registered mail or certified mail with return receipt requested and must contain reasonable documentation to support the claim. All claims must be received prior to acceptance of the work.
20. Contractor certifies that Contractor, its employees, directors, officers, agents, subcontractors, vendors, and volunteers are not presently debarred, excluded, suspended, declared ineligible, voluntarily excluded, or proposed for debarment, exclusion, suspension or ineligibility by any federal, state, or local department or agency.
21. This Agreement may be amended via change order, but only if such change order is made in writing, approved by the City, and signed by both parties.
22. CONTRACTOR agrees to defend and indemnify CITY if, despite the parties intent and practice, any venue, agency, or court with competent jurisdiction determines that CONTRACTOR and/or any of its agents, officers, employees, volunteers, independent contractors, or subcontractors, are characterized as employee(s) of CITY.

CONTRACTOR and CITY agree that: (a) CONTRACTOR is free from the control and direction of CITY in connection with the performance of the work; (b) CONTRACTOR is providing services directly to CITY; (c) CONTRACTOR has and will maintain at all relevant times a business license; (d) CONTRACTOR maintains a business location that is separate from CITY; (e) CONTRACTOR is customarily engaged in an independently

established business of the same nature as that involved in the work performed hereunder; (f) CONTRACTOR actually contracts with other businesses to provide the same or similar services and maintains a clientele without restrictions from CITY; (g) CONTRACTOR advertises and holds itself out to the public as available to provide the same or similar services; (h) CONTRACTOR provides its own tools, vehicles, and equipment to perform the services; (i) CONTRACTOR has negotiated its own rates; (j) CONTRACTOR set its own hours and location of work in accomplishing CITY's on-call needs; and (k) CONTRACTOR has the right to control the manner and means of accomplishing the result desired and exercises its own expert independent judgement.

The supplier named hereon by the acceptance of this order agrees to the provisions of this document titled "Contract Purchase Agreement" and all accompanying terms, conditions, and attachments.

Roseville Business License No. 844050

Contractor License No. 790922

DIR Registration No. 1000000120

Check mark the applicable company type below:

☒ Corporation

☐ Limited Liability Company

☐ Partnership

☐ Sole Proprietor

City Reserves the right to withhold any payments to contractor in the event of noncompliance with insurance requirements or if required by law.

*Construction T&C
REV 3/2/21 JS*

**ATTACHMENT A
HUMAN RESOURCES/RISK MANAGEMENT DIVISION
INSURANCE REQUIREMENTS
AGREEMENT OVER FORMAL BID LIMIT OR INVOLVING HIGH RISK ACTIVITIES**

General - Required Coverage/Documentation

- General Liability: \$1 Million per occurrence /\$2 Million aggregate
- Automobile Liability: \$1 Million combined single limit
- Workers' Compensation: Statutory *Must provide a Waiver of subrogation
- Additional Insured Endorsement (AIE) - General Liability policy: CG 20 38 04 13 or an equivalent, blanket endorsement or section of the policy. Endorsement shall cover the City of Roseville, its officers, agents, employees and volunteers as additional insured.
- Policies must be primary and non-contributory
- A 30 day notice of cancellation must be provided
- List certificate holder as: The City of Roseville - Insurance Compliance, PO Box 100085-R1, Duluth, GA 30096

Additional Liability/Insurance Requirements if required by Agreement (and marked below):

Construction: X

General Liability:
\$2 Million/occurrence
\$4 Million aggregate

Design Professional: _____

General Liability:
\$2 Million/occurrence
\$4 Million aggregate
Professional Liability:
\$2 Million/occurrence

Professional Consultant: _____

Professional Liability:
\$1 Million/occurrence

IT Services: _____

Professional Liability:
\$1 Million/occurrence
No auto required

Hazardous Materials: _____

Pollution Liability:
\$1 Million/occurrence

Special Events/Caterers-Vendors: _____

No auto required
No workers' comp required

Professional Counseling/ Psychological: _____

Professional Liability:
\$1 Million/occurrence
No auto required

Contract Purchase Agreement 3002666

Pyrotechnics: _____

General Liability:
\$5 Million/occurrence
\$10 Million aggregate
Auto - \$2 Million/occurrence

Chemical/Environmental: _____

General Liability:
\$3 Million/occurrence
\$6 Million aggregate
Pollution – \$2 Million/Occurrence
Auto - \$2 Million/Occurrence

Insurance Submission Process

The City of Roseville Human Resources/Risk Management Department uses a service called EBIX to manage our insurance certificate tracking.

How It Works

- The vendor's contact information is entered into EBIX. EBIX will contact the vendor to request proof of insurance.
- The Vendor can forward the request to their Insurance Agent(s) if necessary.
- Vendor/Insurance Agent submits insurance to EBIX by email to roseville@ebix.com or by fax to (770) 325-5727. After faxing or emailing the certificate, please DO NOT send the certificate by mail to EBIX. Please do not mail, email or fax any certificates to the City of Roseville.
- Once submitted, EBIX reviews the insurance documentation. If there are deficiencies, EBIX will send a follow up letter or email requesting additional information.

Questions Regarding Insurance Submission: Contact EBIX at (951) 652-4239

Questions Regarding Insurance Requirements Contact Risk Management at (916) 774-5202

Asbestos-Containing Materials in City-Owned Buildings

California Health and Safety Code Section 25915 requires that all City of Roseville employees, contractors and lessees be notified annually of the presence of asbestos in City-owned buildings constructed prior to 1979. Please post this notice in an area(s) accessible to all employees, contractors and lessees. Contact Facility Maintenance & Operations at (916) 774-5740 for more information about Asbestos Containing Materials (ACMs) in specific City-owned buildings. For more information about asbestos refer to the OSHA website.

The City of Roseville is committed to maintaining a safe and healthy work environment. The City's Facility Maintenance & Operations staff conducts ongoing inspections to identify and safely manage previously installed asbestos-containing products. Renovation of City-owned buildings **MUST** be reviewed in advance by Facility Maintenance & Operations to ensure the City is in compliance with building codes, Americans with Disabilities Act and that no ACMs are disturbed without proper safeguards. Work that requires removal or repair of ACMs is restricted to trained and qualified persons only. **Facility Maintenance & Operations will need to approve the qualified contractors.**

Use the following measures to protect you and others from exposure to airborne asbestos:

- Presume all building materials contain asbestos until determined otherwise by Facility Maintenance & Operations.
- Do not install walls, closets, cabinets, ceilings.
- Do not remove, cut, drill, sand, grind or otherwise disturb any material in the buildings, including carpet and tile.
- Do not paint (this includes any walls, ceilings, floors and electrostatic painting of office furniture).
- Do not remove any items nailed or screwed to the walls (this includes pictures, cabinets, electrical, etc.).
- Do not go above ceilings, behind walls or into building spaces such as attics and crawlspaces unless these areas have been inspected and cleared by Facility Maintenance & Operations.
- Do not pull cable or wiring through above-ceiling spaces with asbestos.
- Do not install screws, pins, nails or hangers into asbestos ceiling or wall plaster.
- Be careful not to damage walls, ceilings or floors when moving furniture or equipment. It is recommended that Facility Maintenance & Operations be contacted prior to moving furniture or equipment.
- Do not brush, sweep or vacuum textured asbestos ceiling plaster or plaster debris.
- Immediately report any damage or deterioration of suspect building materials to Facility Maintenance & Operations or Risk Management.

It is important to note that the presence of asbestos does not mean you have been exposed. Exposure results when friable asbestos particles are inhaled or ingested. Asbestos becomes friable when material containing asbestos is drilled, sanded or disturbed by remodeling or demolition work or when the ACM has deteriorated. Intact, bonded, sealed or undisturbed asbestos does not pose a hazard.

Employees may review the asbestos survey reports, results of bulk sampling or air monitoring conducted in City-owned buildings. All asbestos data will be available by appointment with Facility Maintenance & Operations.

Facilities Built Pre 1979 That May Contain Asbestos	Year Built
Downtown Library - 225 Taylor Street 95678	1974
Carnegie Museum - 557 Lincoln Street 95678	1912
Tower Theatre - 415 Vernon Street 95678	1940
Fire Station #3 - 1300 Cirby Way 95661	1963
Old Corp Yard - 100 Old Corp Yard Road 95678	1940
Water Treatment Plant Operations Bldg.- 9595 Barton Road 95746	1965
Waste Water Treatment Plant Operations Bldg. - 1800 Booth Road 95747	1962
Royer Recreation Bldg. - 190 Park Drive 95678	1950
Fire Museum - 400 Lincoln Street 95678	1930
Diamond Oaks Golf - 349 Diamond Oaks Road 95678	1965
Johnson Pool, 4th & D Street	1950
330 Vernon Street	1940
107 Sutter Avenue	1962

Sign to acknowledge receipt of asbestos notification:

SIGNATURE	
COMPANY NAME	K S Telecom Inc. PO Box 330 Penryn, CA 95663
DATE	12/07/2022

Asbestos
Rev 01/16/19

Supplier

Signature: 

Print Name: Eric Vander Linden

Title: President

Date: 12/07/2022

Supplier

Signature: _____

Print Name: _____

Title: _____

Date: _____

City of Roseville, A Municipal Corporation

Signature: _____

Print Name: **Dominick Casey**

Title: **City Manager**

Date: _____



Barton Road Water Treatment Plant **Fiber Optic Network Upgrade**

RFP 08-100
City of Roseville, CA

Submitted By:
K S Telecom, Inc.
P. O. Box 330
2350 Humphrey Road
Penryn, CA 95663-0330

Prepared By:
Bradley Metcalf
Office Phone: (916) 652-4735
Cell Phone: (916) 476-8310
Email: BradM@KSTelecominc.com

K S Telecom Inc. will perform the services and adhere to the requirements described in:
RFP 08-100
Fiber Project Conduit and Wire Trays
Barton Fiber Project Cable Lengths
Question and Answers Sheet (24 Questions and Answers)



P O Box 330
Penryn, CA 95663-0330
916 652-4735 x 248
www.KSTelecomInc.com
BradM@KSTelecomInc.com

Project Understanding

K S Telecom, Inc. (KST) has read and understands the requirements as set forth in RFP 08-100. We attended the pre-proposal conference and job walk conducted on September 22, 2022. And we submitted Questions 15 through 23, considerably more than any other contractor, to assure our complete understanding of all the intricacies of this project.

KST sees this as a straightforward project like many that we successfully complete each year. The goal of this project is to replace the multi-mode fiber optic network with a more robust and higher bandwidth single-mode fiber optic network. The owner has verified the cable lengths, verified the cable pathways, and verified that the pathways are of sufficient size to accommodate the new single-mode fiber optic infrastructure that will be installed over the existing multi-mode cable plant.

The site will stay up on the existing multi-mode cable plant until the new single-mode cable has been installed, terminated, labeled, and tested. At this point, the owner will cut over to the new single-mode network. Once the owner has verified that all systems are live on the new single-mode fiber optic cables, we will go in and remove the existing multi-mode infrastructure.

In addition to the fiber optic cabling on this project there are (48) short copper station cables to be provided and installed. This as well as the fiber optic cabling is well withing our wheelhouse.

The following items are stated to be needed for this project and have been included in our scope of work:

Our approach to this project will be:

- In Administration, provide and install the 2" cores, cut back the 2" conduits, and provide and install the new ladder rack.
- Provide and install the new 2" conduit, boxes and core for the East Clearwell Building.
- Provide and install the (16) new single mode fiber optic backbone cables.
- Provide and install all of the fiber terminations panels.
- Fusion splice the fiber optic cables.
- Label, test and document the fiber optic cable installation.

- Provide and install the 2" core and 12" wide ladder rack to create a pathway to connect the City Equipment rack to the SCADA rack.
 - Provide and install 24-strands of single mode fiber optic cables from the rack to rack.
 - Provide and install (24) CAT6 cables from rack to rack.
- Provide and install (8) CAT 6 cables for the East Clearwell security panel.
- Provide and install (8) CAT 6 cables for Dewatering downstairs office.
- Provide and install (8) CAT 6 cables for the Dewatering security panel.
- Label, test and document the CAT 6 cable installations.
- Submit closeout documents.
- Demo and remove the old multi-mode fiber optic cables.

A potential challenge for this project is installing the new single mode optical fiber cables in the same pathways that the existing multi-mode fiber optic cables occupy. Extreme care will be exercised to not damage the existing multi-mode fiber optic cables or disrupt service.



P O Box 330
Penryn, CA 95663-0330
916 652-4735 x 248
www.KSTelecomInc.com
BradM@KSTelecomInc.com

Project Plan

K S Telecom, Inc. (KST) has reviewed all of the bid documents.

KST has been designing, providing, installing, testing, certifying, and managing fiber optic projects for 27 years. We are extremely confident that we can provide the best level of service for this project for many reasons. **KST** has installed thousands of miles of fiber over the years, and we have many installers and office staff that are specialized in fiber installation, termination, and testing.

Our approach for tackling this project will be as follows:

- First, schedule an onsite kick-off meeting with the City of Roseville and **KST**. We will discuss materials, site access, work schedule, pathways, installation, termination, labeling and testing.
- Set an anticipated construction schedule.
- Investigate the conduit pathways with the City of Roseville's participation, from the Administration Building to all the end points. We will open manholes and pull boxes to verify pathways as needed.
- Once the pathways are confirmed **KST** will complete the submittals for the project and await the City of Roseville's response prior to ordering material.
- Once the submittals are approved **KST** will order all the materials needed for the project. We assume the longest lead times will be the DIN mounted fiber termination panels, and potentially the fiber optic cables.
- Knowing that some fiber and copper components will have longer lead times **KST** will start by installing the new pathways required, consisting of:
 - The Administration Building - new concrete 3" cores, cut back the 3" conduits, and provide and install the new 12" wide ladder rack to create the pathway to connect the City Equipment rack to the SCADA rack.

- The Dewatering Building - new concrete 2" core and 2" conduit with new STC can and intercept the can at the East Clearwell Building.
- The copper components should have better lead times than the fiber, thus **KST** assumes this will be the second action item to be completed. **KST** will Provide and install the CAT6A cables, consisting of:
 - (8) cables for the East Clearwell security panel.
 - (8) cables for Dewatering downstairs office.
 - (8) cables for the Dewatering security panel.
 - (24) cables from rack to rack within the Administration Building.
 - Label, test and document all CAT6 cable installations.
- Upon arrival of the outside plant fiber optic cable, it will be installed per the design throughout the site, through existing and minor new pathways. The fiber installed will be a mix of 12 and 24 strand single mode fiber as noted in the RFP. It is anticipated that we will hand-pull the new fiber, without the use of a winch or cable tugger. We will provide barricades, safety cones, warning tape, traffic control, etc. as needed at all open pull boxes and pulling points. Cable slack loops will be left at all pull points and termination locations per customer direction.
- 24-Strands of riser rated single mode fiber optic cable from the rack to rack will also be installed in the Administration Building. We typically have this fiber in-stock.
- Once the fiber optic cables are installed, the fiber termination panels will be installed and prepped for splicing.
- Prior to termination **KST** will lace and dress the fiber optic cables into the fiber termination panels. We will fusion splice fiber pigtails onto the fiber optic cables.
- Label, test and document the fiber optic cable installation. The fiber optic cables will be tested utilizing industry standards and a Fluke level 4 or greater power meters.
- Submit for the manufacturer's extended warranty.
- Submit closeout documents, including fiber and copper test results, and **KST's** warranty letter.
- Electronically deliver manufactures warranty once approved.
- Demo and remove the old multi-mode fiber optic cables, from the headend(s) to the outboard ends once the customer has completed the cutover to the new fiber.

Anticipated Work Duration Schedule

Task	Duration
Preliminary meeting and pathway investigation	2 days
Providing submittal and submittal review	2 weeks
Order materials	2 Days
Anticipated material receiving	1 to 12 weeks
Install cores, conduit pathways and ladder rack	4 days
Install, terminate and test CAT6A cables	6 days
Install fiber optic cables	10 days
Install fiber optic termination components	1 day
Terminate, label and test fiber optic cables	7 days
Prepare and deliver test results and as-built drawings	3 days
Demo multi-mode fiber	2 days

The names and certifications for the crew who will be assigned to this project are included in Tab C.



916-652-4735
P. O. Box 330
Penryn, California 95663-0330
www.KSTelecomInc.com
BradM@KSTelecomInc.com

October 20, 2022

Barton Road Water Treatment Plant

Fiber Optic Network Upgrade

K S Telecom, Inc. (KST) is pleased to provide this cost proposal for the installation of the new fiber optic backbone cables and Category 6A data cables for the City of Roseville, Barton Road Water Treatment Plant. The project is located at 9595 Barton Road, Granite Bay, CA.

This cost proposal is based upon the following bid documents:

- RFP 08-100
- The mandatory pre-proposal and conference/job walk conducted on 10/22/22, including the site plan provided at the job walk
- The Barton Fiber Project Cable Lengths spreadsheet
- The Fiber Project Conduit and Wire Trays pictures
- The Questions and Answers posted on the Public Purchase website

KST has four (4) BICSI RCDD's on staff, one of which will oversee this project. Additionally, we employ many BICSI accredited technicians and installers who can be assigned to this project.

SCOPE OF WORK:

KST will provide, install, terminate, label, test, certify, document, and warranty the installation of the single mode fiber optic backbone cables connecting the buildings and PLC's together. We will provide, install, terminate, label, test, certify, document, and warranty the installation of the Category 6A data cables.

A brief summation of the major components of our scope of work is hereby provided.

Fiber Optic Backbone Cabling:

We propose to provide and install outside plant rated single mode fiber optic backbone cables, equivalent to Corning ALTOS Loose Tube, in the lengths stated in the Barton Fiber Project Cable Lengths spreadsheet. Our proposal is for a Belden or Berk-Tek/Leviton solution, based upon availability.

The industry is experiencing a severe shortage of fiber optic cables. This is true of most, if not all manufacturers. It is difficult, if not almost impossible to find fiber in-stock in large quantities. If we are awarded this contract, we will check the availability of the above stated manufacturers before we choose a solution. As of right now, Belden seems to have the best availability.

The following fiber optic backbone cables are included in our scope:

FIBER			Total cable length
Landing point	# of strands	Approx. cable length in feet	
12KV Switchgear	12	1050	15610
Front Gate	12	1275	
Front Camera	12	1575	
East Clearwell	12	670	
Reclaimed Water	12	925	
Dewatering Bldg. PLC Cabinet	24	950	
Dewatering Bldg. Centrifuge PLC cabinet	12	100	
Sed. Basin 1	12	1320	
Sed. Basin 2	12	1430	
Sed. Basin Camera Pole	12	1530	
Chemical Bldg. PLC cabinet	12	1795	
Chemical Bldg. Security Panel	12	75	
Cell Tower Camera Pole	12	850	
Filter PLC-9	12	770	
Filter PLC-8	12	845	
Filter PLC-6	12	400	
City network comm rack	24	50	

Copper Station Cabling:

KST will provide and install the following plenum rated Category 6A data cables as stated in the Barton Fiber Project Cable Lengths spreadsheet.

COPPER			Total cable length
Landing point	# of cables	Approx. cable length in feet	
City Comm Rack	24	50	2400
East Clearwell Security panel	8	50	
Dewatering downstairs office	8	50	
Dewatering security panel	8	50	

Pathways:

All the underground conduits and pull boxes are already in-place. We are not installing any new underground conduits. We are however providing and installing the following new pathways:

1. In Administration:
 - a. Provide (3) 2" cores through the cinderblock wall to connect the room with the SCADA rack to the adjacent room with the City Equipment rack.
 - b. Cut back (3) 2" conduits and reinstall sleeves through the new cores.
 - c. Install 12" wide ladder rack in the SCADA room and in the City Equipment room.
 - d. This work will be completed in accordance with the drawings provided.

2. At the East Clearwater Filter Gallery:
 - a. Provide (1) 2" core and (1) NEMA 3R box.
 - b. Install approximately 40' of new 2" rigid conduit from the new NEMA 3R box to intercept pull can 3JB-12S.
 - c. Remove the "candy cane" conduit and install a new direct conduit.
 - d. Install (1) 2" pass through between the Siemens cabinets shown in the picture.
 - e. This work will be completed in accordance with the drawings provided.

PRICING:

The base price for the scope of work listed above is \$97,900.00

- This price includes tax.
- This price is based upon working during normal construction hours, typically Monday through Friday, between the hours of 6 AM and 5:00 PM.
- This cost proposal will remain valid for 120 days from the bid date. If we have not received a contract or purchase order prior, we reserve the right to requote or amend our scope of work and price due to potential material and/or labor price increases.

The Add Option 1 price for single mode fiber patch cords listed below is \$890.00

- This price includes (34) duplex LC 2-meter single mode fiber patch cords.
- This price includes tax.
- This price include installation.

	Rate	%
Journeyman	\$125.00	55
Apprentice	\$100.00	35
RCDD	\$150.00	2
Project Manager	\$100.00	8

The City of Roseville will not be subject to any reimbursable expenses from **KST**.

WARRANTY INFORMATION:

K S Telecom, Inc. warrants all materials and craftsmanship installed or performed by **KST** to be free from defects for a period of one (1) year from the date of substantial completion. **KST** shall repair or replace, at its sole discretion, all defective materials and/or craftsmanship at no charge to the customer, excluding damage because of negligence, abuse, misuse, and/or acts of God. Normal and customary service charges shall apply for the diagnosis of repair or non-warranted defects. Any changes to LAN/WAN configuration or programming after acceptance is the responsibility of the customer.

A manufacturer's extended warranty will be provided.

KST's Information:

C-7, Contractor License #: 790922

Expires 02/28/2023

DIR# 1000000120

CONCLUSION:

Thank you for your time and consideration. We look forward to working with you in making this a successful project.

Please feel free to contact me if you have any questions.

Cordially,

A handwritten signature in black ink that reads "Bradley Metcalf, Sr." The signature is written in a cursive style with a large, stylized 'B' and 'M'.

Bradley (Brad) Metcalf
Sales/Project Manager

[K S Telecom, Inc.](#)

PO Box 330

Penryn, CA 95663

Office: (916) 652-4735 X248

Cell: (916) 975-4830

bradm@KSTelecomInc.com



COUNCIL COMMUNICATION

CC #: 2513
File #: 0203-09

Title: Regional Pump Station 26 Force Main and Capacity Improvement Project - Approval of Plans and Specifications and Authorization to Call for Bids
Contact: Rana Moore 916-774-5581 rcmoore@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.2.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council:

1. Approve the Project's construction plans and specifications.
2. Authorize staff to advertise the Project and accept bids from prospective bidders.

BACKGROUND

The City of Roseville's sewer system hydraulic model indicates that the South Placer Wastewater Authority (SPWA) trunk sewer on Old Auburn Road could be subject to overflows, and that this capacity deficiency will be further exacerbated under buildout development.

Woodard and Curran was commissioned by the City of Roseville to conduct an analysis comparing multiple options to correct the capacity issue. The scope of this project incorporates recommendations from this analysis to improve capacity and dependability of Pump Station 26 and surrounding force mains.

This project is located along Sierra College Boulevard near Old Auburn Road and Eureka Road in Roseville, California. The work to address the capacity deficiency covers the upsizing of existing 8" and 10" polyvinyl chloride (PVC) gravity sewer pipes, installation of a new weir manhole, a new pump, and electrical improvements to Pump Station 26 located at 9705 Sierra College Blvd., Roseville, CA 95661.

The majority of the sewer main improvements will be done via trenchless pipe bursting methods, resulting in significant cost savings and a minimization of traffic disruptions.

A copy of the plans and specifications are included as part of this agenda package.

FISCAL IMPACT

The total cost for this construction project is estimated to be \$2,940,000, which includes the construction cost, contingency for potential change orders, and secondary labor. Funding is provided by the SPWA.

ENVIRONMENTAL REVIEW

The proposed project involves conversions to a small facility. This activity is categorically exempt from CEQA as a Class 3 Exemption (State CEQA Guidelines Section 15303). The proposed project also involves minor alteration in the condition of the land, which will not remove healthy, mature scenic trees. This activity is categorically exempt from CEQA as a Class 4 Exemption (State CEQA Guidelines Section 15304). The Exemption has been prepared and no further CEQA action is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Rana Moore, Associate Engineer

Richard Plecker, Environmental Utilities Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Project Manual Part 1

Project Manual Part 2

Project Manual Part 3

Supplemental Material - Biological Review

Supplemental Material - Geotechnical Report



Buildings & Grounds

Project Manual

Project:
Regional Pump Station 26 and Force Main Capacity Improvement

Department:
Environmental Utilities



PROJECT MANUAL

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CITY OF ROSEVILLE
DEPARTMENT OF ENVIRONMENTAL UTILITIES
REGIONAL PUMP STATION 26 AND FORCE MAIN CAPACITY IMPROVEMENT

NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN THAT sealed Proposals will be received at the Office of the City Clerk, 311 Vernon Street, Roseville, California, until Monday March 13, 2023 at 3:00 p.m. Late Proposals will be rejected. No exceptions.

The Proposals will be publicly opened and read by the City Clerk or designee of the City of Roseville at 3:05 p.m. on Monday March 13, 2023 at the Office of the City Clerk located at 311 Vernon Street, Roseville California for the following project: Regional Pump Station 26 and Force Main Capacity Improvement.

An optional pre-bid meeting will be held at 2005 Hilltop Circle Roseville, CA 95747 at 10am on Thursday February 16, 2023.

A Project Manual, including all Contract Documents and the Proposal forms for bidding this project, may be obtained on-line from the City of Roseville's website at www.roseville.ca.us/business/procurement_services/bids_rfps or directly at www.publicpurchase.com. All communications relative to this project shall be conducted through Public Purchase.

Bids shall be submitted on the City's Proposal Forms included in the Project Manual, plainly endorsed with the Bidder's name together with signed acknowledgement of any and all addenda. Proposal Forms shall be securely sealed in a suitable envelope marked with the name and address of the Bidder, and marked in capital letters on the front and back of the envelope as

follows:

RFP # 08-109 Regional Pump Station 26 and Force Main Capacity Improvement (Name of Bidder) (Address of Bidder)
--

Whether mailed or personally delivered, all bids shall be addressed to the City of Roseville, Office of the City Clerk, 311 Vernon Street, Roseville, California, 95678.

Each bid must be accompanied by a Bid Guaranty in the form of a Certificate of Deposit, Certified or Cashier's Check, Bidder's Bond or Irrevocable Standby Letter of Credit in an amount equal to at least ten percent (10%) of the Bidder's Grand Total Price. The Bid Guaranty will be retained by the City and applied to any and all damages sustained by the City in the event that the successful Bidder fails or refuses to enter into the Contract awarded to it and to furnish all required bonds and Certificates of Insurance. The City intends to award the Contract to the lowest responsible Bidder based on the Grand Total Bid Price for all components of the Project. To the extent allowed by law, the City reserves the right to reject any and all bids and/or to waive any irregularities or informalities in any bid or in the bidding procedure. The City specifically reserves the right to not award the Contract after the opening of bids.

Any bid may be withdrawn at any time prior to the time fixed in the public notice for the deadline submission of bids only by written request for the withdrawal of the bid filed with the City Clerk. The request shall be executed by the Bidder or his or her duly authorized representative. The withdrawal of a bid does not prejudice the right of the Bidder to file a new bid by the submission deadline. Whether or not bids are opened exactly at the time fixed in the public notice for opening bids, a bid will not be received after the deadline submission of bids nor may any bid be withdrawn after the time fixed in the public notice for deadline for

submission of bids. Immediately following the deadline for submission of bids all bids shall become the property of the City of Roseville and the City is under no obligation to return bids.

Bids will be examined and reported to the City Council within sixty (60) business days after the bid opening. Except as permitted by applicable law, no Bidder may withdraw its bid for a period of sixty (60) business days after the date of bid opening. Each Bidder will be notified of any award of the Contract by the City.

The City will affirmatively ensure non-discrimination on the basis of one or more of the following: race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, age, sexual orientation, or military and veteran status in the award and administration of contracts that it awards.

Pursuant to Public Contract Code Section 22300, the successful Bidder may submit certain securities in lieu of the City withholding retention of payments during the Project.

The City has determined that the Contractor shall possess a valid Class A, General Engineering Contractor's license at the time that the bid is submitted, as well as any other license classification as may be required by the laws of the California for the performance of the work specified in the Contract Documents. Said license shall be maintained during the Contract period. Failure to possess the specified license shall render the bid nonresponsive and will act as a bar to the award of the Contract to any Bidder not possessing such a license at the time of bid submittal. The Contractor shall provide certification of the license, its number and the expiration date on the proposal form.

The work is to be done in Placer County. Pursuant to California Labor Code Section 1773, the City has ascertained the General Prevailing Rate of Wages in the County in which the work is to be done to be as determined by the Director of Industrial Relations of the State of

California. The Contractor is hereby made aware that information regarding prevailing wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>. The Contractor is required to post a copy of the applicable wage rates at the job site. Attention is directed to Section 5 “Legal Relations and Responsibility” of the General Conditions.

Pursuant to Labor Code Section 1771.1(b), notice is hereby given that a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in Labor Code Sections 1720, et seq., unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5 or exempt from registration requirements pursuant to Labor Code Section 1725.5(f). It is not a violation of Labor Code Section 1771.1 for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform work pursuant to Labor Code Section 1725.5 at the time the contract is awarded or is exempt from registration requirements pursuant to Labor Code Section 1725.5(f). The Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

All questions prior to the deadline for bid submissions must be submitted via the Public Purchase website at <https://www.publicpurchase.com>. The deadline for submissions of questions and clarifications regarding the Contract Documents is ten (10) calendar days before the deadline for bid submissions. Only Addenda issued by the City are binding.

City Clerk, City of Roseville

Dated: _____

Published: _____

INSTRUCTIONS TO BIDDERS

SECTION 1. GENERAL

1-1.01 **GENERAL.** These Instructions to Bidders form a part of the Contract Documents. Capitalized terms are defined in the General Conditions Section 1.

1-1.02 **EXAMINATION OF PLANS, CONTRACT DOCUMENTS AND SITE OF THE WORK.** The Bidder shall examine carefully the site of the Work and all the Contract Documents, including these Instructions to Bidders, and shall inform itself of the conditions relating to the execution of the Work. Failure to do so will not relieve the successful Bidder of its obligation to enter into an Agreement and complete the Work in strict accordance with the Contract Documents. Conditions relating to the execution of the Work include the requirements of federal, state, and local laws, statutes and ordinances relative to the execution of Work, including, but not limited to, applicable regulations concerning prevailing wage rates, non-discrimination in the employment of labor, protection of the public, employee health and safety, and environmental protection.

The submission of a bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work to be performed, the quantities of materials to be furnished, and as to the requirements of all the Contract Documents.

1-1.03 **EXISTING INFORMATION.** Where the Department has made investigations of site conditions, including subsurface conditions in areas where Work is to be performed under the Contract, such investigations are made only for the purpose of study and design. City does not represent that such conditions as found in these investigations or inferences or conclusions drawn as a result of these investigations will represent actual site

conditions and hereby disclaims any liability as a result of Contractor's or Bidder's reliance on such investigations. City will presume that all Bidders have conducted their own site investigations, and reviewed all available supplemental materials. Where such investigations have been made, Bidders or Contractors may, upon written request, inspect the records of the Department as to such investigations subject to the conditions set forth in these Instructions to Bidders. Such inspection of records, if they exist, have been uploaded to the Public Purchase website for this RFP as "supplemental materials". The supplemental materials are not a part of the Contract Documents and are shown solely for the convenience of the Bidder or Contractor. The City assumes no responsibility whatsoever with respect to the sufficiency or accuracy of the investigations made, the records thereof, or of the interpretations set forth therein or made by the City in its use thereof. The City makes no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records are representative of those existing throughout such areas, or any part thereof, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated, may not be encountered.

No information derived from such inspection of records of investigations or compilation thereof made by the City, the Department or from the Engineer, or his or her assistants, will in any way relieve the Bidder or Contractor from properly examining the site and making such additional investigations as it may elect, or from properly fulfilling the terms of the Contract.

SECTION 2: BID REQUIREMENTS

2-1.01 **PROPOSAL FORMS.** The Department will furnish to each Bidder standard Proposal Forms (included in this document under section PROP), which, when filled out and executed may be submitted as the bid. Proposals shall include all pages in the Project Manual with page numbers marked “PROP” plus the Addendum acknowledgment form (front sheet) from all Addenda received by the Bidder. Proposals shall be removed from the Project Manual. The full Project Manual shall not be submitted with the proposal. Bids not presented on forms so furnished will be disregarded.

The Proposal and one (1) copy thereof shall be submitted as directed in the “Notice to Contractors” under sealed cover plainly marked as a Proposal, and identifying the project to which the Proposal relates and the date of the bid opening therefor. Proposals which are not properly marked may be disregarded.

All blank spaces in the Proposal must be completed, as required, in ink. All price information shall be shown, clearly legible, in figures where required.

The Bidder shall sign the Proposal in the blank space provided therefor. If the Bidder is the sole owner, the Proposal shall be signed by the owner. If the Bidder is a corporation, the legal name of the corporation and its State of incorporation shall be set forth and the Proposal shall be signed by at least two officers authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, the true name of the firm shall be set forth, the names and addresses of all partners shall be given and the Proposal shall be signed by a partner in the firm authorized to sign contracts on behalf of the partnership. If the Bidder is a joint venture, the Proposal shall be signed on behalf of each participating company by officers or other individuals who have the full and proper authorization to do so. If the Proposal is signed by an agent of the

Bidder other than an officer of a corporation or a member of a partnership, a notarized Power of Attorney must be on file with the City prior to opening of bids or must be submitted with the Proposal. If requested by the City, the Bidder shall promptly submit evidence satisfactory to the City of the authority of the person signing the Proposal.

2-1.02 **SUBMISSION OF BIDS.** Bids must be submitted at the prescribed time and location specified in the Notice to Contractors. Any submission received after the prescribed time shall be rejected, regardless of whether or not bids are opened exactly at the prescribed time.

Any unauthorized conditions or qualifications entered on, or changes made to, the Proposal may render it invalid and may cause its rejection.

No telegraphic, telephonic, or facsimile or other electronically transmitted bids will be considered.

2-1.03 **REQUIRED LISTING OF PROPOSED SUBCONTRACTORS.** Each Proposal shall list the name, address and Contractor license number of each Subcontractor to whom the Bidder proposes to subcontract portions of the Work in an amount in excess of one-half of one percent (0.5%) of its total bid, in accordance with Section 4100 to 4114, inclusive, of the Public Contract Code for the State of California. The Bidder shall list the Subcontractor's license number and the portion of the Work that will be done by each Subcontractor. If the Bidder fails to specify a Subcontractor for any portion of the Work, the Bidder agrees to perform that portion of the Work itself, and represents that it is qualified to perform that portion of the Work itself. The Bidder's attention is invited to other provisions of the Public Contract Code related to the imposition of penalties for a failure to observe its provisions by using unauthorized Subcontractors or by making unauthorized substitutions.

2-1.04 **CONTRACTOR'S LICENSING LAWS.** Attention is directed to the provisions of Business and Professions Code Chapter 9 of Division 3 concerning the licensing of Contractors.

All Bidders at the time of bid submittal shall be licensed as Contractors in accordance with the laws of this State. Any Bidder or Contractor not so licensed is subject to the penalties imposed by such laws. The form of Contractor's license required is stated in the Notice to Contractors, provided that the City makes no representation as to whether the State may require other or additional licenses. It is the Bidder's and Contractor's responsibility to obtain the correct Contractor's licenses. Bidders shall be skilled and regularly engaged in the general class or type of Work called for under this Contract.

All Bidders and Contractors, including Subcontractors, shall have a current City business license before undertaking any Work.

2-1.05 **NONCOLLUSION DECLARATION.** By submitting a bid, the Bidder represents and warrants that such bid is genuine and not a sham or collusive or made in the interest or on the behalf of any person therein named, and that the Bidder has not, directly or indirectly, included or solicited any other Bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the Bidder has not in any manner sought collusion to secure the Bidder an advantage over any other Bidder.

Bidders shall submit a properly completed and executed "Noncollusion Declaration" in the form required by Public Contract Code Section 7106 and provided with the Proposal (PROP-12).

2-1.06 **DISQUALIFICATION, REMOVAL OR OTHER PREVENTION OF BIDDING.** A bid may be rejected on the basis of a Bidder, any officer of such Bidder, or any

employee of such Bidder who has a proprietary interest in such Bidder, having been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local project because of a violation of law or a safety regulation.

2-1.07 **PROPOSAL GUARANTY.** All bids shall be accompanied by one of the following forms of Bidder's security: Cash, a cashier's check, a certified check, or a Bidder's bond executed by an admitted California surety insurer, made payable to the City of Roseville, or any other form of security deemed acceptable by the City Attorney. The security shall be in an amount equal to at least ten percent (10%) of the amount bid. A bid will not be considered unless one of the form of Bidder's security is enclosed with it.

A Bidder's bond shall conform to the City's bond form in the Proposal and shall be properly filled out and executed.

2-1.08 **SCHEDULE OF BID PRICES.** Bidders are directed to submit unit and lump sum prices for all Work set forth in the Contract Documents on the Proposal Form entitled "Schedule of Bid Prices."

Unit prices and lump sum prices, as indicated, must be entered in the appropriate spaces provided in the Schedule of Bid Prices. If applicable, unit prices shall be multiplied by the quantities shown, and the total shall be inserted in the Amount column. In the event of any error or discrepancy between the unit price and the calculated amount, the unit prices shall govern. The City may correct any mathematical errors apparent on the face of the bid.

The amounts shown in the Amount column must be added together in arriving at the Grand Total Bid Price.

Amounts for Allowance bid items must be entered in the exact amount in the Amount column.

The prices included within the Schedule of Bid Prices shall include all costs for labor, materials, tools, equipment, services, Subcontractors, suppliers, taxes, insurance, shipment, delivery, overhead, profit, and all other costs necessary to perform the Work in accordance with the Contract Documents.

The Grand Total Bid Price shall be indicated in the Summary table form included with the Schedule of Bid Prices. The Grand Total Bid Price shall be the sum of the amounts bid for each of the designated portions of the Work, as more specifically described on the Schedule of Bid Prices form itself.

Full compensation for complying with the Contract Documents, including requirements of the Standard Specifications, the General Conditions, Supplemental Conditions, and all warranties, shall be considered included in the bid items and no additional compensation shall be allowed therefor.

Full compensation for completion of all work as shown on the plans, as specified in the Specifications, and as directed by the City, shall be considered included in the bid items and no additional compensation shall be allowed.

Bidders are strongly discouraged from submitting unbalanced bids. As used herein, the term “unbalanced bid” is defined as any bid that does not include a reasonable proportionate allocation of indirect costs and profit of each bid item indicated in the Schedule of Bid Prices. The City reserves the right to reject any unbalanced bid if the City determines that there is a reasonable doubt that an acceptance of the bid will not result in the lowest ultimate cost to the City with regard to the work or a disproportionate distribution of contract funds.

The City reserves the right to delete any bid item in its entirety and/or significantly reduce the quantity of Work under a bid item. The City makes no representation that any Work

under a bid item will be performed during the course of the Project or that the Work will be performed at the quantities included in the Schedule of Bid Prices. As provided in the General Conditions, for any deleted Work, Contractor shall not be entitled to payment of the indirect costs and profit included for said bid item. All bid items shall be considered distinct and severable from the remaining bid items, and each Bidder acts at its peril if its bid is unbalanced.

The City shall compare bids on the basis of the Grand Total Bid Price, which includes the base bid and any alternates designated on the Schedule of Bid Prices. Alternates may or may not be awarded, or may be awarded in any combination, at the City's discretion.

2-1.09 **WITHDRAWAL OF PROPOSALS.** Any bid may be withdrawn at any time prior to the time fixed in the Notice to Contractors for the opening of bids, provided that a request in writing, executed by the Bidder or its duly authorized representative, for the withdrawal of such bid is filed with the City Clerk. Facsimile and electronic mail requests are not acceptable. The withdrawal of a bid shall not prejudice the right of a Bidder to file a new bid. The withdrawal of any bid after the time fixed in the Notice to Contractors for the opening of bids will not be permitted.

2-1.10 **ADDENDUM.** Proposals shall include all costs and account for all Addenda issued prior to opening of bids. The Bidder is responsible for verifying that all issued Addenda have been received. An Addendum acknowledgment form for each Addendum shall be included as part of the Proposal submittal.

2-1.11 **PUBLIC OPENING OF PROPOSALS.** Proposals will be publicly opened and read at the time and place indicated in the Notice to Contractors. Bidders or their authorized agents are invited to be present.

2-1.12 **TRENCHING AND EXCAVATION WORK.** In accordance with the

provisions of California Labor Code Section 6707, if the Work involves construction of a pipeline, sewer, sewage disposal system, boring or jacking pits, or similar trenches or open excavations, which are five feet (5') or deeper, each bid submitted shall contain, as a bid item, adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which shall conform to all applicable safety orders.

SECTION 3: EVALUATION OF BIDS

3-1.01 **BID EVALUATION PROCESS.** Bids will be evaluated to determine the apparent low Bidder. The apparent low Bidder will be determined on the basis of the Grand Total Bid Price, as shown in the Schedule of Bid Prices. If additive or deductive alternates are used in the Schedule of Bid Prices, the apparent low Bidder will be the Bidder with the lowest total of the bid prices for base contract items plus the alternates designated by the City as those that will be used for determining the lowest bid price. However, the City reserves the right to (1) not award any alternates or (2) award any combination of alternates.

In case of discrepancy between the total of the base contract items and any specified alternates and the stated Grand Total Bid Price, the total of the base contract items plus specified alternates shall prevail. Any mathematical errors that appear on the face of the bid will be corrected by the City and the City will use the mathematically corrected addition. For example, if the mathematical total of Bidder's base contract items plus specified alternates equals \$1,000,000, but the Bidder has written \$1,250,000 as the Grand Total Bid Price, the City will consider \$1,000,000 to be the Bidder's Grand Total Bid Price for purposes of comparison to other Bidders and actual bid award. The City reserves its rights to reject or accept bids based on discrepancies between the stated Grand Total Bid Price and the actual mathematical total of the

base contract bid items, plus specified alternates.

3-1.02 **REJECTION OF IRREGULAR PROPOSALS.** Proposals may be rejected in the City's sole discretion if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind. However, the City reserves the right to waive any minor irregularities and informalities in any bid or in the bid procedure for any reason.

3-1.03 **COMPETITIVE BIDDING.** If more than one proposal is offered by any individual, firm, partnership, corporation, association, or any combination thereof, under the same or different names, all such proposals may be rejected. A party who has quoted prices on materials or Work to a Bidder is not thereby disqualified from quoting prices to other Bidders, or from submitting a bid directly for the materials or Work.

All Bidders are put on notice that any collusive agreement to control or affect the awarding of this Contract is in violation of the competitive bidding requirements of the City Charter, State Contract Act and the Business and Professions Code and may render void any Contract let under such circumstances.

3-1.04 **RELIEF OF BIDDERS.** If the Bidder claims a mistake was made in its bid, the Bidder shall give the Department written notice within five (5) Days after the opening of the bids of the alleged mistake, specifying in the notice in detail how the mistake occurred. No relief from a claimed mistaken bid shall be granted unless such mistake clearly appears on the face of the bid submitted to the City. Claimed mistakes on backup worksheets, spreadsheets, computerized bidding programs, or any other similar calculative bidding mistake which is not apparent on the face of the bid shall not under any circumstance be considered as a basis for relief. The burden of proving the occurrence of a mistake entitling a Bidder to relief from its bid

rests entirely on the Bidder. Relief from bids shall be in the City's sole discretion.

SECTION 4: AWARD AND EXECUTION OF CONTRACT

4-1.01 **AWARD OF CONTRACT.** The City reserves the right to reject any and all proposals and to award (or not award) any combination of bid items at its option. Any such award will be to the lowest responsible Bidder whose proposal complies with the requirements prescribed for the bid items awarded. Such award, if made, will be made within sixty (60) business days after the opening of the proposals. If the lowest responsible Bidder refuses or fails to execute the Contract, or provide an acceptable Performance Bond, Payment Bond, and insurance certificate(s), the City may award the Contract to the second lowest responsible Bidder. Such award, if made, will be made within eighty-two (82) business days after the opening of proposals. If the second lowest responsible Bidder refuses or fails to execute the Contract, or provide an acceptable Performance Bond, Payment Bond, and insurance certificate(s), the City may award the Contract to the third lowest responsible Bidder. Such award, if made, will be made within one hundred four (104) business days after the opening of the proposals. The above time periods within which the award of Contract may be made are subject to extension for such further period as may be agreed upon in writing between the City and the Bidder concerned.

4-1.02 **RETURN OF BIDDER'S SECURITIES.** Within ten (10) Days after the award of the Contract, the City Clerk will return all Bidders' securities, other than Bidders' bonds, accompanying the proposals that are not to be further considered in making the award. Retained Bidders' securities will be held until the Contract has been fully executed, after which all Bidders' securities, except Bidders' bonds and any Bidders' securities that have been forfeited,

will be returned.

4-1.03 **CONTRACT BONDS.** The successful Bidder shall furnish two (2) bonds in the form contained in the section entitled Insurance Broker Information Packet and Bonds. One (1) bond shall secure the payment of the claims of laborers, mechanics or materialmen employed on the Work under the Contract, and the other bond shall guarantee the faithful performance of the Contract.

Each of the two (2) bonds shall be in a sum equal to one hundred percent (100%) of the Contract Price. If the Contract Price increases by the issuance of Change Orders, the penal amounts of the bonds required shall increase accordingly. Sureties on each of said bonds shall be satisfactory to the City.

All alterations, extensions of time, extra and additional Work, and other changes authorized by the Standard Specifications, the General Conditions, the Supplemental Conditions or any part of the Contract may be made without securing the consent of the surety or sureties on the Contract bonds.

Furthermore, the successful Bidder shall furnish a certificate from the County Clerk as required by California Civil Code of Procedure Section 995.660(a)(3).

4-1.04 **INSURANCE.** At the time of the execution of the Contract, the Contractor shall, at its own expense, procure, and at all times during the prosecution of the Work maintain in full force and effect Worker's Compensation Insurance, and Liability Insurance as specified in the General Conditions. The Contractor shall provide a Certificate of Insurance in the form contained in the section entitled Insurance Broker Information Packet.

4-1.05 **EXECUTION OF CONTRACT.** The Contract shall be signed by the successful Bidder and returned, together with all the required Contract bonds and insurance

certificates, within fifteen (15) Days after the Contract has been awarded, or as otherwise directed, in writing, by the City.

If the Bidder is an individual, the Contract shall be executed personally by the Bidder. If the Bidder is a partnership, it is desirable that the Contract be executed by all of the partners, but it may be executed by one of them. If the Bidder is a corporation, it must be executed by two officers of the corporation consisting of (1) the chairman of the board, president or vice president; and (2) the secretary, assistant secretary, chief financial officer, treasurer or assistant treasurer, or by a person authorized by the corporation to execute written contracts on its behalf, and the corporate seal affixed thereto. In the alternative, a person other than an officer may sign the Contract, provided evidence satisfactory to the City is provided indicating the individual's authority to bind the corporation. If the corporate seal is not affixed to the Contract, or if it is executed by a person other than officers, or only by one officer, there must be attached to the Contract a certified copy of a resolution of the corporation authorizing such officer or person to execute written contracts for and on behalf of the corporation. If the Bidder is a joint venture, the Contract must be executed on behalf of each participating firm by officers or other individuals who have the full and proper authorization to do so.

4-1.06 **FAILURE TO EXECUTE CONTRACT.** Failure of the lowest responsible Bidder, the second lowest responsible Bidder, or the third lowest responsible Bidder to execute the Contract and file acceptable bonds and insurance as provided within fifteen (15) Days after the Contract has been awarded, or as otherwise directed, in writing, by the City, shall be just cause for annulment of the award and forfeiture of the Bidder's security. The successful Bidder may file with the City Clerk a written notice, signed by the Bidder or Bidder's authorized representative, specifying that the Bidder will refuse to execute the Contract if presented to

Bidder. The filing of such notice shall have the same force and effect as the failure of the Bidder to execute the Contract and furnish acceptable bonds within the time prescribed.

SECTION 5: BID PROTEST PROCEDURES

5-1.01 **POLICY/PROCEDURES.** It is the policy of the City to consider fully and adjudicate promptly protests filed by prospective Bidders relating to the City's bidding procedure or award of the Contract. Protests shall be filed and processed in accordance with Section 4.12.150 of the Roseville Municipal Code. A Bidder's failure to follow the bid protest procedures may result in rejection of the protest by the City.

PROPOSAL

PROPOSAL TO THE DEPARTMENT OF ENVIRONMENTAL UTILITIES

for

Regional Pump Station 26 and Force Main Capacity Improvement

Name of Bidder _____ Business Phone _____

Business Address _____

Place of Business _____

Contractor's License No. _____

License Expiration Date _____

License Classification Type _____

DIR Registration No. _____

Type of business organization: _____

*If a Corporation, incorporated under the laws of the State of: _____

City of Roseville Business License No. _____

The undersigned Bidder herewith submits this Proposal and binds itself on award by the City of Roseville under this bid to execute a Contract in accordance with its bid and the Contract Documents.

The Notice to Contractors, Instructions to Bidders, Form of Agreement, Specifications, General Conditions, Supplemental Conditions, Contract Drawings, and Addenda, if any, are

made part of this bid and all provisions thereof are hereby accepted, and all representations and warranties are required thereby are hereby affirmed.

The work to be done is described in the Bidding Documents entitled Regional Pump Station 26 and Force Main Capacity Improvement, City of Roseville, California.

This offer shall be irrevocable for a period of sixty (60) Days after the date on which bids are opened.

The undersigned Bidder understands that any clarification made to the above or any new and different conditions or information submitted on or with its Proposal, other than that requested, may render the bid non-responsive.

The undersigned, as Bidder, declares that the only persons or parties interested in this Proposal as principals are those named herein; that this Proposal is made without collusion with any other person, firm, or corporation; that the Bidder has carefully examined the location of the proposed Work, the attached Form of Agreement, and the plans, Specifications, and other Contract Documents; and agrees if this Proposal is accepted, that it will contract with the City of Roseville, in the form of a copy of the Agreement contained in the Project Manual, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the Contract Documents, in the manner and time therein prescribed, and according to the requirements of the Director, as therein set forth, and that the Bidder will take in full payment therefore prices indicated in the Schedule of Bid Items, including all work modified by addendum numbers _____. (IF NONE, STATE NONE).

Bids are required for all Bid Items. The amount of the Bid for comparison purposes will be the total of all items awarded.

The Bidder shall set forth for each item of work, in clearly legible figures, an item (“unit”) price and a total for the item in the respective spaces provided for this purpose in the Schedule of Bid Items.

The prices included within the Schedule of Bid Items include all costs for labor, materials, tools, equipment, services, Subcontractors, suppliers, taxes, insurance, shipment, delivery, overhead, profit, and for all other costs necessary to perform the Work in accordance with the Contract Documents.

Accompanying this Proposal is _____.

(Notice: Insert the words “Cash \$ _____,” “Cashier's Check,” “Certified Check,” or “Bidder's Bond,” as the case may be, in an amount equal to at least ten percent (10%) of the total of the Bid.)

The names of all persons interested in the foregoing Proposal as Principals, are as follows: _____

If SOLE OWNER, execute here:

I sign as sole owner of the business named above:

If PARTNERSHIP, one or more partners sign here:

The undersigned certify that we are partners in the business named above and that we sign this

bid with the full authority to do so:

If CORPORATION, execute here:

Corporate Name: _____

Incorporated under the laws of the State of _____

The undersigned certify that they sign this bid with the full and proper authorization so to do:

By _____ By _____

*Signature of Authorized Official**

*Signature of Authorized Official**

Title

Title

Typewritten or Printed Name

Typewritten or Printed Name

If JOINT VENTURE, execute here:

Joint Venture name composed of: _____

The undersigned certify that they sign this bid with the full and proper authorization so to do:

*Signature of Authorized Official**

*Signature of Authorized Official**

Title

Title

Typewritten or Printed Name

Typewritten or Printed Name

*If Bidder is a partnership or Joint Venture, give the full names of all partners and/or Joint Ventures in the space provided (use additional sheet if required). If Bidder is a corporation, two signatures are required as follows: (1) the Chairman, President, or Vice-President and (2) the Secretary, Assistant Secretary, Chief Financial Officer, Treasurer, or Assistant Treasurer. In the alternative, this Agreement may be executed by a single officer or a person other than an officer provided that evidence satisfactory to City is provided demonstrating that such individual is authorized to bind the corporation (example, a copy of a certified resolution from the corporation's board or a copy of the corporation's bylaws).

STATEMENT OF QUALIFICATIONS AND EXPERIENCE

Provide a summary of your firm's experience in providing these or similar services.

Provide a minimum of three (3) references for projects or services similar in nature and scope that your firm's team members have completed in the last five (5) years. Include brief descriptions of the projects, dates, a list of proposed staff that were part of the project, client names and contact persons' names, addresses and telephone numbers. Public sector references are preferred.

LIST OF SUBCONTRACTORS

Contractor's Name: _____

The Bidder is required to furnish the following information in accordance with the provisions of Section 4100 and 4114, inclusive, of the Public Contract Code of the State of California. This list and information shall include all Subcontractors that perform work, provide labor or render services to the Bidder in connection with the Project in an amount in excess of one-half of one percent (0.5%) of the total amount of the Bidder Grand Total Price.

PORZION/ TYPE OF WORK	% OF CONTRACT	SUB- CONTRACTOR'S NAME	CONTRACTOR LICENSE NO.	DIR REG. NO.	BUSINESS ADDRESS (CITY, STATE)

SECURITY FOR COMPENSATION CERTIFICATE

(Required by California Labor Code Section 1861)

TO: City Council

City of Roseville

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

(Signature of Bidder)

Business Address

Telephone

BIDDER'S BOND

City Council of the City of Roseville

KNOW ALL MEN BY THESE PRESENTS:

That we _____
_____, as PRINCIPAL, and

a, _____ and duly authorized to transact business
under the laws of the State of California, as SURETY, are held and firmly bound unto the City of
Roseville in the penal sum of _____ dollars
(\$ _____), being at least TEN PERCENT (10%) OF THE TOTAL AMOUNT OF
THE BID of the Principal above named, submitted by said Principal to the City of Roseville,
acting by and through the Public Works Director, for the work described below, for the payment
of which sum in lawful money of the United States, well and truly to be made, to the Director of
the Department to which said Bid was submitted, we bind ourselves, our heirs, executors,
administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned Bid to the City Council of
the City of Roseville, as aforesaid, for certain construction specifically described as follows, for
which Bids are to be opened at the Office of the City Clerk located at 311 Vernon Street,
Roseville, California, on _____, 20__ FOR

(Copy here the exact title of work as it appears on the Proposal.)

NOW, THEREFORE, IF THE AFORESAID PRINCIPAL is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented for signature, enters into a written Contract, in the prescribed form, in accordance with the Bid, and files all insurance and two (2) Bonds with the Department, one (1) to guarantee Faithful Performance and the other to guarantee Payment for Labor and Materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 20____.

_____(Seal)

_____(Seal)

_____(Seal)

Principal

_____(Seal)

_____(Seal)

_____(Seal)

Surety

Business Address

NOTE: To be considered complete, both the Principal and the Surety must sign this Bidder's Bond. In addition, signatures of those executing for the Surety must be properly acknowledged.

Project _____

Contractor _____

SCHEDULE OF BID ITEMS

Bid Item	Item Description	Unit	Estimated Quantity	Unit Price (\$)	Total Amount (\$)
1	Mobilization and Demobilization	LS	1		
2	Bypass Pumping	LS	1		
3	Traffic Control	LS	1		
4	Pipe Installation – Work Zone 1 (MH No. 2 to MH No. 1)	LS	1		
5	Weir Manhole – Work Zone 1	EA	1		
6	Pipe Installation – Work Zone 2 (MH A08-010 to B08-196)	LS	1		
7	Pipe Installation – Work Zone 3 (MH B08-196 to B08-113)	LS	1		
8	Pipe Installation – Work Zone 4 (MH B08-113 to B08-077)	LS	1		
9	Pipe Installation – Work Zone 5 (MH B08-077 to B 08-062)	LS	1		
10	PS 26 Improvements	LS	1		

GRAND TOTAL BID PRICE (\$) = _____

Grand Total Bid Price in Words: _____

NONCOLLUSION DECLARATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid. The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or to refrain from bidding. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder. All statements contained in the bid are true. The Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a Bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state].

(Signature of Declarant)

DISQUALIFICATION QUESTIONNAIRE

The Bidder shall complete, under the penalty of perjury, the following questionnaire:

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____

No _____

If the answer is yes, explain the circumstances in the following space.

NAME OF BIDDER: _____

SIGNATURE OF BIDDER: _____

TITLE OF BIDDER: _____

DATE: _____

ACKNOWLEDGEMENT OF INSURANCE AND BOND REQUIREMENTS

Included in the Bid Price is full compensation for the requirements set forth in the
INSURANCE BROKER INFORMATION PACKET of the Project Manual.

NAME OF BIDDER: _____

SIGNATURE OF BIDDER: _____

TITLE OF BIDDER: _____

DATE: _____

DISCLAIMER OF WARRANTIES AND ACCURACY OF DATA

Although soil and site investigation reports have been obtained from sources believed to be reliable, no warranty expressed or implied is made regarding accuracy, adequacy, completeness, legality, reliability or usefulness of any information contained therein. These reports are subject to change at any time, may be incomplete, and/or may contain errors. This information is provided for informational purposes only. The City of Roseville provides this information on an “as is” basis. Warranties of any kind, express or implied, or statutory, including but not limited to the implied warranties of merchantability, and fitness for a particular purpose ARE DISCLAIMED to any party viewing these documents or to any third party.

The City of Roseville does not accept and expressly disclaims liability to any party viewing such information, or to any third party whatsoever, for any loss, damage, or injury (including incidental or consequential damages) whether such loss, damage, or injury is the result of negligence, willful or intentional misconduct, or any other cause.

I have read and acknowledged the above disclaimer and agree to hold harmless the City of Roseville on any theory of liability for any loss, damage or injury whether in contract, strict liability or tort arising in any way out of the use or contents of the released information or documents described above or the performance of the work called for herein.

Print Name

Signature

Name of Business/Company/Corporation

Date

Address

Phone

END OF PROPOSAL

AGREEMENT

THIS AGREEMENT, is made and entered into this ____ day of _____, 20____, by and between the City of Roseville, a municipal corporation, (“CITY”), and _____, a _____, (“CONTRACTOR”); and

W I T N E S S E T H:

WHEREAS, the City Council of the CITY, at a meeting held on the ____ day of _____, 20____, approved plans and specifications for the Regional Pump Station 26 and Force Main Capacity Improvement Project and directed the City Clerk to advertise for sealed proposals for doing said work and providing that bids be submitted on the ____ day of _____, 20____; and

WHEREAS, the City Clerk, thereafter duly and regularly caused a notice to be published in the manner and for the time prescribed by law; and

WHEREAS, CONTRACTOR, pursuant to the provisions of said notice duly filed a bid with the City Clerk, a true copy of which bid is now on file in the office of the City Clerk, and is hereby referred to and by this reference made a part hereof as fully as if set forth at length herein; and

WHEREAS, all bids received pursuant to said notice were opened and examined and publicly declared at the time specified in said advertisement for bids and at a meeting of the City Council held on the ____ day of _____, 20____, the Council found and declared the bid of CONTRACTOR to be the lowest responsible bid and thereupon awarded a

contract to CONTRACTOR to do the work referred to in the aforementioned specifications.

NOW, THEREFORE, the parties agree as follows:

1. THE WORK. CONTRACTOR agrees:

a. To do the work and furnish all the labor, materials, tools, supplies, equipment, superintendence, insurance, and bonds required for the _____

in accordance with the Contract Documents (the Work).

b. To do and perform the Work contemplated hereby in a good and workmanlike manner under the direction of and to the satisfaction of the Director of Public Works of the City of Roseville.

2. PAYMENT. CITY shall pay CONTRACTOR _____

_____ dollars (\$ _____) for the Work to be done under this Agreement in accordance with the Contract Documents.

3. CONTRACT DOCUMENTS. The complete Agreement between the parties hereto consists of the following documents:

a. The advertisement for bids (including the notice to bidders, instructions to bidders and proposals);

b. The accepted bid;

c. Plans and specifications (including general conditions, supplemental conditions, special provisions and construction details);

d. Bonds and insurance required by the Insurance Broker Information Packet section of this document; and

e. This contract.

All documents specified above are intended to operate so that any work called for in any one and not mentioned in the other, or vice versa, is to be executed the same as if mentioned in all said documents.

4. LIQUIDATED DAMAGES. In the event CONTRACTOR does not complete the Work within the time specified, CONTRACTOR agrees that CITY will suffer damages. Inasmuch as the actual damages which would result from such breach by CONTRACTOR under this Agreement are uncertain, and would be impractical or extremely difficult to fix, CONTRACTOR agrees that it shall pay, or CITY shall deduct from CONTRACTOR's fee, the amount of \$ _____ per day as liquidated damages, in the event of such delay.

5. TIME OF COMPLETION. Time is of the essence of this Agreement. CONTRACTOR shall complete all Work under the Contract Documents within _____ Days of the date of this Contract. CONTRACTOR shall begin work by the date specified in the "Notice to Proceed" letter and shall diligently prosecute all of the Work under this Contract in all parts and requirements as defined in the Contract Documents.

6. SERVICE OF NOTICE. Any notice required or permitted to be given under this Agreement shall be deemed given when (a) personally delivered to the recipient identified below; (b) mailed by registered or certified mail, return receipt requested, postage pre-paid, to the address specified below; or (c) sent by facsimile, with confirmation of receipt, to the facsimile number identified below.

CITY OF ROSEVILLE

CONTRACTOR

CITY may also act through either its architect or construction manager if CITY expressly gives notice to CONTRACTOR, in writing, that CITY's designee has authority to act for CITY in a specific capacity.

7. DISPUTES. Disputes arising from this Agreement will be determined in accordance with the Contract Documents and Public Contract Code Sections 10240-10240.13.

8. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

9. INDEPENDENT CONTRACTOR. CONTRACTOR shall act as an independent contractor, and covenants and agrees that it will conduct itself consistent with such status, that it will neither hold itself out as, nor claim to be, an officer or employee of CITY by reason of this Agreement.

10. SUCCESSORS IN INTEREST. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.

11. MODIFICATION. This Agreement and each provision contained herein may be waived, amended, supplemented or eliminated only by mutual written agreement of the parties.

12. SEVERABILITY. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.

13. INTEGRATED AGREEMENT. This is an integrated agreement and contains all of the terms, considerations, understanding and promises of the parties. It shall be read as a whole.

14. CONTRACTORS LICENSE LAW. CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE

BOARD WHICH HAS JURISDICTION TO INVESTIGATE COMPLAINTS AGAINST CONTRACTORS IF A COMPLAINT REGARDING A PATENT ACT OR OMISSION IS FILED WITHIN FOUR (4) YEARS OF THE DATE OF THE ALLEGED VIOLATION. A COMPLAINT REGARDING A LATENT ACT OR OMISSION PERTAINING TO STRUCTURAL DEFECTS MUST BE FILED WITHIN TEN (10) YEARS OF THE DATE OF THE ALLEGED VIOLATION. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR, CONTRACTORS' STATE LICENSE BOARD, P.O. BOX 26000, SACRAMENTO, CALIFORNIA 95826.

IN WITNESS WHEREOF, the City of Roseville, a municipal corporation, has authorized the execution of this Agreement in duplicate by its City Manager and attestation by its City Clerk under authority of Resolution No. _____, adopted by the Council of the City of Roseville on the ____ day of _____, 20____, and CONTRACTOR has caused this Agreement to be duly executed.

CITY OF ROSEVILLE, a _____, a
municipal corporation _____

BY: _____
DOMINICK CASEY
City Manager

BY: _____
its: _____
and

ATTEST:

BY: _____

its: _____

BY: _____

CARMEN AVALOS
City Clerk

APPROVED AS TO FORM:

BY: _____

MICHELLE SHEIDENBERGER
City Attorney

APPROVED AS TO SUBSTANCE:

BY: _____

Print Name: _____

Title: _____

INSURANCE BROKER INFORMATION PACKET

Regional Pump Station 26 and Force Main Capacity Improvement

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NOTICE TO CONTRACTOR

For your convenience, this package contains the Requirements for Insurance and Bonds for this project, including the necessary City forms. You are required to return these forms in addition to the executed Contract within fifteen (15) calendar days after the award of the Bid, unless otherwise directed by City in writing. (See the Instructions to Bidders.)

Please insert the dollar amount of your accepted Bid into the blank on page INS-1 and present this entire package to your insurance broker if you are awarded the Bid.

NOTICE TO INSURANCE BROKER

Your client has been awarded a bid by the City Council of the City of Roseville to perform a public works project known as Regional Pump Station 26 and Force Main Capacity Improvement Project. The Contract Amount is \$_____

The Contract Conditions for this project require your client (“the Contractor”) to return certain evidence of insurance and bonds to the City Attorney of the City within fifteen (15) days after the Bid award, unless otherwise directed by the City in writing, or else the Bid award may be terminated and awarded to another company.

This package contains the information you will need as an insurance broker to provide the appropriate insurance and bonds to the City. The insurance coverages the Contractor needs are specified in the section entitled “Insurance Requirements.” Please note that, in addition to the insurance certificate itself, copies of several endorsements must be actually furnished.

Please refer to the Supplemental Conditions for modifications of the General Conditions, if any, and the requirements of this insurance packet.

Please use the standard City of Roseville Bond Forms provided in this package.

The Bonds required must each be in the penal amount of: \$_____.

Bonds must be sent to the following staff person:

Rana Moore
2005 Hilltop Circle
Roseville, CA 95747

Insurance documents must be provided using one of the following methods:

- a. By email to roseville@ebix.com and riskmanagement@roseville.ca.us
- b. By fax to (770) 335-5727 and (916) 774-5461

After using one of these methods, please **DO NOT** send the insurance certificate(s) by mail.

When forwarding the documents, please refer to the project name so that the documents can be matched with the Contract for which they are submitted.

Thank you.

INSURANCE REQUIREMENTS

The following sections are quoted from the General Conditions:

5-1.23 INSURANCE COVERAGE.

A. Evidence of Maintenance Required. The Contractor shall, at its expense, procure and at all times maintain in full force and effect at a minimum the insurance required by this section on all of its operations; and the Contractor shall not allow any Subcontractor to commence work until similar insurance required of the Subcontractor has been obtained and filed. An original Certificate of Insurance, and copies of all required endorsements, all in a form approved by the Risk Manager, evidencing all required coverage or policies shall be filed after the award of the bid and prior to approval of the Contract by the City Council. Contractor shall provide ten (10) days prior written notice to the City of any reduction of coverage limits or cancellation of the coverage or policies shall be given to the City of Roseville as Certificate holder.

B. Qualifying Insurers. With the exception of the State Compensation Insurance Fund, all required insurance policies shall be issued by companies acceptable to the City and licensed to do business in the State of California and who hold a current policy holders alphabetic and financial size category rating of not less than AVII according to the most recent issue of Best's Insurance Reports.

C. Insurance Required.

1. **Commercial General Liability (CGL):** Insurance Services Office Form CG 00 01 covering CGL on an “occurrence” basis, including products and completed operations with limits of no less than Two Million Dollars (\$2,000,000) per occurrence for bodily injury,

personal injury and property damage for projects under One Million Dollars (\$1,000,000) and limits of no less than Five Million Dollars (\$5,000,000) per occurrence for bodily injury, personal injury and property damage for projects over One Million Dollars (\$1,000,000). If a general aggregate limit applies, either the aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

The Commercial General Liability insurance shall include the following, copies of which shall be provided:

a. Inclusion of the City of Roseville, and its officers, agents, employees, and volunteers, as additional insureds (except for workers' compensation) as respects services or operations under the Contract. The additional insured endorsement for the general liability policy shall be at least as broad as the ISO CG 2010 10 01 combined with ISO CGL Endorsement CG 2037 10 01. Any other endorsement must be approved in writing by the City. Endorsements must include coverage for on-going and completed operations, which coverage shall be maintained for four (4) years following completion of the Project. Endorsements shall cover the City of Roseville, its officers, agents, employees, and volunteers.

b. The insurance shall provide coverage for claims by one insured against another insured and the policies shall not contain any cross-suits exclusions, cross-liability exclusions, or insured versus insured exclusions. The policies shall not contain any classification exclusions purporting to deny coverage for any work to be performed by Contractor or any of its Subcontractors.

c. Stipulation that the insurance is primary and noncontributory, as evidenced by a separate endorsement (CG 20 01 04 13 or an equivalent) or section of the policy, and that neither the City nor its insurers will be called upon to contribute to a loss.

d. Such insurance shall specifically cover the contractual liability of the Contractor.

e. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

f. Waiver of subrogation endorsement.

g. The Contractor shall furnish a certificate for the period covered.

2. **Automobile Liability:** Insurance Services Office Form Number CA 0001 covering Code 1 (any auto), or if Contractor has no owned autos, Code 8 (hired) and Code 9 (non-owned), with limits of no less than One Million Dollars (\$1,000,000) per accident for bodily injury and property damage.

3. **Workers' Compensation:** In accordance with the provisions of the California Labor Code, Contractor is required to be insured against liability for Workers' Compensation or to undertake self-insurance. Statutory Workers' Compensation and Employers' Liability of at least One Million Dollars (\$1,000,000) shall cover all Contractors staff while performing any work incidental to the performance of this Agreement.

4. **Professional Liability:** Professional Liability (Errors and Omission) Insurance appropriate to Contractor's profession, with a limit of liability not less than One Million Dollars (\$1,000,000) per occurrence or claim and Two Million Dollars (\$2,000,000) aggregate to cover all design and engineering services rendered by Contractor pursuant to the Agreement. Coverage must commence from the first day that Contractor or any of its

Subcontractors provided any design or engineering services in connection with the Project.

5. **Builder's Risk/Course of Construction Insurance Is ____ OR Is Not ____ Required by Risk Management:** The Contractor shall be responsible for all loss, damage or destruction whatsoever to the work called for by this Contract until the approval of a Notice of Completion or acceptance of the Work if no Notice of Completion is to be recorded.

The Contractor shall secure "All Risk" type of Builder's Risk Insurance of the type covering one hundred percent (100%) of the value of the work performed under this Contract (the value is presumed to be the Contract amount unless otherwise stated in Supplemental Conditions) and all materials, equipment, or other items to be incorporated therein while the same are located at the construction site, a bonded warehouse, or its place of manufacture. At any time, the policy shall cover the value of the work completed. The policy shall cover hazards including the losses due to fire, explosion, hail, rain, lightning, flood (separate insurance as needed), vandalism, malicious mischief, wind, collapse, aircraft, and smoke.

The policies providing such insurance shall name the City as a loss payee as its respective interests may appear, and certified copies of such policies shall be filed with the City. The maximum deductible allowable under the Builder's All Risk policy shall be five percent (5%) of the Contract amount.

Builder's Risk Insurance is not required for coverage of losses in excess of five percent (5%) of the Contract amount for damages resulting from earthquake in excess of a magnitude of 3.5 on the Richter scale, or tidal waves. Coverage in the amount of five percent (5%) of the Contract amount for such losses is required.

6. **Pollution Coverage:** Contractor shall procure pollution liability coverage or other insurance covering claims for bodily injury or property damage arising out of the

abatement, removal, storage, transportation, or other exposure to hazardous materials or pollutants, in limits not less than Two Million Dollars (\$2,000,000). Contractor shall add the City and all parties required to be indemnified by Contractor as additional insured on all pollution liability policies.

7. **Higher Coverage Limits:** If Contractor maintains higher coverage limits than the amounts shown above, then the City requires and shall be entitled to coverage for the higher coverage limits maintained by Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

8. **Claims Made Coverage:** Liability insurance coverage may not be written on a “claims made” or modified occurrence basis. The Certificate of Insurance must clearly provide that the coverage is on an “occurrence” basis.

5-1.24 **OTHER INSURANCE PROVISIONS.**

A. The requirements of the Standard Specifications as to types and limits of insurance coverage to be maintained by the Contractor, and any approval of insurance by the City, are not intended to, and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification, nor preclude the City from taking any other action available to it under any other provision of the Contract or law.

B. The City acknowledges that some insurance requirements contained in these Standard Specifications may be fulfilled by self-insurance on the part of the Contractor. However, this shall not in any way limit liabilities assumed by Contractor under the Contract. Any self-insurance must be approved in writing by the City, in its sole discretion and shall not reduce the limits of liability. Any deductibles or self-insured retentions (“SIR”) must be

declared on the certificate of insurance and approved by City in writing. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

C. The Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Contract, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor's work. Furthermore, the Contractor shall require its subcontractors to agree to be bound to the Contractor and the City in the same manner and to the same extent as the Contractor is bound to the City under this Contract. Additionally, the Contractor shall obligate its subcontractors to comply with these same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of the City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request. Alternatively, the Contractor may insure subcontractor(s) under its own policy.

D. The City, its officers, agents, employees, and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under California Insurance Code Section 11580.04.

E. The limits of insurance required in this Contract may be satisfied by a

combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of the City (if agreed to in a written contract) before the City's own insurance shall be called upon to protect it as a named insured.

F. The insurance procured by Contractor shall be subject to the approval of the City, but any acceptance of insurance certificates by the City shall in no way limit or relieve Contractor of its duties and responsibilities under the Agreement.

G. Contractor shall be responsible for all premiums, deductibles, and self-insured retention applicable to the insurance it is required to procure under the Contract. All deductibles or self-insured retentions over five hundred thousand dollars (\$500,000) must be approved by the City, in writing. Contractor shall be responsible for all deductibles, self-insured retention payments, and/or increased premiums incurred if the City's policies of insurance are forced to cover damages or respond to claims for which Contractor or its Subcontractors were obligated to provide insurance under the Contract.

H. Failure of the City to enforce in a timely manner any of the requirements of these insurance provisions shall not act as a waiver to enforcement of any of these provisions at a later date.

I. Contractor's indemnity obligations shall not be limited by these insurance provisions and shall survive the expiration of the Contract and the insurance provisions of the Contract shall likewise not be limited by the indemnity provisions of the Contract.

**J. THE CITY RESERVES THE RIGHT TO WITHHOLD ANY
PROGRESS PAYMENTS TO THE CONTRACTOR IN THE EVENT OF
NONCOMPLIANCE WITH ANY INSURANCE REQUIREMENTS.**

Bond No. _____
Premium \$ _____

PUBLIC WORKS

FAITHFUL PERFORMANCE BOND

(Project: Regional Pump Station 26 and Force Main Capacity Improvement)

WHEREAS, the City of Roseville ("CITY") has awarded a bid and contract to

as contractor ("PRINCIPAL") for the public work described as Regional Pump Station 26 and Force Main Capacity Improvement (the "WORK").

The contract ("AGREEMENT"), for the public work described above, and all of its terms and conditions are incorporated by reference and made a part hereof; and

WHEREAS, the PRINCIPAL is required to furnish a bond in connection with the AGREEMENT guaranteeing its faithful performance; and

NOW, THEREFORE, we the undersigned PRINCIPAL and _____
_____, a _____, admitted
and duly authorized to transact business under the laws of the State of California, as SURETY ("SURETY"), are held and firmly bound unto the CITY or its successors and assigns in the sum of _____
dollars (\$_____) (which amount is not less than 100% of the

AGREEMENT price) to be paid to the CITY or its successors and assigns; and for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns jointly and severally, firmly by these presents.

The condition of this obligation is such that if the PRINCIPAL, or its heirs, executors, administrators, successors or assigns, shall abide by, and in all respects promptly and faithfully perform the covenants, conditions and provisions in said AGREEMENT and any alteration thereof made as therein provided, notice of which alterations to Surety being hereby waived, on its part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless CITY, its officers, agents, employees, volunteers as therein stipulated, then this obligation shall be null and void; otherwise, this obligation shall be and remain in full force and effect.

As condition precedent to the satisfactory completion of the contract, the obligation of the PRINCIPAL and SURETY under this Bond shall remain in effect for a period of one (1) year after the completion and acceptance of the WORK. During that time, if the PRINCIPAL, its heirs, executors, administrators, successors or assigns fails to make full, complete and satisfactory repair and replacement or totally protect the CITY from any loss or damage made evident during that year which results from or is caused by either defective materials or faulty workmanship in the prosecution of the WORK, then the obligation shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the SURETY shall

continue so long as any obligation of the PRINCIPAL remains.

No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the AGREEMENT or in the specifications agreed to between the PRINCIPAL and the CITY, or any forbearance on the part of the CITY shall operate to relieve the SURETY. The SURETY hereby waives the provisions of Section 2819 of the California Civil Code. The SURETY waives all rights of subrogation against the CITY or any person employed by the CITY. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

Whenever PRINCIPAL shall be and declared by CITY to be in default under the AGREEMENT, SURETY shall promptly remedy the default, or shall promptly do one of the follow at CITY's election:

1. Undertake through its agents or independent contractors, reasonably acceptable to CITY, to complete the AGREEMENT in accordance with its terms and conditions and to pay and perform all obligations of PRINCIPAL under the AGREEMENT, including without limitation, all obligations with respect to warranties, guarantees, and the payment of liquidated damages.
2. Reimburse CITY for all costs CITY incurs in completing the AGREEMENT, and in correcting, repairing or replacing defects in materials or workmanship

and/or materials and workmanship which do not conform to the specifications in the AGREEMENT.

SURETY's obligations hereunder are independent of the obligations of any other surety for the performance of the AGREEMENT, and suit may be brought against SURETY and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing CITY's rights against the others.

No right of action shall accrue on this bond to or for the use of any person or corporation other than CITY or its successors or assigns.

As part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by CITY in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

[SIGNATURES NEXT PAGE]

IN WITNESS WHEREOF, this instrument has been duly executed by the
PRINCIPAL and SURETY above-named, on the ____ day of _____,
20____.

PRINCIPAL:

SURETY:

BY: _____

BY: _____

PRINT NAME: _____

PRINT NAME: _____

PRINT TITLE: _____

PRINT TITLE: _____

AND

MAILING ADDRESS:

BY: _____

PRINT NAME: _____

PRINT TITLE: _____

*(Notarization by Surety and copy of
Power of Attorney required.)*

APPROVED AS TO FORM:

BY: _____

City Attorney

Bond No. _____
Premium \$ _____

PUBLIC WORKS

LABOR AND MATERIALS PAYMENT BOND

(Project: Regional Pump Station 26 and Force Main Capacity Improvement)

WHEREAS, the City of Roseville ("CITY"), has awarded a bid and contract to _____
as contractor ("PRINCIPAL"), for the public work described as Regional Pump Station
26 and Force Main Capacity Improvement (the "WORK"). The contract
("AGREEMENT"), for the public work described above, and all of its terms and
conditions are incorporated by reference and made a part hereof; and

WHEREAS, the PRINCIPAL is required to furnish a bond in connection with the
AGREEMENT guaranteeing payment of persons who provide labor and material; and

NOW, THEREFORE, we the undersigned PRINCIPAL and _____
_____, a _____, admitted
and duly authorized to transact business under the laws of the State of California, as
SURETY ("SURETY"), are held and firmly bound unto the CITY or its successors and
assigns in the sum of _____
dollars (\$ _____) (which amount is not less than 100% of the
AGREEMENT price) to be paid to the CITY or its successors and assigns; and for which

payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns jointly and severally, firmly by these presents.

The condition of the obligation is such that if the PRINCIPAL, its subcontractors, heirs, executors, administrators, successors or assigns fails to pay any of the persons named in Section 8004 or 9100 of the Civil Code of the State of California, or the amounts due under the Unemployment Insurance Code of the State of California, or any amounts required to be deducted, withheld and paid over to the Employment Development Department from the wages of employees of the PRINCIPAL and its subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to work or labor performed by any such claimant, that the SURETY will pay for the same, in an amount not exceeding the sum specified in this bond, and also, in case suit is brought upon the bond, shall pay reasonable attorneys' fees, to be fixed by the Court.

This bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file a Stop Payment Notice pursuant to the provisions of Section 9350 et seq. of the Civil Code of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond.

No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the AGREEMENT or in the specifications agreed to between the PRINCIPAL and the CITY, or any forbearance on the part of the CITY shall

operate to relieve the SURETY. The SURETY hereby waives the provisions of Section 2819 of the California Civil Code. The SURETY waives all rights of subrogation against the CITY or any person employed by the CITY. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

As part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by CITY in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

IN WITNESS WHEREOF, this instrument has been duly executed by the PRINCIPAL and SURETY above-named, on the ____ day of _____, 20__.

PRINCIPAL:

SURETY:

BY: _____

BY: _____

PRINT NAME: _____

PRINT NAME: _____

PRINT TITLE: _____

PRINT TITLE: _____

AND

MAILING ADDRESS:

BY: _____

PRINT NAME: _____

PRINT TITLE: _____

*(Notarization by Surety and copy of
Power of Attorney required.)*

APPROVED AS TO FORM:

BY: _____

City Attorney

GENERAL CONDITIONS
FOR BUILDINGS AND GROUNDS

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SECTION 1

DEFINITIONS AND TERMS

1-1.01 **GENERAL.** When the following abbreviations and terms or pronouns in place of them appear in the Contract Documents, the intent and meaning shall be interpreted as provided in this Section 1.

1-1.02 **ACCEPTANCE.** Formal Acceptance by resolution by the Roseville City Council of the Contract when completed in all respects in accordance with the Contract Documents and any modifications previously approved.

1-1.03 **ADDENDUM.** Written interpretation or revision to any of the Contract Documents issued by the City before the bid opening.

1-1.04 **AS-BUILT DOCUMENTS, AS-BUILT DRAWINGS AND RECORD DOCUMENTS.** As-Built Documents, As-Built Drawings and Record Documents are all contract documents modified to reflect changes during the construction phase. Specifically, As-Built Documents/Drawings are a revised set of drawings submitted by the Contractor upon Final Completion of a project. They reflect changes made in the Specifications and Working Drawings during the construction process, and show the exact dimensions, geometry, and location of all elements of the work completed under the Contract. Record Documents, on the other hand, are compiled by the Engineer or Architect based on the As-Built Documents/Drawings submitted by the Contractor. They reflect the Engineer or Architect's concurring review of what changes were denoted, why they were made and where they occurred and create a record set of drawings.

1-1.05 **ASSESSMENT.** A cost imposed on the Contractor for non-compliance

with certain contractual requirements.

1-1.06 **BENEFICIAL OCCUPANCY.** The taking possession of a portion of the Work by the City for its use and/or occupancy on other than a temporary or emergency basis.

1-1.07 **BID GUARANTY.** The cashier's, certified check, irrevocable standby letter of credit, deposit of securities, or Bidder's Bond, accompanying the bid submitted by the Bidder, as a guaranty that the Bidder will enter into an agreement with the City for the performance of the Work, if the Agreement is awarded to Bidder, and the Bidder will submit the required Contract Bonds and Certificate of Insurance. Also referred to as the Bidder's Security.

1-1.08 **BIDDER.** Individual, firm, partnership, limited liability company, corporation, joint venture, or any combination thereof, submitting a Proposal for the Work, acting directly, or through a duly authorized representative.

1-1.09 **BIDDING DOCUMENTS.** Includes the Notice to Bidders, Bidding Requirements, Contract Conditions, Drawings, and Addenda.

1-1.10 **CHANGE ORDER.** Any written order to the Contractor directing an addition, deletion, or modification of the Work, or an adjustment in the Contract Price or Contract Time provided in the Contract Documents and issued after the Agreement has been signed.

1-1.11 **CITY.** The City of Roseville.

1-1.12 **CITY ATTORNEY.** The City Attorney of the City.

1-1.13 **CITY CLERK.** The City Clerk of the City.

1-1.14 **CLAIM.** A separate demand by Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following: (a) a time extension, including, without limitation, for relief for damages or penalties for delay assessed by

the City; (b) payment by the City of money or damages arising from work done by, or on behalf of, Contractor pursuant to the Contract Documents and payment for which is not otherwise expressly provided or to which Contractor is not otherwise entitled; and (c) payment of an amount that is disputed by the City.

1-1.15 **CONSTRUCTION SCHEDULE.** A list or graphic display of construction activities required for completing the Work, in a format required by the Contract Documents. The duration, start and finish date, and sequence of significant activities, critical path, float and milestones must be indicated in the Construction Schedule.

1-1.16 **CONTRACT OR AGREEMENT.** The written agreement relating to the Work to be performed, the labor, materials, and equipment to be furnished, and the payment to be made therefor. The Agreement/Contract is part of and incorporates all of the Contract Documents.

1-1.17 **CONTRACT CONDITIONS.** Includes the General Conditions, Supplemental Conditions, and Specifications.

1-1.18 **CONTRACT DOCUMENTS.** Includes those documents that form the basis of the Contract, including but not limited to, Bidding Documents, the Bid or Proposal, Contract Bonds, the Contract, all required insurance certificates or endorsements, all bonds, all required certifications or statements, Change Orders, any Contract Amendment, any City Standard which is incorporated by reference and these City of Roseville General Conditions for Buildings and Grounds.

1-1.19 **CONTRACT DRAWINGS.** The official drawings including plans, elevations, sections, detail drawings, diagrams, plated, General Notes, information and schedules thereon, or exact reproductions thereof, showing the location, character, dimension, and details

of the Work. The Contract Drawings include any drawings or plates bound within the Supplemental Conditions.

1-1.20 **CONTRACT PRICE.** The total compensation to be paid to the Contractor in accordance with the terms of the Agreement.

1-1.21 **CONTRACT TIME.** The number of Days, or portion thereof, allowed for completion of the Work, including all authorized time extensions. The effective date for commencement of the Work specified in the Notice to Proceed shall define the beginning of the Contract Time.

1-1.22 **CONTRACTOR.** Individual, firm, partnership, limited liability company, corporation, joint venture, or any combination thereof, who has entered into the Agreement with City.

1-1.23 **DAY OR DAYS.** Unless otherwise designated, Day or Days as used in the Contract Documents will be understood to mean calendar Day or Days.

1-1.24 **DEPARTMENT.** The Department for Contract Administration, as identified in the Supplemental Conditions.

1-1.25 **DIRECT COSTS.** Those cost items (including labor, materials, equipment and any subcontractor's work) that are used in the actual performance of, and are specifically and uniquely attributable to the Work or changed Work. Direct Costs do not include Overhead. Direct Costs only include the following:

A. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by City and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include salaries and

wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay applicable thereto. Such employees may include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Saturday, Sunday or legal holidays shall be included in the above only to the extent authorized by City in writing.

B. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and suppliers' field services required in connection therewith. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to City, and Contractor shall make provisions so that they may be obtained.

C. Payments made by Contractor to the subcontractors for work performed by subcontractors. If required by City, Contractor shall obtain competitive bids from subcontractors acceptable to Contractor and shall deliver such bids to City who will then determine which bids will be accepted. If a subcontract provides that the subcontractor is to be paid on the basis of cost of the work plus a fee, the subcontractor's cost of the work shall be determined in the same manner as Contractor's cost of the work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

D. Costs of special consultants (including engineers, architects, testing laboratories, surveyors, and accountants) employed for services specifically, and only, related to the Work.

E. Supplemental costs including the following:

1. The proportion of necessary transportation, travel and subsistence

expenses of Contractor's employees incurred in discharge of duties connected with the Work.

2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value of such items used but not consumed which remain the property of Contractor.

3. Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by City, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof, all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

4. Sales, consumer, use or similar taxes related to the Work, and for which Contractor is liable, imposed by laws and regulations.

5. The cost of utilities (including the meter and all associated installation costs), fuel and sanitary facilities at the site.

6. Cost of premiums for additional bonds and insurance required because of changes in the Work.

1-1-26 **DIRECTOR.** Director of the Department for Contract Administration or his or her designee.

1-1.27 **EMERGENCY.** Any sudden generally unforeseen occurrence (such as a fire, flood, storm, earthquake, civil disorder, or other natural and/or man-made disaster) that has the potential to adversely affect the safety of life, the Work, and/or adjacent property; to interrupt contracts essential to the performance of the Work; and/or to cause catastrophic failure of City

equipment and/or facilities.

1-1.28 **ENGINEER OR ARCHITECT.** Professional Engineer or Architect designated for a particular project responsible for signing and sealing the permit drawings, interpretation of the drawings where ambiguities exist, review of requests for information, design Change requests and Shop Drawings, resolution of errors and omissions, and finalization of Record Documents.

1-1.29 **FINAL COMPLETION.** When the project has been completed according to the terms and conditions set forth in the Contract Documents. Final Completion is not the same as Acceptance.

1-1.30 **FORCE ACCOUNT.** Payment by force account shall mean payment on the basis of the Contractor's time and materials.

1-1.31 **GENERAL NOTES.** The written instructions, provisions, conditions or other requirements appearing on the Contract Drawings and so identified thereon, which pertain to the performance of the Work.

1-1.32 **INSTALLATION, INSTALL.** Completely assembling, erecting, and/or connecting materials, parts, components, supplies, and related equipment specified or required for the completion of the Work.

1-1.33 **LABORATORY.** Established professional laboratories authorized by the City to test materials and Work involved in the Contract.

1-1.34 **LEGAL HOLIDAYS.** Those days designated as Federal holidays or declared by the City, or otherwise specified in the Contract Documents.

1-1.35 **LIQUIDATED DAMAGES.** The amount prescribed in the Contract Documents to be paid to the City or to be deducted from any payments due or to become due the

Contractor for each day's delay in completing the whole or any specified portion of the Work beyond the time allowed in the Supplemental Conditions.

1-1.36 **NOTICE OF COMPLETION.** A legal notice filed by the City with the Placer County Recorder's Office stating that construction has been completed and accepted by the City.

1-1.37 **NOTICE TO PROCEED.** A written notice given by the City to the Contractor fixing the date on which the Contract Time will commence to run.

1-1.38 **NOTICE OF TERMINATION.** Written notice from the City to the Contractor and/or its Surety terminating the Agreement, or a portion thereof, either for convenience of the City or for default due to the Contractor's failure to perform its contractual obligations.

1-1.39 **OVERHEAD.** Business or administrative expenses (including but not limited to office expenses, administrative staff, rent, insurance, utilities) not chargeable to a particular part of the Work. The term "Overhead" shall include all of the following:

A. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor whether at the Work Site or in Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications, all of which are to be considered administrative costs covered by the Contractor's fee.

B. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

C. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

D. Cost of premiums for all bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same, except as provided in section 1-1.25.

E. Other overhead or general expense costs of any kind.

1-1.40 **PREMISES.** Shall mean the area within construction easements, easements, rights of entry and City owned property which surrounds the Work Site, limited by the property lines thereof. In some cases Premises may coincide with the Work Site.

1-1.41 **PROFESSIONAL ENGINEER.** An engineer licensed by the Board of Registration for Professional Engineers, State of California.

1-1.42 **PROJECT MANUAL.** A book containing all Contract Documents.

1-1.43 **PROPOSAL FORMS.** The approved forms upon which the City requires that each Bidder submit its bid with regard to the Agreement.

1-1.44 **REQUEST FOR INFORMATION (RFI).** A document issued by the Contractor requesting information concerning the Contract Documents.

1-1.45 **SAFETY.** Includes the practice of identifying potential hazards, assessing their risk, taking corrective action where possible, including and providing control measures such as engineering design, written procedures, and the personal protective equipment for workers in order to eliminate or reduce the risk for exposure in the workplace.

1-1.46 **SCHEDULE OF VALUES.** The breakdown of the Contract Price that will serve as the basis for Contractor's Applications of Payment. Any lump sum bid item

included within the Contract Price will be apportioned among values relating to specific components of the Work covered by said lump sum.

1-1.47 **SHOP DRAWINGS.** Drawings, plans, diagrams, schedules, and other data specifically prepared and submitted to the City by the Contractor, showing in detail: (a) the proposed fabrication and assembly of a special component of the Work; and (b) the Installation (form, fit and attachment details) of a special component of the Work. Shop Drawings shall be deemed to include Working Drawings, Product Data, literature, and applicable performance and test data.

1-1.48 **SPECIFICATIONS.** The technical Specifications for the Work prepared by the Director or an Engineer or Architect describing in detail the nature of the Work, its components, any performance standards, and how the Work is to be constructed.

1-1.49 **SUBCONTRACTOR.** Any individual, firm, partnership, limited liability company, corporation, joint venture, or combination thereof, other than employees of the Contractor, engaged by the Contractor to furnish services, labor, equipment and materials for a portion of the Work.

1-1.50 **SUBMITTALS.** Those documents required to be submitted by the Contractor for review by the City in accordance with the Contract Documents.

1-1.51 **SUPPLEMENTAL CONDITIONS.** The Supplemental Conditions are specific clauses modifying or supplementing these General Conditions.

1-1.52 **SUPPLIER.** Any individual, firm, partnership, limited liability company, corporation, joint venture, or combination thereof, other than employees of the Contractor, that supplies a tangible product as a portion of the Work, with services usually limited to delivery and/or required testing, and with manufacturing, fabrication, or production facilities located off

the Work Site.

1-1.53 **WORK.** The furnishing of all labor, and the furnishing and Installing of all materials, articles, supplies and equipment as specified, designated, or required by the Contract Documents.

1-1.54 **WORK SITE.** All or portion of the Premises that the Work is limited to as shown on the Contract Drawings or designated by the Director. Public streets are not included unless Work is being done within the street right-of-way.

1-1.55 **WORKING DRAWINGS.** Original drawings prepared by the Contractor and/or its Subcontractors or Suppliers, of any tier, illustrating Work required for construction that will not become an integral part of the completed Work. This includes, but is not limited to, drawings for temporary structures such as decking, bulkheads, excavation supports, utility support, groundwater control, forming, falsework, access roads, staging areas, staging plans, and diversion plans. A Working Drawing is one type of a Shop Drawing.

SECTION 2

CONTROL AND SCOPE OF THE WORK

2-1.01 **AUTHORITY OF DIRECTOR.** The Contract shall be performed in a manner satisfactory to the Director who shall decide all questions which may arise as to the quality or acceptability of materials furnished and Work performed and as to the manner of performance and rate of progress of the Work; all questions which may arise as to the interpretation of the Contract Documents; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation. The Director shall have authority to enforce and make effective such decisions and orders in the event the Contractor fails to promptly carry out the same.

2-1.02 **INTENT OF CONTRACT DOCUMENTS.** The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Contract Documents is to describe the details for the construction and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, it is understood that only the best general practice shall be followed and that only materials and workmanship of the best quality are to be used. Any Work, materials, or equipment that are customarily provided, or that are reasonably inferable from the Contract Documents as being required to produce the intended result, shall be supplied, whether or not specifically called for. When words, which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and do all the Work involved in executing the Contract in a

satisfactory and workmanlike manner.

Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws, or regulations in effect on the first published date of the Notice to Contractors, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of City or Contractor, or any of their consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to City, or City's designated representative, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to other provisions of the Contract Documents.

The Contract Documents are divided into parts, divisions, sections and articles for convenience, organization and reference. Generally, there has been no attempt to divide the Specifications sections into work performed by the various building trades, work by separate Subcontractors, or work required for separate facilities in the project.

2-1.03 **EXAMINATION AND VERIFICATION OF CONTRACT**

DOCUMENTS. The Contractor shall thoroughly examine and become familiar with all of the various parts of the Contract Documents and shall determine the nature and location of the Work, the general and local conditions (including applicable laws) and all other matters which can in any way affect the cost, progress or performance of the Work under this Agreement. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of the Agreement. No oral agreement or conversation with any officer, or employee

of the City, or with the City's designated representative either before or after the execution of the Agreement, shall affect or modify any of the terms or obligations contained in the Contract Documents.

2-1.04 **CONTRACT DRAWINGS.** The Contract Drawings consist of general drawings and show such plans, elevations, sections, details and schedules as are necessary to give a graphic and pictorial description of the contemplated construction. All authorized alterations affecting the requirements and information given on the Contract Drawings shall be in writing.

2-1.05 **COORDINATION AND INTERPRETATION OF CONTRACT DOCUMENTS.** All Contract Documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary, and to describe and provide for a complete Work.

In the event of inconsistencies between requirements contained in different components of the Contract Documents, the precedence of the Contract Documents shall be as follows to resolve conflicts:

1. Change Orders
2. The Contract (including Addenda)
3. The Supplemental Conditions
4. Specifications
5. Contract Drawings
6. The General Conditions

Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall submit a

Request for Information (“RFI”) to the Director for such further explanations as may be necessary and shall conform to the written explanation given as if part of the Contract Documents. The decisions of the Director shall be final.

Contractor shall anticipate that it will be necessary to prepare and submit RFIs regarding the Contract Documents. The City will respond to each RFI by no later than fourteen (14) Days after receipt of the RFI, unless the RFI is of significant complexity. Furthermore, in the event that there are numerous RFIs pending, Contractor shall cooperate with the City in establishing a priority for responding to the RFIs, and potentially some RFIs may be responded to beyond the fourteen (14) Day period.

Each RFI prepared by Contractor shall be full and complete. Contractor shall prepare RFIs so as to not cause any delay to the progress of the Work and to not cause any impact to Contractor’s labor productivity in the field. Contractor shall not assert any Claims for delay or interference against the City if Contractor fails to timely submit any RFI to the City, after consideration of the response period allowed for by the City.

The response to an RFI shall not, by itself, constitute a writing that authorizes Contractor to perform any Work that causes an adjustment to either the Contract Price or the Contract Time. If Contractor believes that any response to any RFI should constitute a compensable change, Contractor shall provide a Notice of Potential Claim as provided in Section 7-1.03, below. Contractor’s failure to provide the required written notice shall constitute a waiver of the Contractor’s right to seek a compensable change based on the RFI response.

The Contractor shall examine all Contract Documents; shall verify all figures in the Contract Documents before laying out the Work; shall promptly notify the City of all errors, inconsistencies, and/or omissions that it discovers; and, in instances where such non-

conformities are discovered, shall obtain specific instructions in writing from the City before proceeding with the Work. Contractor's performance of any Work affected by such non-conformities prior to the City's decision shall be at the Contractor's risk. Any Work that is customarily provided or that is reasonably inferable shall not relieve the Contractor from performing such work at no additional expense and/or delay, and such Work shall be performed as if fully set forth in the Contract Documents.

2-1.06 **INDEPENDENT CONTRACTOR STATUS.** The Contractor shall independently perform all Work required by the Contract Documents and shall not be considered as an agent or employee of the City, nor shall the Contractor's Subcontractors or employees be considered as subagents of the City.

The Contractor and Contractor's Subcontractors shall be licensed in accordance with the laws of the State of California and as more particularly described in the bidding documents or elsewhere in the Contract Documents.

2-1.07 **ORDER OF WORK.** When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of work, and no additional compensation will be allowed therefor.

2-1.08 **SUBMITTALS.** It shall be the Contractor's responsibility to timely submit, so as to cause no delay in the Work, all Shop Drawings, descriptive data, manuals, instructions, affidavits, samples for the various trades as required by the Supplemental Conditions and Specifications, and offers of alternatives, if any. Such Submittals shall be checked and coordinated by the Contractor with the Work of other trades involved before they are submitted to the Director for examination.

The Contractor shall deliver at least one (1) electronic copy of the Submittals to the Director, and one (1) hard copy if requested. Work requiring the submittal of working drawings, descriptive data or samples shall not begin prior to approval of said Submittal by the Director.

The time allowed for review of each Submittal will be as indicated in the Supplemental Conditions. Review time will start upon receipt of the Submittal by the Director and will end upon the Director's mailing of the Submittals to the Contractor. Defective, incomplete or partial Submittals will be returned to the Contractor unreviewed.

Submittals shall be made by a letter of transmittal that shall contain a list of all matter submitted and identification of all variations from the Contract Documents contained in the Submittal. The letter and all items accompanying the same shall be fully identified as to project name and location, Contractor's name, district, county, and Contract number, with ample cross-references to the Contract Documents, to facilitate identification of items and their location in the Work.

All Shop Drawings and supporting data, catalogs, schedules, shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy and completeness. These Submittals may be prepared by the Contractor, Subcontractors, or Suppliers, but the Contractor shall ascertain that Submittals meet all of the requirements of the Contract Documents, while conforming to structural, space, and access conditions at the point of Installation. The Contractor shall check all Submittals before submitting them to the Director.

2-1.08A **SHOP DRAWINGS.** The Contractor shall submit an electronic copy (searchable PDF) of all Shop Drawings required by the Supplemental Conditions or Specifications, and one (1) hard copy, if requested by the Director. Shop Drawings shall also be provided separately in AutoCAD format using the latest version of AutoCAD. An electronic

copy will be returned to the Contractor either approved for use, as demonstrated by a stamp, or returned for correction and resubmittal. Materials, colors and/or samples will not be returned to the Contractor. Shop Drawings include any drawing, which requires execution by a draftsman as distinguished from printed matter. The size of Shop Drawings shall not exceed twenty-four inches (24") by thirty-six inches (36").

2-1.08B **DESCRIPTIVE DATA.** The Contractor shall submit an electronic copy (searchable PDF) of each set of manufacturer's brochures or other data required by the Supplemental Conditions or Specifications, and one (1) hard copy, if requested by the Director. The City will examine such Submittals and return either an electronic copy or a hard copy approved for use or returned for correction and resubmittal.

2-1.08C **SAMPLES.** The Contractor shall submit samples of articles, materials or equipment as required by the Supplemental Conditions or Specifications. The Work shall be in accordance with the approved samples. Samples shall be removed from City property when directed or may be incorporated in the Work if approved by the Director. Samples not removed by the Contractor will become the property of the City or, at the City's option, will be removed or disposed of by the City at the Contractor's expense.

2-1.08D **MANUALS, INSTRUCTIONS AND AFFIDAVIT.**

A. **Manuals and Instructions.** Where operation and maintenance manuals are required by the Supplemental Conditions, the Contractor shall submit two (2) sets of manuals, suitably bound, along with two (2) electronic copies in an approved format, to the Director within forty-five (45) Days after favorable review of the equipment or facilities. If operation and maintenance manuals are approved to be provided in PDF format, text shall be provided in searchable PDF format, making proper use of PDF for headings and heading levels,

paragraphs, tables, and lists. Submitted operation and maintenance manuals shall be a collected, organized, and indexed set of bookmarked PDF documents comprising each operation and maintenance manual that corresponds to a hardcopy binder. All manuals shall be marked to indicate the specific equipment furnished for this project and shall include at a minimum:

1. Equipment summary form
2. Cover/Title page
3. Table of contents
4. Operating procedures including start-up, shutdown, normal operation, all operating modes, emergency shutdown, and safety precautions
5. Lubrication instructions (if required)
6. Preventative maintenance procedures
7. Troubleshooting and corrective maintenance procedures
8. Reinstallation instructions
9. Overhaul instructions (if applicable)
10. Parts identification list with exploded view and associated cross references
11. Recommended spare parts list
12. Operator safety requirements
13. Electrical and control system wiring drawings, including panel wiring control (ladder) diagrams, logic diagrams, loop diagrams, and interconnection diagrams
14. Panel layout and assembly drawings

15. Mechanical drawings
16. Printouts of all software programs and configuration files
17. Factory and field test procedures and results

Operation and maintenance manuals for complex equipment shall also include:

18. Alternate specified operating modes
19. Emergency shutdown instructions
20. Normal shutdown instructions
21. Long term shutdown instructions

Operation and maintenance manuals for systems comprised of separate pieces of equipment shall include a system explanation of items 4, 7, 18, 19, 20, and 21 as well as the instructions for the separate pieces of equipment.

B. Affidavits. Where required in the Supplemental Conditions or Specifications, manufacturers of equipment shall provide field service as a part of this project. Equipment shall not be considered ready for full time operation until after the authorized factory-trained and qualified manufacturer's representative for the specific equipment has checked and adjusted the equipment and certified by written affidavit that the equipment has been properly Installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. Acceptable affidavits shall be submitted prior to completion of the Work. Affidavits shall contain the following specific wording:

“The (Name of Equipment) has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. The installation has been inspected and has been found to be in conformance with our (the manufacturer's) standards and requirements.”

No amplification, dilution, or modification of this specific wording will be permitted.

2-1.08E **ALTERNATIVES.** For convenience in designation in the Contract Documents, certain materials, articles, or equipment may be designated by a brand or a trade name or the name of the manufacturer together with catalog designation or other identifying information, hereinafter referred to generically as “designated by brand name.” Except in those instances where the product is designated to match others in use in a particular improvement, either completed or in the course of completion, an alternative material, article, or equipment which is of equal quality and of the required characteristics for the purpose intended may be proposed for use provided the Contractor complies with the following requirements:

A. The Contractor shall submit its proposal for an alternative in writing. Such request shall be made in ample time to permit review and approval without delaying the Work. The Contractor shall not be entitled to an adjustment of the Contract Time or an increase in the Contract Price based on any Contractor-proposed substitution.

B. No such proposal will be considered unless accompanied by complete information and descriptive data, necessary to determine the equality of the offered materials. The Contractor shall satisfy the Director as to the comparative quality, suitability, or performance of the offered material, articles, or equipment. In the event that the Director rejects the use of such alternative materials, articles, or equipment, then one of the particular products designated by brand name shall be furnished.

C. The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and it shall furnish all information necessary as required by the Director. The Director shall be the sole judge as to the quality and suitability of alternative articles or materials and such decisions shall be final. Where use of an alternative material

involves redesign of, or changes to, other parts of the Work, the cost and time required to effect such redesign or changes will be considered in evaluating the suitability of the alternative material. Cost of redesign by the City will be borne by the Contractor.

D. Whenever classification, rating or other certification by a body such as Underwriters Laboratories (UL) or the National Electrical Manufacturers Association (NEMA) is a part of the specification for any material, Contractor's request for use of alternative articles or materials shall be accompanied by reports from the listed or equivalent independent testing Laboratory indicating compliance with the Contract Documents. The cost of all testing required to prove equality of the material proposed shall be borne by the Contractor. Approval of an alternative shall be only for the characteristics or use named in such approval, and shall not be used to change or modify any requirement of the Contract Documents.

E. At its election, the City reserves the right to consider any Contractor proposed substitution as a Cost Reduction Proposal under Section 3-1.07 of these General Conditions in the event that there is a significant savings resulting from the substitution.

The Director will examine, with reasonable promptness, such Submittals, and return of Submittals to the Contractor shall not relieve the Contractor from responsibility for deviations and alternatives from the Contract Documents, nor shall it relieve the Contractor from responsibility for errors in the Submittals. A failure by the Contractor to identify in its letter of transmittal material deviations from the Contract Documents shall void the Submittal and any action taken thereon by the Director. When specifically requested by the Director, the Contractor shall resubmit such Shop Drawings, descriptive data and samples as may be required.

If any mechanical, electrical, structural, or other changes are required for the proper Installation and fit of alternative materials, articles, or equipment, or because of deviations from

the Contract, such changes shall not be made without the approval of the Director and shall be made without additional cost to the City.

2-1.09 **DISPOSAL OF MATERIAL OUTSIDE THE WORK SITE.** Unless otherwise stated elsewhere in the Contract Documents, the Contractor shall, at its own cost and expense, make its own arrangements for disposing of materials outside the Work Site.

Except when material is to be disposed of at a landfill or recycling center, when any material is to be disposed of outside the Work Site, the Contractor shall first obtain written permission from the City to dispose of the material at the intended location. The City's approval will be contingent upon the Contractor obtaining a written permit from the property owner on whose property the disposal is to be made. Prior to the disposal of any material at the intended location, the Contractor shall submit such permit or a certified copy thereof to the City, together with a written release from the property owner absolving the City from any and all responsibility related to the disposal of material on said property.

Disposal of Hazardous Materials must be done in accordance with all laws and regulations. Copies of all required regulatory documentation including copies of final manifests shall be supplied to the City.

2-1.10 **ACCESS TO THE WORK.** The Contractor shall satisfy itself that the jurisdictions through which its operations and haul routes pass will permit such operations with respect to the type of vehicle, laden weights, frequency and dimensions of loads, hours of operation and required traffic control. All necessary permits, licenses or bonds shall be obtained and paid for by the Contractor.

2-1.11 **TEMPORARY UTILITIES.** The Contractor shall make its own arrangements with utility companies for any temporary services it may require in performance of

the Work and shall pay all costs of these services directly to these utility organizations.

2-1.12 **UTILITY FACILITIES.** The Contractor shall protect from damage those utility facilities that are to remain in place, be Installed, relocated or otherwise arranged.

The Contractor's attention is directed to the possible existence of facilities not shown, and of facilities in a location different from that, which is indicated. The Contractor shall take steps to ascertain the exact location of all facilities prior to doing any Work, which may damage such facilities or interfere with their service. Where the location of a facility is indicated or inferred from the presence of visible facilities such as buildings, meters, and junction boxes, the Contractor shall make such excavations and explorations as are necessary to ascertain the correct location. Unless provided for elsewhere in the Contract Documents, the cost of such excavations and explorations will be considered as a part of the cost of other items of Work and no additional payment will be made. Such excavations and exploratory Work shall not entitle the Contractor to an extension of time.

If the Contractor discovers underground facilities not indicated or inferred from the Contract Documents, the Contractor shall immediately give the Director written notification of the existence of those facilities. The Contractor shall determine the exact location of the underground facilities and the cost of the work will be paid for in accordance with the Contract Documents. The underground facilities shall be protected from damage as directed by the Director and the cost of that work will be paid for as extra work. The Contractor shall, if directed by the Director, repair any damage, which may occur to the underground facilities. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

Where it is determined by the City that the rearrangement of an underground facility, the existence of which is not shown on the Contract Drawings, is essential in order to accommodate the Work, the City will provide for the rearrangement of such facility by other forces or, when so ordered by Change Order, such rearrangement shall be performed by the Contractor and will be paid for as provided under a Change Order.

The Contractor shall be responsible for the maintenance of all utility facilities placed by the Contractor in temporary locations, and all utilities within the construction area not required to be relocated but which are required to be shored or supported during the construction period. The cost of such maintenance shall be borne by the Contractor, and no other compensation shall be due the Contractor for this Work.

The cost of providing and maintaining all necessary or required temporary structures, of making any necessary repairs, replacements, or similar operations, or furnishing indemnity or other bonds, if required, and all costs required by this Section shall be paid by the Contractor and shall be included in the prices bid in the schedule for other items of work.

2-1.13 **PRESERVATION AND CLEANING.** The Contractor shall clean up the Work at frequent intervals and at other times when directed by the Director. While finish Work is being accomplished, floors, Work areas and finished areas shall be kept clean, free of dust, construction debris and trash. Upon completion of the Work, the Contractor shall remove from the Premises its construction equipment and any waste materials not previously disposed of, leaving the Premises thoroughly clean and ready for final inspection.

2-1.14 **LIMITATIONS ON WORK SITE AND PREMISES.** The Contractor shall limit its construction operations to the Work Site unless otherwise shown on the Contract Drawings or specified. The Contractor shall perform no operation of any nature over or on the

Premises except such operations as are authorized by the Contract Documents or as authorized by the Director.

2-1.15 **DUST CONTROL.** During the performance of all Work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent the operations from producing dust damage and nuisance to persons and property. Any claims resulting from dust damage or nuisance shall be borne solely by the Contractor. The Contractor shall comply with all applicable Air Quality Act requirements.

2-1.16 **SANITATION.** The Contractor shall provide sanitary facilities for all persons working on the Work.

2-1.17 **NIGHT WORK AND NORMAL WORKING HOURS.** Normal working hours at the construction site shall be between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. Legal holidays are excluded. Certain utility connections and street operations are anticipated to require night Work by the Contractor during low usage periods. The Contractor may also be required to prosecute the Work at night if, at any time, the Director shall deem it necessary for the progress of the Work, or if emergencies arise. The Contractor shall promptly comply with any such requirements made in writing by the Director. The Contractor will also be permitted to Work at night if Contractor satisfies the Director of the need therefor, in order to maintain the required progress or protect the Work from the elements. Certain activities are required to be performed at night for nominal progress of the Work and/or are specified to be performed at night by other portions of the Supplemental Conditions. When required, ordered, or permitted to Work at night, the Contractor shall provide sufficient and

satisfactory lighting and other facilities therefor. The Contractor shall receive no extra payment for night Work, if specified or if required to be performed during the normal progress of the Work, but compensation shall be considered as having been included in the price stipulated for the Work.

If Contractor performs work during weekends, holidays or any non-normal work hours, Contractor shall pay for required City Inspectors.

2-1.18 **LINES AND GRADES.** Unless otherwise provided in the Supplemental Conditions, the Contractor shall lay out all Work, including structures and pipelines, and shall be responsible for any errors resulting therefrom. In all questions arising as to proper location of lines and grades, the Director's decision will be final.

As part of the bid price for the construction of the improvements, the Contractor shall provide and be responsible for the layout of all Work on this project. The Contractor shall provide all necessary surveys, field staking, and positioning for the construction of all components at the proper alignment, elevations, grades, and positions, as indicated on the Contract Drawings and as required for the proper operation and function. The Contractor shall stake its Work area limits. Contractor shall perform all construction staking using a land surveyor licensed in the State of California. Contractor shall provide a staking plan prior to commencement of Work for the City's review and maintain monuments, stakes, and marks, and shall update the plan as necessary. Director, or Director's designated representative, may verify the field condition. Errors or inconsistencies in the Contract Documents discovered by the Contractor shall be reported to the Director within twenty-four (24) hours and prior to constructive forms or related improvements. Any work Installed with this requirement shall be subject to removal and replacement at the Contractor's expense.

The Contractor's lay-out shall be based on existing structures, property lines, survey control, and bench marks established by the City. All structures and pipeline connections shall be Installed based on actual elevation of existing structures to which connections are made.

The Contractor shall supply such labor as required, at no extra charge, to aid and assist the Director in checking location and grades of the Work as set by the Contractor if the Director desires to perform this checking. This shall include moving materials and equipment located between monuments and the construction Work.

2-1.19 **ARCHEOLOGICAL DISCOVERIES.** Upon discovery of prehistoric or historic artifacts, or other indicators or examples of cultural resources discovered during the course of site preparation, grading, excavation, construction or other development activities, all operations within fifty feet (50') of the find shall cease until such time as the City provides the services of a qualified archeologist to evaluate the finds and recommend appropriate action.

Prehistoric materials can include flaked stone tools (e.g., projectile points, knives and choppers) or tool making debris of obsidian, chert, quartzite and other materials, culturally darkened soil (i.e., midden, which often contains heat affected rock, ash and charcoal, shellfish remains, and cultural materials), and stone milling equipment such as mortars, pestles and hand stones. Historic material may include wood, stone, concrete or adobe footings, walls and other structural remains; debris filled wells or privies; and deposits of wood, metal, glass, ceramics and other refuse.

2-1.20 **PRESERVATION OF MONUMENTS.** Any monuments or bench marks disturbed by construction operations shall be repaired per the City's standard and promptly re-established by a registered land surveyor or civil engineer. A plat for each monument shall be furnished to the Director after the plat has been recorded with the Placer

County Recorder's Office at no additional cost to the City. The recorded plat shall serve as a record of the re-establishment of said existing survey points.

2-1.21 **CONFORMITY WITH CONTRACT DOCUMENTS.** Work and materials shall conform to the lines, grades, cross sections, dimensions and material requirements, including tolerances, required by the Contract Documents. Although measurement, sampling and testing may be considered evidence as to such conformity, the City shall be the sole judge as to whether the Work or materials deviate from the Contract Documents. At its option, the City may elect to accept deviations from the Contract Documents with appropriate backcharge Assessments against the Contractor, and, if such an election is made, the City will provide written notice to the Contractor of such acceptance.

2-1.22 **FINAL CLEANUP.** Prior to final Acceptance of the Work, the Contractor shall thoroughly clean the Premises, remove all temporary structures built by or for the Contractor, and remove all equipment and surplus construction material and debris from the area. The entire project, before Acceptance by the City, shall be left in a neat and clean condition. All Work areas and temporary construction areas shall be returned to essentially the same conditions existing before the commencing of project construction.

2-1.23 **AS-BUILT DOCUMENTS AND DRAWINGS.** The Contractor shall maintain one set of the full size prints furnished by the City and mark thereon in color any deviations from plan dimensions, elevations, or orientations. Also, the Contractor shall locate on said prints, all underground facilities, such as piping, conduits and tanks by accurate field measurement from structure walls, corners, etc. The Contractor shall submit the prints and an electronic CD (searchable PDF or source file format such as AutoCAD) in good condition to the Director upon completion of the job as a condition of Acceptance of the project. Marked prints

shall be updated at least once each week and shall be available to the Director for review as to currency prior to developing partial payment estimates. After the completion of testing, but prior to Acceptance, the Contractor shall submit As-Built electrical drawings in color and an electronic CD showing all components and their wiring, and as specified in the Supplemental Conditions.

2-1.24 **SUPERINTENDENCE.** The Contractor shall supervise and direct the Work, which shall be performed in accordance with the requirements of the Contract Documents. The Contractor shall be solely responsible for implementation of all construction means, methods, techniques, sequences, and procedures and for coordination of all portions of the Work under the Agreement. The Contractor shall be solely responsible for the safety of its employees, Subcontractors of any tier, Suppliers, visitors to the Contractor, and other third parties associated with the Contractor.

The Contractor shall designate in writing before starting Work, an authorized representative who shall have the authority to represent and act for the Contractor.

When the Contractor is comprised of two (2) or more persons, firms, partnerships, or corporations functioning on a joint venture basis, said Contractor shall designate in writing before starting Work, the name of one authorized representative who shall have the authority to represent and act for the Contractor. Instances of misconduct, contract non-compliance, unsatisfactory performance, or incompetence by these personnel shall be grounds for the City to direct Contractor to dismiss them from the Project. Contractor shall immediately comply with the City's request for dismissal, at no cost to the City, and shall designate a replacement, which shall be subject to approval by the City.

Said authorized representative shall be present at the site of the Work at all times while Work is actually in progress on the Contract. When Work is not in progress and during periods

when Work is suspended, arrangements acceptable to the Director shall be made for any Emergency Work that may be required.

Whenever the Contractor or its authorized representative is not present on any particular part of the Work where it may be desired to give direction, orders will be given by the Director, which shall be received and obeyed by the superintendent or foremen who may have charge of the particular Work in reference to which the orders are given.

Any order given by the Director, not otherwise required by the Supplemental Conditions to be in writing, will on request of the Contractor, be given or confirmed by the Director in writing.

2-1.25 **CHARACTER OF WORKER.** If any Subcontractor or person employed by the Contractor shall appear to the Director to be incompetent or to act in a disorderly or improper manner, he or she shall be removed immediately on the requisition of the Director, and such person shall not again be employed on the Work.

2-1.26 **INSPECTION.** The Contractor shall at all times permit the Director to inspect the Work or any part thereof. The Contractor shall maintain proper facilities and provide safe access for such inspection by the Director to all parts of the Work, and to the shops where the Work is in preparation. Work shall not be covered up until authorized by the Director and the Contractor shall be solely responsible for notifying the Director where and when such Work is in readiness for inspection and testing. Should any such Work be covered without authorization, it shall, if so ordered, be uncovered at the Contractor's expense.

Unless otherwise designated as normal working hours, whenever the Contractor intends to perform Work on Saturday, Sunday, or a Legal Holiday, the Contractor shall give notice to the Director of such intention forty-eight (48) hours prior to performing such Work, or such longer

period as may be specified so that the Director may make necessary arrangements.

The observation and/or approval of the workmanship or materials by the City shall not relieve the Contractor of any obligations to fulfill the requirements of the Contract Documents. Workmanship and materials not meeting such requirements shall be corrected and unsuitable Work or material may be rejected, notwithstanding that such Work or materials have been previously observed and/or approved by the City, or payment therefor has been included in a progress estimate.

The City may order re-examination of questioned Work at any time before final Acceptance. If so ordered, the Contractor shall uncover the Work. If such work is found to be in accordance with the Contract Documents, the City will pay for the cost of uncovering, removing, recovering and replacing the parts removed; but if such Work so exposed or examined is not in accordance with the Contract Documents, the uncovering, removal, recovering and replacement shall be at the Contractor's expense. Work that has been covered prior to observation by the City does not qualify as re-examined work; the City may order such work uncovered for observation without payment of any costs.

2-1.27 **REMOVAL OF REJECTED AND UNAUTHORIZED WORK.** All Work which has been rejected shall be remedied, or removed and replaced by the Contractor in a manner acceptable to the Director and no compensation will be allowed the Contractor for such removal, replacement, or remedial Work.

Any Work done beyond the lines shown on the Contract Drawings or established by the Director, or any Work done without written authority will be considered as unauthorized Work and will not be paid for. Upon order of the Director, unauthorized Work shall be remedied, removed, or replaced at the Contractor's expense.

Upon failure of the Contractor to comply promptly with any order of the Director made under this section, the Director may cause rejected or unauthorized Work to be remedied, removed, or replaced, and the costs thereof will be deducted from any moneys due or to become due the Contractor.

SECTION 3

CHANGES IN THE WORK

3-1.01 **CHANGES.** The Director, without invalidating this Agreement and without notice to Contractor's surety, may order changes in the Work, consisting of additions or deletions, or other revisions. The Contract Price and the Contract Time shall be adjusted accordingly. All such changes in the Work, including in the Contract Price and the Contract Time, shall be authorized only by Contract Change Order, signed by the Director.

If Contractor claims that performance of any work entitles it to additional compensation or to an extension of time for performance of the Work, Contractor shall provide written notice to the City of any such claim prior to undertaking such work. Contractor shall provide written notice of any anticipated impacts to the Contract Price or Contract Time within three (3) Days of discovering such impact, by submitting a Notice of Potential Claim described in Section 7-1.03 below, or notice of delay as described in Section 6-1.09 below. If the Director refuses to issue a Change Order for such work, Contractor shall perform that work if directed or obligated to do so and shall submit a complete and specific Claim for additional compensation and/or extension of time for performance within fifteen (15) Days after such work is performed, as described in Section 7-1.03 below. Failure to provide written notice of claims prior to undertaking such work, failure to provide a timely Notice of Potential Claim, or failure to submit timely a complete and specific Claim for additional compensation and/or extension of the time for performance, shall be deemed a waiver and abandonment of any such Claim. No Claim, dispute or controversy shall interfere with the progress or performance of the Work and the Contractor shall proceed with the Work as directed by the Director. Failure to so proceed shall amount to a

default under this Agreement.

3-1.02 **PROPOSED CHANGE ORDERS.** The Contractor will be notified in writing of a proposed Change Order describing the intended change. Within fifteen (15) Days after receipt of a written request, the Contractor shall submit its proposed price to be added or deducted from the Contract Price due to the change and its estimate of the extent of the adjustment in the Contract Time, if any. The Contractor's proposed price to be added to or deducted from the Contract Price shall be supported by a detailed estimate of cost prepared by the Contractor, vendor or Supplier. The Contractor's proposed price submittal shall be accompanied by a statement of the time necessary for the changed Work, together with a description of how this time will be incorporated into the current Construction Schedule. The Contractor shall upon request by the Director permit inspection of its original Contract estimate, subcontract agreements or purchase orders relating to the change.

If agreement is reached on the adjustment in compensation as provided in Section 3-1.05, "Contract Price Adjustment," of these General Conditions, the Contractor shall proceed with the Work as changed at the agreed price.

If the Contractor and the Director fail to agree as to the adjustment in compensation for the performance of the changed Work, the Contractor, upon written order from the Director, shall proceed immediately with the changed Work and the Contract Price shall be adjusted in accordance with Section 3-1.06, "Force Account Payment," of these General Conditions.

If the Contractor fails to submit its cost estimate within such fifteen (15) Day period, the Contractor shall commence the Work as changed immediately upon receipt of written order of the Director, and the Contract Price will be adjusted in accordance with the Director's cost estimate for the changed Work.

3-1.03

EMERGENCY AND INDETERMINATE TYPE CHANGE

ORDERS. Changes in the Work made necessary by an Emergency, as determined by the Director, or changes of a kind where the extent of the Work cannot be determined until completed, may be authorized by the Director in writing. The Change Order shall state that it is issued pursuant to this Section 3-1.03. Upon receipt of an authorized Change Order or other written order of the Director, the Contractor shall proceed with the ordered Work and the Director will maintain a daily job record containing a detailed summary of all labor, materials and equipment required for the changed Work.

Within fifteen (15) Days after receiving a written request, the Contractor shall submit a detailed estimate of cost for the change and any requested change in Contract Time in the same manner as required for proposed Change Orders in Section 3-1.02 of these General Conditions.

3-1.04

EXECUTED CHANGE ORDER. A Contract Change Order signed by

both the Director and the Contractor is an “executed Contract Change Order.” By signing the Contract Change Order, the Contractor agrees that the specified compensation constitutes full compensation for the changed Work, including payment for interruption, disruption, acceleration, extended Overhead, delay or any other “impact” claim or “ripple effect” claim. The Contractor specifically understands and agrees that its execution of the Contract Change Order shall constitute a waiver of any right for the Contractor to claim any additional compensation with respect to the subject matter of the Contract Change Order.

3-1.05

CONTRACT PRICE ADJUSTMENT. If a Contract Change Order

provides for an adjustment to the Contract Price, the amount of such adjustment shall be determined by one of the following methods, or a combination thereof, as determined by the City and in its sole discretion:

A. Lump sum. The Contractor and the City may agree on a lump sum amount for the Change Order. At the City's request, the Contractor will provide pricing for the work. Maximum markups for Contract Change Orders paid for using lump sum pricing shall be paid for in the same manner and in the same amounts as markups for Force Account work, as described in Section 3-1.06 below.

B. Unit Prices. The unit prices set forth in the Contractor's Schedule of Bid Prices will be utilized where they are applicable and acceptable to the City. The Contractor's unit prices shall remain firm and shall not be subject to adjustment unless and until the actual quantity of work is increased or decreased by Contract Change Order in an amount greater than twenty-five percent (25%) from the estimated quantity indicated for such item. No markups will be given for Contract Change Orders paid for using unit prices.

Unit prices for new items included in the Contract Change Order but not included in the original bid shall be as mutually agreed upon or, in the absence of agreement, as determined by the City in the same manner as if the work were to be paid for on a Force Account basis, as described in Section 3-1.06 below.

C. Force Account. Where the City and the Contractor are unable to agree on lump sum pricing and if the City does not elect to utilize the unit prices in Contractor's bid, or such unit prices are not applicable, the changed work will be performed and tracked by the Contractor as Force Account work, as described in Section 3-1.06 below. The City will pay for such work, including markups, properly attributable to the change in accordance with those Force Account provisions.

D. Eliminated Items. The City reserves the right to delete any bid item of Work in its entirety. The City makes no representation that any work under a bid item of Work

will be performed, and all work may be subject to a Contract Change Order that deletes such work. Bid items are distinct and severable from the other bid items, and the Contractor shall not be entitled to any anticipated profit, unabsorbed Overhead, or other indirect expense attributable to the deleted item, except as provided immediately below with regard to Force Account mark-ups on the direct and verifiable costs incurred prior to the City's order that deletes the work.

Should any bid item of Work be eliminated in its entirety and not accounted for as described immediately above and, in the absence of an executed Contract Change Order covering such elimination, payment will be made to the Contractor for actual direct and verifiable costs incurred in connection with such eliminated bid item if incurred prior to the date of notification in writing by the City of such elimination. If acceptable material is ordered by the Contractor for the eliminated item prior to the date of notification of such elimination by the City, and if orders for such material cannot be canceled, it will be paid for at the actual direct and verifiable cost to the Contractor. Actual direct costs shall include documented vendor shipping fees, Supplier restocking fees, if applicable, and Contractor handling costs directly related to the eliminated item(s). In such case, the material paid for shall become the property of the City and the actual cost of any further handling will be paid for by the City. If the material is returnable to the vendor and if the City so directs, the material shall be returned and the Contractor will be paid for the actual direct cost of charges made by the vendor for returning the material. The actual direct cost of handling returned materials will also be paid for by the City. The actual direct and verifiable costs to be paid by the City as provided herein will be computed in the same manner as if the work were to be paid for on a Force Account basis, including the application of Force Account mark-ups to said costs.

3-1.06 **FORCE ACCOUNT PAYMENT.** When Work performed pursuant to a

Change Order is to be paid for on a Force Account basis, the Contractor's labor, materials and equipment used in the performance of such Work shall be subject to the approval of the City, and the compensation will be determined as set forth below in this section.

3-1.06A **LABOR.** The Contractor will be paid an amount based on the actual cost for the workers (including foremen when authorized by the Director) used in the actual and direct performance of the Work. All labor costs associated with Overhead, whether field or home office, are specifically excluded herein, as those labor costs are covered by the below mark-ups. The cost of labor, whether the employer is the Contractor, Subcontractor or other forces, shall include employer payments; assessment of benefits required by lawful labor union collective bargaining agreements; compensation insurance payments; contributions made to the State pursuant to the Unemployment Insurance Code; and for taxes paid to the Federal Government pursuant to the Social Security Act of August 14, 1935, as amended. No labor cost will be recognized at a rate in excess of the wages prevailing in the locality at the time the Work is performed, nor will the use of a labor classification, which would increase the cost, be permitted unless the Contractor establishes to the complete satisfaction of the Director the necessity for payment at a higher rate.

3-1.06B **MATERIALS.** Only materials furnished by the Contractor and necessarily used in the performance of the Work will be paid for. Such cost of materials may include the costs of procurement, transportation and delivery if necessarily incurred. If a cash or trade discount by the actual supplier is available to the Contractor, it shall be credited to the City. If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier plus the actual costs, if any, incurred in the

handling of such materials. If the materials are obtained from a supply or source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on Bid items or the current wholesale price for such materials delivered to the job site, less any discounts as provided herein, whichever is lower. If, in the opinion of the Director, the cost of materials is excessive, or if the Contractor fails to furnish satisfactory evidence of the cost to it from the actual supplier within sixty (60) Days after the date of delivery of the materials or within fifteen (15) Days after Acceptance of the Agreement, whichever occurs first, the cost of the materials shall be deemed to be the lowest current wholesale price at which similar materials are available in the quantities required, less any discounts provided herein. The Department reserves the right to furnish such materials required by the Change Order as it deems advisable, and the Contractor shall have no claim for cost or markups on material furnished by the Department.

3-1.06C **EQUIPMENT.** The Contractor will be paid an amount based on the actual cost for the use of equipment directly required and approved by the Director in the performance of the changed Work. No payment will be made for time while equipment is inoperative due to breakdowns or on Days when no Work is performed. In addition, the rental time shall include the time required to move the equipment to the Work from the nearest available source of such equipment, and to return it to the source. If such equipment is not moved by its own power, then loading and transportation costs will be paid. Moving time, loading and transportation costs will only be paid if the equipment is used exclusively on the changed Work during the time between move in and move out. Individual pieces of equipment having a replacement value of One Thousand Dollars (\$1000) or less shall be considered to be tools or small equipment, and no payment will be made therefore. For equipment owned,

furnished, or rented by the Contractor, no cost therefore shall be recognized in excess of the equipment rental rates published by Caltrans at the following website address:

<http://www.dot.ca.gov/hq/construc/equipmnt.html>. Equipment located at a Work Site and utilized on non-Force Account work shall not be eligible for standby payment, and shall be charged on a Force Account basis only when solely performing pre-approved Force Account work tasks.

3-1.06D **MARKUPS.** When a Change Order increases the cost of the Work, the Contractor may add the following maximum markups to its actual costs of labor, materials, or equipment rental:

15 percent for labor;

10 percent for materials; and

5 percent for equipment rental.

The above markups include full compensation, covering the costs of all supervision, bonds, profit, Overhead, and other general expenses not specifically designated as a direct cost in Sections 3-1.06A through 3-1.06C above. The total payment (i.e., direct cost plus applicable markups) shall be deemed to be the actual cost of such work and shall constitute full compensation therefor. The Contractor specifically understands and agrees that such payment shall include any Contractor costs for interruption, disruption, and acceleration, extended Overhead, Change Order management, delay or other “impact” claim or “ripple effect” claim.

When work paid for on a Force Account basis is performed by forces other than the Contractor’s own forces, the maximum allowable mark-ups for the Subcontractors’ costs shall be fifteen percent (15%) for the cost of labor, ten percent (10%) for the cost of materials, and five percent (5%) for the cost of rented equipment. In these situations where the work is being performed by Subcontractors, the Contractor will only be entitled to an additional five percent

(5%) mark-up and will not be entitled to receive the additional mark-ups specified in this section.

When a Change Order decreases the cost of the Work, the reduction in cost shall include a five percent (5%) markup on the estimated cost for furnishing the labor, materials and equipment, which would have been used on such Work, had the Change Order not been issued.

When a Change Order involves both added Work and deleted Work, the markup or markups to be used shall be as follows:

The actual costs of labor, materials, and equipment rental for added and deleted Work shall be calculated separately without adding markups. If the difference between the calculated costs for labor results in an increased cost, a markup of fifteen percent (15%) shall be applied to the increased cost. If the difference between the calculated costs of materials or equipment rental results in an increased cost, a markup of ten percent (10%) and five percent (5%) respectively, shall be applied to the increased costs of materials or equipment rental, as the case may be. If the difference between the calculated costs for labor, materials or equipment rental results in a decreased cost, a markup of five percent (5%) shall be applied to the decreased costs of labor, materials or equipment rental, as the case may be.

Contractor shall not add mark-ups on work performed and billed by City staff nor add mark-ups to successive iterations of proposed Change Order cost proposals returned to Contractor by the City due to incomplete or inaccurate information being originally submitted by the Contractor. If the Contract Price increases by the issuance of Change Orders, the penal amounts of the bonds required shall increase accordingly.

3-1.06E **RECORDS.** The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of extra work paid for on a Force Account basis and the costs of other operations.

From the above records, the Contractor shall furnish the City completed daily extra work reports, on forms acceptable to the City, for each Day's extra work to be paid for on a Force Account basis. The daily extra work reports shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, Subcontractor, or other forces. The daily extra work reports shall provide names and identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment, and hours operated. Daily extra work and Force Account reports (actual or claimed) shall be signed by both the City's and the Contractor's representatives within twenty-four (24) hours of the performance of the work.

Valid copies of vendor's invoices shall substantiate material charges. Such invoices shall be submitted with the daily extra work reports, or if not available, they shall be submitted with subsequent daily extra work reports. Should said vendor's invoices not be submitted within sixty (60) Days after the date of delivery of the material or within fifteen (15) Days after the Acceptance of the Agreement, whichever occurs first, the City reserves the right to establish the cost of such materials at the lowest current wholesale prices at which said materials were available in the quantities, less any discounts.

The City will compare its records with the completed daily extra work reports furnished by the Contractor and make any necessary adjustments. When these daily extra work reports are agreed upon and signed by both parties, said reports shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit by the City.

The Contractor's cost records pertaining to Work paid for on a Force Account basis shall be open to inspection or audit by representatives of the City during the life of the Agreement and for a period of not less than three (3) years after the date of Agreement completion and the

Contractor shall retain such records for that period. Where payment for materials or labor is based on the cost thereof to forces other than the Contractor, the Contractor shall make every reasonable effort to insure that the cost records of such other forces will be open to inspection and audit by representatives of the City on the same terms and conditions as the cost records of the Contractor. If an audit is to be commenced more than sixty (60) Days after the date of Acceptance of the Agreement, the Contractor will be given fifteen (15) Days' notice of the time when such audit is to begin.

3-1.07 **COST REDUCTION PROPOSALS.** The City encourages the Contractor to submit Cost Reduction Proposals whenever the Contractor identifies areas and/or instances in which there can be savings to the Work. Contractor may submit to the City, in writing, proposals for modifying the plans, Specifications or other requirements of the Agreement for the sole purpose of reducing the total cost of construction, including the time for completion of the Work. The City may consider such Cost Reduction Proposals and, if accepted, the Agreement will be equitably adjusted. The City has no obligation to consider or accept Cost Reduction Proposals.

SECTION 4

CONTROL OF MATERIALS

4-1.01 **MATERIALS.** The Contractor shall furnish all materials required to complete the Work, except materials that are designated in the Supplemental Conditions to be furnished by the City and materials furnished by the City in accordance with Section 3, “Changes in the Work,” of these General Conditions.

Unless otherwise specified in the Supplemental Conditions, materials furnished by the Contractor for incorporation into the Work shall be new. When the quality or kind of materials, articles, or equipment is not particularly indicated, then the quality or kind thereof shall be similar to those that are indicated.

Articles or materials to be incorporated in the Work shall be stored in such a manner as to insure the preservation of their quality and fitness for the Work, and to facilitate inspection.

All materials which do not conform to the requirements of the Contract Documents as determined by the Director, will be rejected whether in place or not. Rejected material shall be removed immediately from the site of the Work, unless otherwise permitted by the Director. No rejected material, the defects of which have been subsequently corrected, shall be used in the Work, unless approval in writing has been given by the Director. Upon failure of the Contractor to comply promptly with any order of the Director made under these provisions, the Director shall have the authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

Manufacturer's warranties, guaranties, instruction sheets and parts lists, which are furnished with certain materials incorporated in the Work, shall be delivered to the Director

before Acceptance of the Contract.

Unless otherwise designated in the Supplemental Conditions or Specifications, materials furnished by the City will be delivered to the job site. Materials furnished by the City that are designated in the Supplemental Conditions as available at locations other than the job site shall be hauled to the site of the Work by the Contractor at its expense, including any necessary loading and unloading that may be involved.

The Contractor will be held responsible for all materials furnished to it, and shall pay all demurrage and storage charges. City-furnished materials lost or damaged from any cause whatsoever shall be replaced by the Contractor. The Contractor will be liable to the Department for the cost of replacing City-furnished material and such costs may be deducted from any moneys due or to become due the Contractor.

4-1.02 **PRODUCT AND REFERENCE STANDARDS.** When descriptive catalog designations, including manufacturer's name, product brand name, or model number are referred to in the Contract Documents, such designations shall be considered as being those found in industry publications in effect on the day the Notice to Contractors for the Work is dated, except as may be otherwise stated.

When standards or test designations of the Federal Government, trade societies, or trade associations are referred to in the Contract Documents by specific date of issue, these shall be considered as part of the Contract. When such references do not bear a date of issue, the edition in effect on the day the Notice to Contractors for the Work is dated shall be considered as part of the Contract.

4-1.03 **SAMPLING AND TESTING OF MATERIALS.** Unless otherwise specified, all tests shall be performed in accordance with the methods used by the State

Department of Transportation (Caltrans) and shall be made by the Director or his or her designated representative.

The State Department of Transportation has developed test methods for testing the quality of materials and Work. These test methods are identified by a California Test followed by the serial number. Copies of individual tests are available at the State Department of Transportation Laboratory, Sacramento, California, and will be furnished to interested persons upon request.

Whenever a reference is made in the Supplemental Conditions to a California Test by number, it shall mean the California test in effect on the day the Notice to Contractors for the Work is dated.

Whenever the Supplemental Conditions provide an option between two (2) or more test methods, the Director will determine the test method to be used.

Whenever a Supplemental Condition, manual, or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of material, shall be furnished to the Director. The manufacturer's test reports shall supplement the inspection, sampling and testing provisions of this Section 4-1.03 and shall not constitute a waiver of the City's right to inspect. When material which cannot be identified with specific test reports is proposed for use, the Director may at his or her discretion, select random samples from the lot for testing. Testing specimens from the random samples, including those required for retest, shall be prepared in accordance with the referenced Supplemental Conditions and furnished by the Contractor at its expense. The number of such samples and test specimens shall be entirely at the discretion of the Director.

When requested by the Director, the Contractor shall furnish, without charge, samples of

all material entering into the Work, and no material shall be used prior to approval by the Director, except as provided in Section 4-1.04, "Certificates of Compliance," of these General Conditions.

A. Inspection and Access for Testing. The Contractor shall provide safe access for the Director and his or her inspectors to adequately inspect the quality of Work and conformance with the General and Supplemental Conditions. The Contractor shall provide adequate lighting, ventilation, ladders and other protective facilities as may be necessary for the safe performance of inspections.

The Contractor shall submit samples or specimens of such materials to be furnished or used in the Work as the Director may require. The Contractor shall furnish the Director all necessary labor and facilities for such things as excavation in the compacted fill to depths required to take samples.

Inspections, tests, or favorable review by the Director or others shall not relieve the Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Documents.

Work covered without the favorable review or consent of the Director shall, if required by the Director, be uncovered for examination at the Contractor's expense.

If the Engineer, Architect, or Director considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Director's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Director may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of

satisfactory reconstruction. If, however, such Work is not found to be defective and the Work was not covered without favorable review of the Director, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to cover its costs directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction and an appropriate Change Order shall be issued.

Whenever the Contractor varies the period during which Work is carried on each Day, the Contractor shall give due notice to the Director so that proper inspection may be provided. Any Work done in the absence of the Director may be subject to rejection. Proper facilities for safe access for inspection to all parts of the Work shall at all times be maintained for the necessary use of the Director and other agents of the City. Authorized representatives and agents of the Director shall be permitted access to inspect all Work and materials wherever it is required for preparation of progress reports, and the Contractor shall provide proper facilities for such access and inspection.

It is the Contractor's responsibility to supervise the Work and complete the project in accordance with the Contract Documents. In the course of managing that effort, the Contractor shall generate its own punch lists as deemed necessary. The Director may prepare punch lists for the Director's own use in communicating with the Contractor; however, the Director shall be under no obligation to prepare punch lists for the Contractor. In general, the Director will prepare punch lists only after the Contractor has given the Director written notice that the subject Work is completed and tested in accordance with the Contract Documents and is ready for operation and/or use and/or occupancy. Failure of the Director to include an item in a punch list shall not relieve the Contractor of its duty to satisfactorily complete all Work required by the Contract Documents.

Upon Final Completion of the construction Work and request by the Contractor, the Director will conduct a final inspection as a basis for recommending to the City that the Work be accepted.

B. Field and Materials Testing. Where the Supplemental Conditions require Work to be specially field tested or approved, it shall be tested only in the presence of the Director after timely notice of its readiness for inspection and test, and the Work after testing shall be covered up only upon the consent thereto of the Director.

The results of any tests made are for the information of the Director. Regardless of any test results, the Contractor is solely responsible for the quality of workmanship and materials and for compliance with the requirements of the Contract Drawings and Supplemental Conditions.

Except as specifically required under the Supplemental Conditions, all tests by the Director of materials furnished by the Contractor will be done in accordance with commonly recognized standards of national organizations. The Contractor shall furnish such samples of all materials as required by the Director without charge. No material shall be used unless it has been favorably reviewed by the Director.

Where such inspection and testing are to be conducted by an independent Laboratory or agency, the sample or samples of materials to be tested shall be selected by such Laboratory or agency, or the Director, and not by the Contractor.

C. Costs of Testing.

1. Initial Services: The City shall furnish and pay for all initial testing services required by the Contract Documents. When initial tests indicate non-compliance with the Contract Documents, the cost of initial tests associated with that non-compliance will be

deducted by the City from the balance owed the Contractor. The Contractor shall furnish samples of materials for testing as may be required by the Director. Such samples shall be furnished without cost to the City.

2. Retesting: When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing Laboratory and the cost thereof will be deducted by the City from the balance owed the Contractor. Contractor shall be billed for each additional test.

3. Contractor Convenience Testing: Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

4. Additional Tests and Inspections: When in the opinion of the Director additional tests or inspections are required because of the manner in which the Contractor executes its Work, such tests and inspections shall be paid for by the City, but will be deducted from the Contract Price. Examples of such tests and inspections are tests of materials substituted for previously accepted materials or substituted for specified materials, retests made necessary by failure of material to comply with the requirements of the Specifications, load tests made necessary because of portions of the structure not fully meeting Specifications or plan requirements, etc.

4-1.04 **CERTIFICATES OF COMPLIANCE.** A Certificate of Compliance shall be furnished prior to the use of any materials for which the Supplemental Conditions require that such a Certificate be furnished. In addition, the Director may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all

respects with the requirements of the Supplemental Conditions. A Certificate of Compliance shall be furnished with each lot of such materials delivered to the Work and the lot so certified shall be clearly identified in the Certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents and any such material not conforming to such requirements will be subject to rejection whether in place or not.

The Department reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition shall be as directed by the Director.

SECTION 5

LEGAL RELATIONS AND RESPONSIBILITY

5-1.01 **LAWS TO BE OBSERVED.** The Contractor shall keep informed of and observe, and comply with and cause all of its agents and employees to observe and comply with, all prevailing Federal and State laws, and rules and regulations made pursuant to said Federal and State laws, and county and municipal ordinances, and regulations, which in any way affect the conduct of the Contract. If any conflict arises between provisions of the Contract and any such law above referred to, the Contractor shall notify the Director at once in writing. To the fullest extent allowed by law, the Contractor shall defend, indemnify, and save and hold harmless the City or any of its officers, agents, employees, and volunteers against any claim or liability arising from or based on the violation of any such law, rule, or regulation, whether by itself or its agents or employees.

5-1.02 **HOURS OF LABOR.** Eight (8) hours labor constitutes a legal Day's work. The Contractor or Subcontractor shall, as a penalty to City, forfeit Twenty-five Dollars (\$25) for each worker employed in the execution of the contract by the respective Contractor or Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week in violation of the provisions of the Labor Code, and in particular, Section 1810 to Section 1815, thereof, inclusive, except that Work performed by employees of Contractors in excess of eight (8) hours per day, and forty (40) hours during any one (1) week, shall be permitted upon public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay, as provided in said

Section 1815. In addition, Contractor and/or its Subcontractors may be required to pay double the basic rate of pay for all hours worked in excess of twelve (12) hours in any workday and under other circumstances. (See California Code of Regulations, Title 8, Sections 16100(c)(6) and (16200(a)(3)(F) and applicable Department of Industrial Relations prevailing wage determinations.)

5-1.03 **NONDISCRIMINATION.**

A. Attention is directed to Labor Code Section 1735, which reads as follows:

“A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every Contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter.”

B. During the performance of this Contract, Contractor and its Subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status. The Contractor and Subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. The Contractor and Subcontractors shall comply with the provisions of the California Fair Employment and Housing Act (Government Code §12900, et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, §7285.0 et seq.) and other applicable State and Federal regulations and City

policies pertaining to nondiscrimination and affirmative action which are incorporated into this Agreement by reference and made a part hereof as if set forth in full. The Contractor and its Subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

C. Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform Work under the agreement.

5-1.04 **PREVAILING WAGE.** The Contractor and any Subcontractor shall comply with Labor Code Sections 1770 et seq. In accordance with said Section 1775 the Contractor and any Subcontractor under the Contractor shall, as a penalty, forfeit to the state or City not more than \$200 for each calendar day or portion thereof, for each worker paid less than the prevailing rate as determined by the Director of Industrial Relations for the work or craft in which such worker is employed for under the Contract by the Contractor or by any Subcontractor under the Contractor.

The amount of the penalty shall be determined by the Labor Commissioner based on consideration of both of the following: (a) whether the failure to pay the correct rate of per diem wages was a good-faith mistake and, if so, whether the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor; and (b) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations.

The penalty may not be less than forty dollars (\$40) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor.

The penalty may not be less than eighty dollars (\$80) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Contractor or Subcontractor has been assessed penalties within the previous three (3) years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned.

The penalty may not be less than one hundred twenty dollars (\$120) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1 of the Labor Code.

If the amount due under this section is collected from the Contractor or Subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 of the Labor Code against the Contractor or Subcontractor shall be satisfied before applying that amount to the penalty imposed on that Contractor or Subcontractor pursuant to this section.

The determination of the Labor Commissioner as to the amount of the penalty shall be reviewable only for an abuse of discretion.

In addition to said penalty, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage shall be paid to each worker by the Contractor or Subcontractor.

If a worker employed by a Subcontractor on a public works project is not paid the general prevailing per diem wages by the Subcontractor, the Contractor is not liable for any penalties described above unless the Contractor had knowledge of that failure of the Subcontractor to pay

the specified prevailing rate of wages to those workers or unless the Contractor fails to comply with all of the following requirements:

1. The contract executed between the Contractor and the Subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1776, 177.5, 1813, and 1815 of the Labor Code.
2. The Contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the Subcontractor to the employees, by periodic review of the certified payroll records of the Subcontractor.
3. Upon become aware of the Subcontractor's failure to pay its workers the specified prevailing rate of wages, the Contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the Subcontractor for work performed on the public works project.
4. Prior to making final payment to the Subcontractor for work performed on the public works project, the Contractor shall obtain an affidavit signed under penalty of perjury from the Subcontractor that the Subcontractor has paid the specified general prevailing rate of per diem wages to its employees on the public works project and any amount due pursuant to 1813 of the Labor Code.

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement shall notify the Contractor on a public works project within fifteen (15) Days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a Subcontractor on that public works project to pay workers the general prevailing rate per diem wages.

Pursuant to the provisions of California Labor Code Section 1773, the City has obtained

the general prevailing rate of wages applicable to the categories of workers the City anticipates will be utilized for this project for straight time, overtime, Saturday, Sunday, and holiday Work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of worker concerned or, if no collective bargaining applies, those holidays identified in Government Code Section 6700. These wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>, which is incorporated herein as a part of this Contract.

Pursuant to Labor Code Section 1773.2, the general prevailing wage rates set forth above, which forms a part of this Contract, shall be posted by the Contractor at a prominent place at the site of the Work.

Pursuant to Labor Code Section 1773.6 and California Code of Regulations Section 16204, Title 8, changes in general prevailing wage determinations shall apply to the project only if issued by the Director of Industrial Relations prior to the City's bid issuance date.

The City will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the Contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining its Bid, and will not under any circumstances be considered as the basis of a claim against the City or Contract.

When both California and Federal prevailing wage rates apply, the Contractor and any Subcontractors shall pay their workers the higher of the two rates. The Contractor and any Subcontractors shall insert this clause in any lower tier contract.

5-1.05 **REGISTRATION REQUIRED AS QUALIFICATION TO BID.**

Pursuant to Labor Code Section 1771.1(b), notice is hereby given that a Contractor or Subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contractor for public work, as defined in Labor Code Sections 1720, et seq., unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of Labor Code Section 1771.1 for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5.

5-1.06 **PAYROLL RECORDS.** The Contractor's attention is directed to the following provisions of Labor Code Section 1776. The Contractor shall be responsible for the compliance with these provisions by its Subcontractors.

A. The Contractor and each Subcontractor shall keep accurate and current payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by it in connection with the public work. Each payroll record shall contain or be verified by a written declaration that is made under penalty of perjury, stating both of the following:

1. The information contained in the payroll record is true and correct.
2. The employer has complied with the requirements of Section 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

B. The payroll records enumerated under subdivision (A) shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following

basis:

1. A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or his or her authorized representative on request.

2. A certified copy of all payroll records enumerated in subdivision (A) shall be made available for inspection or furnished upon request to a representative of the City, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations. The City reserves the right to withhold any progress payments to the Contractor in the event of noncompliance with the subsection.

3. A certified copy of all payroll records enumerated in subdivision (A) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the City, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. The public shall not be given access to such records at the principal office of the Contractor.

C. The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division.

D. Each Contractor shall file a certified copy of the records enumerated in subdivision (A) with the entity that requested the records within ten (10) Days after receipt of a written request.

E. Any copy of the records made available for inspection as copies and furnished upon request to the public or any public agency by the City, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or

obliterated to prevent disclosure of an individual's name, address and social security number.

The name and address of the Contractor awarded the Contract or Subcontractor performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) shall be marked or obliterated only to prevent the disclosure of an individual's name and social security number. A joint labor-management committee may maintain an action in a court of competent jurisdiction against an employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor-management committee reasonable attorneys' fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this section.

F. The Contractor shall inform the City of the location of the records enumerated under subdivision (A), including the street address, city and county, and shall, within five (5) business days, provide a notice of a change of location and address.

G. The Contractor shall have ten (10) Days in which to comply subsequent to receipt of written notice requesting the records enumerated in subdivision (A). In the event that the Contractor or Subcontractor fails to comply within the ten (10) Day period, the Contractor shall, as a penalty to the State or City, forfeit twenty-five (\$25) Dollars for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from any progress payment or final payment then due. A contractor

is not subject to a penalty assessment pursuant to this section due to the failure of a Subcontractor to comply with this section.

5-1.07 **SAFETY REQUIREMENTS.** It is the intent of the parties that the City is not an exposing, creating, controlling, or correcting employer under California Labor Code Section 6400. In accordance with generally accepted construction practices and State law, the Contractor shall have the authority and be solely and completely responsible for conditions on the Work Site, including safety of all persons and property during performance of the Work. Moreover, the Contractor shall be the controlling employer and has the authority and responsibility to enforce Work Site safety. The Contractor shall be responsible for conducting daily safety inspections and assuring all hazards and violations are abated. The Contractor is responsible for assuring that all Subcontractors adhere to the minimum Cal/OSHA safety requirements and that each Subcontractor has an effective Cal/OSHA IIPP (Illness and Injury Prevention Program) in place that specifically addresses all potential exposures, such as, but not limited to, fall protection, confined space, and trenching/shoring. These requirements shall apply continuously and not be limited to normal working hours. The Contractor shall be responsible for any delay costs or damages in the event the progress of Work is slowed or stopped due to a safety violation.

The Contractor shall designate a safety officer and have in place a health and safety plan in accordance with the laws of State of California and conduct safety meetings and document them in accordance with the law. The Contractor shall have the safety record available for inspection during working hours and shall submit job site safety meeting reports with each Application for Payment.

Prior to Contractor commencing construction project work on City property, Contractor

shall make available copies of its Health and Safety Plan (HASP) that meets or exceeds applicable Cal/OSHA regulations. The Contractor's HASP shall also meet or exceed the requirements of any applicable City-wide or departmental specific Injury and Illness Prevention Programs (IIPP) and other HASP programs, procedures, and plans. Potentially applicable HASP programs, procedures, and plans include, but are not limited to, the following:

1. Bloodborne Pathogens Exposure Control Plan;
2. Confined Space Entry Procedure;
3. Electrical Safety Program (Lockout/Tagout);
4. Emergency Action Plans (Site Specific);
5. Fire Prevention Plans (Site Specific);
6. Hazardous Waste Operations Emergency Response Plan (or Equivalent);
7. Hazard Communication Program (SDS's and Right-to-Know training);
8. Heat Illness & Prevention Plan;
9. Hearing Conservation Program;
10. Hot Work/Welding Procedure;
11. Job Hazard Analyses/Standard Operating Procedures;
12. Traffic Control & Flagging;
13. Excavation/Dig Safe Procedure;
14. Fall Protection Plan;
15. Personal Protective Equipment Plan;
16. Respirable Crystalline Silica Exposure Control Plan;
17. Respirator Program;
18. Soils Management Plan (for contaminated soils); and

19. Transite (Asbestos) Pipe Work Procedure.

Additionally, Contractor shall be responsible for complying with all City-wide and departmental specific safety requirements as identified in the Supplemental Conditions or presented at a pre-construction meeting.

Contractor shall inform City in advance of the quantity of chemical(s) to be used for the project and the total quantity of chemical(s) that will be brought onto City property. In addition, Contractor shall provide City with one copy of the Safety Data Sheet (SDS) for each chemical expected to be used to complete the project and for each chemical brought to the Work Site, regardless of whether such chemicals are ultimately used for the project.

The services of the Director in conducting construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's Work methods, equipment, bracing or scaffolding, or safety measures, in, on, or near the construction site. If a City employee observes a safety violation, the City employee will report the violation to the Contractor who is then responsible for assuring the violation is abated.

The Contractor is hereby informed that Work on this project could be hazardous. The Contractor shall carefully instruct all personnel working in potentially hazardous Work areas as to potential dangers and shall provide such necessary safety equipment and instructions as are necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to Work underground.

All Work and materials shall be in strict accordance with all applicable State, City, County, and Federal Rules, Regulations, and Codes, and attention is drawn to the requirements of Cal/OSHA. The Contractor shall be solely responsible for compliance with all City, County and State blasting requirements and for any damages caused by its operations.

To ensure compliance with California Labor Code Section 6705, the Contractor shall submit to the City, at least five (5) Days in advance of excavation of any trench five feet (5') or more in depth, Working Drawings to the Director showing the design of shoring, bracing, sloping and other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such Working Drawings vary from the shoring system standards established by the Cal/OSHA Construction Safety Orders of the Division of Industrial Safety, the plan shall be prepared and signed by a registered civil or structural engineer in the State of California. This in no way relieves the Contractor from the requirement of maintaining safety in all operations performed by the Contractor or the Contractor's Subcontractors and nothing in this section shall be deemed to allow the use of a shoring, sloping or protective system less effective than that required by the Cal/OSHA Construction Safety Orders of the Division of Industrial Safety Contractor's Working Drawings shall be subject to approval insofar as the details affect the character of the finished Work and for compliance with design requirements applicable to the construction when specified or called for, but details of the design will be left to Contractor who shall be responsible for the successful construction of the Work. The City shall approve Working Drawings before any Work involving such drawings is performed. Approval and/or acceptance by the City or its designated agent only constitutes acknowledgment of the submission and does not constitute review or approval of the designs, design assumptions or criteria, completeness of submissions, applicability to areas of intended use, nor implementation of the plans, which are solely the responsibility of the Contractor and its registered engineer.

The Contractor shall perform its Work as not to expose personnel to, or to discharge into the atmosphere from any source whatever, smoke, dust, asbestos, toxic chemicals or other air

contaminants in violation of the laws, rules, and regulations of the governmental entities having jurisdiction and shall bear full and exclusive responsibility for any release of hazardous or non-hazardous chemicals or substances during the course of the Work. The Contractor shall immediately report any such release to the City. The Contractor shall be solely responsible for all claims and expenses associated with the response to, removal and remediation of the release, including, without limitation, payment of any fines or penalties levied against the City by any agency as a result of such release and shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees, and volunteers from any claims arising from such release. For purposes of this section only, the term “claims” shall include:

1. All notices, orders, directives, administrative or judicial proceedings, fines, penalties, fees, or charges imposed by any governmental agency with jurisdiction; and
2. Any claim, cause of action, or administrative or judicial proceeding brought against the City, its officers, agents, employees, and volunteers for any loss, cost (including reasonable attorneys’ fees), damage or liability, sustained or suffered by any person or entity, including the City.

If the performance of the Work creates any hazardous wastes, those wastes shall be properly disposed of according to federal, state, and local laws, at the expense of the Contractor. The Contractor shall dispose of the wastes under its own EPA Generator Number. In no event shall the City be identified as the generator. The Contractor shall notify the City of any such hazardous wastes and the City reserves the right to a copy of the results of any tests conducted on the wastes, and, at its cost, to perform additional tests or examine those wastes, prior to disposition. The Contractor shall defend, indemnify, and save and hold harmless the City, its

officers, agents, employees, and volunteers from any claims arising from the disposal of the hazardous wastes, regardless of the absence of negligence or other malfeasance by the Contractor. Disposal of all Hazardous Materials must be done in accordance with all laws and regulations. Copies of required regulatory documentation including copies of final manifests shall be supplied to the City.

Contractors or Subcontractors removing one hundred or more square feet (100') of asbestos must be "Certified" in accordance with State law. All Work involving exposure to asbestos and all other hazardous materials shall be performed with protection of personnel in compliance with all applicable regulations and safety requirements including, but not limited to, California Code of Regulations Section 1529, Title 8.

Nothing in these General Conditions is to be construed to permit Work not conforming to governing codes. When Contract Documents differ from governing codes, the Contractor shall furnish and Install the higher standards called for without extra charge.

5-1.08 **SUBSURFACE EXCAVATIONS, NOTIFICATION.** The Contractor shall contact the regional notification center, "Underground Service Alert," and schedule its Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. Without limiting the foregoing, the Contractor's attention is directed to Government Code Sections 4216 to 4216.9, and in particular Section 4216.2.

5-1.09 **PUBLIC SAFETY.** The Contractor shall assume all responsibility for public safety during the performance of its Work, and all costs arising therefrom shall be included in the Contract Price. Whenever the Contractor's operations create a condition hazardous to traffic or to the public, it shall furnish, erect and maintain, at its expense, such fences, barricades, lights, signs, and other devices and take such other protective measures as are

necessary to prevent accidents or damage or injury to the public. The Contractor shall establish the pedestrian detours with comparable lighting to the original pedestrian areas. The Contractor shall arrange for such flaggers as are necessary to give adequate warning to traffic or to the public of any dangerous conditions affecting traffic. For Work in a public right-of-way, the Contractor shall comply with the rules and regulations of the State, County, or local agency that owns the right-of-way.

The Contractor shall promptly and fully comply with and carry out, and shall without separate charge therefor to the City, all safety and first aid requirements prescribed by all applicable Federal, State, and local laws and regulations, rules, and orders. The Work shall be done in a safe manner; and the Contractor shall safeguard the safety and health of its employees, Subcontractors, and the people of local communities. The Contractor shall also be reasonable for ensuring that its Subcontractors comply with the provisions of this section.

Upon the failure of the Contractor to comply with any of the requirements of this section, the City shall have the authority, but not the duty, to stop the Work until such failure is remedied. The Contractor shall not be entitled to an adjustment of the Contract Time or an increase in the Contract Price due to any such suspensions.

When required by the Contract Documents, the Contractor shall construct, maintain, and remove detours for use of public traffic, without additional cost to the City, unless separate payment is specified in the Special Provisions.

The failure or refusal of the Contractor to construct and maintain detours at the proper time shall be sufficient cause for closing down the work until such detours are in satisfactory condition for use by public traffic.

Due care shall be exercised to avoid injury to existing improvements or facilities, utility

facilities, adjacent property and trees, shrubs, and other plants that are not to be removed.

Trees, shrubs and other plants that are not to be removed, and pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipe lines, sewer and waterlines, highway facilities, and any other improvements or facilities, under or above ground, that are within or adjacent to the work limit line shall be protected from injury or damage, and the Contractor shall provide and Install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense. The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the Work Site, or as good as required by the Contract Documents if any such objects are part of the Work. The City may make or cause to be made such temporary repairs as are necessary to restore to service any damaged facility. The cost of such repairs shall be borne by the Contractor, and the costs may be deducted from any monies due or to become due to the Contractor under the Agreement.

The fact that any underground facilities is not shown on the Contract Drawings shall not relieve the Contractor of its responsibility pursuant to "Utility Facilities" in Section 2-1.12 elsewhere in the Contract Documents. It shall be the Contractor's responsibility, pursuant thereto, to ascertain the location of such underground improvements or facilities, which may be subject to damage by reason of its operations.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the Work involved in protecting or repairing property as specified in this section, shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefor.

5-1.10 **EMERGENCIES.** In an Emergency affecting the safety of life, the

Work, or adjoining property, the Contractor, without special instructions or authorization from the City, shall act at its discretion to prevent such threatened loss or injury. In such an Emergency, the Contractor may perform such additional work as is reasonably required. Any compensation claimed by the Contractor on account of Work performed to an Emergency shall be determined in accordance with the provisions relating to Force Account payment contained elsewhere in the Contract Documents.

5-1.11 **APPRENTICES.** Attention is directed to Labor Code Sections 1777.5, 1777.6 and 1777.7 and Title 8, California Code of Regulations Section 200 et seq. In accordance with Section 1777.5, the Contractor shall secure the necessary certificates and shall contribute to the apprenticeship fund or funds, as provided therein. The Contractor shall require each Subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work to fully comply with Sections 1777.5 and 1777.6 of the Labor Code. To insure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, each Contractor or Subcontractor should, where some questions exist, contact the Division of Apprenticeship Standards, , or one of its branch offices prior to commencement of Work on the public works Contract. Responsibility for compliance with this section lies with the prime Contractor.

It is State and City policy to encourage the employment and training of apprentices on public works Contracts as may be permitted under local apprenticeship standards.

5-1.12 **FAIR LABOR STANDARDS ACT.** Attention is invited to the fact that the City has been advised by the Wage and Hour Division, U.S. Department of Labor, that Contractors engaged in construction Work are required to meet the provisions of the Fair Labor Standards Act of 1958 and as amended (52 Stat. 1060).

5-1.13 **WORKERS' COMPENSATION.** Pursuant to the requirements of Labor Code Section 1860, the Contractor will be required to secure the payment of workers' compensation to its employees in accordance with the provisions of Labor Code Section 3700.

Prior to the commencement of Work, the Contractor shall sign and file with the Director a certification in the following form:

“I am aware of the provisions of Labor Code Section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.”

5-1.14 **AIR POLLUTION CONTROL AND ASBESTOS.** The Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes which apply to any Work performed pursuant to the Contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Government Code Section 11017.

In the absence of any applicable air pollution control rules, regulations, ordinances or statutes governing solvents, all solvents, including but not limited to the solvent portions of paints, thinners, curing compounds, and liquid asphalt used on the project shall comply with the applicable material requirements of the applicable Air Quality Management District. All containers of solvent, paint, thinner, curing compound, or liquid asphalt shall be labeled to indicate that the contents fully comply with said requirements.

Unless otherwise provided in the Supplemental Conditions, material to be disposed of shall not be burned, either inside or outside the Premises.

The Contractor shall also comply with all rules, regulations, statutes and ordinances

regarding asbestos removal and disposal, including but not limited to, 42 U.S.C. Sections 7401, 7412 and 7601, 40 C.F.R. Part 61, Subpart M, and California Code of Regulations Section 1529, Title 8.

If the Contractor discovers that a building to be demolished or renovated contains asbestos containing material, the Contractor shall immediately cease Work and notify the City.

5-1.15 **USE OF PESTICIDES.** The Contractor shall comply with all local, state and federal rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations and all other agencies which govern the use of pesticides required in the performance of the Work.

Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellents.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weed, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered as pesticide.

5-1.16 **SOUND AND LIGHT CONTROL REQUIREMENTS.** The Contractor shall comply with all local sound control, light control, and noise level rules, regulations and ordinances which apply to any Work performed pursuant to the Contract. Work shall not begin before 7 a.m. nor occur after 7 p.m., unless otherwise permitted by the City.

Each internal combustion engine, used for any purpose on the Work or related to the Work, shall be equipped with a muffler, in good working order, of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said

muffler.

5-1.17 **WEIGHT LIMITATIONS.** Unless expressly permitted elsewhere in the Contract Documents, the Contractor shall not operate construction equipment or vehicles of any kind which, laden or unladen, exceed the maximum weight limits set forth in Division 15 of the Vehicle Code over completed or existing base, surfacing, pavement or structures.

5-1.18 **ENVIRONMENTAL CLEARANCES; MITIGATION MONITORING PROGRAMS; AND REGULATORY AGENCY PERMIT REQUIREMENTS.** The Department will obtain all environmental clearances and other authorizations necessary for this project as set forth in the Contract Documents. The Contractor shall comply with the provisions, including giving notices during construction when required, of said authorizations. In the event the obtaining of said authorizations delays completion of all or any portion of the Work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted.

Contractor shall comply with: (1) all mitigation identified in the mitigation monitoring program (attached to and adopted as a component of the mitigated negative declaration or Environmental Impact Report) to mitigate impacts to protected natural resources; and (2) all related permit requirements issued by the regulatory agencies authorizing the project. Contractor shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees, and volunteers from any fines, claims, suits, actions or regulatory sanctions of every name, kind and description brought forth, or on account of, damage to protected natural resources from or arising out of Contractor's negligence or willful misconduct in the performance of this Agreement.

5-1.19 **PERMITS AND LICENSES.** The Contractor acknowledges and agrees that, prior to the submission of its bid for the Work, it fully familiarized itself with the

requirements of all applicable federal, state, county and municipal laws, codes, rules, and regulations, as well as the conditions of any required licenses and permits.

The Contractor shall procure all permits and licenses, including any applicable building permits (except those procured or to be procured by the City which are listed elsewhere in the Contract Documents), in coordination with the Director, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the Work. Contractor shall be responsible for applying, paying all fees, and coordination for obtaining all permits for completion of the Work. All permits and licenses shall be obtained in sufficient time to prevent delays to the Work. Contractor will apply to the City for reimbursement for such permits costs. Accordingly, Contractor should not include the anticipated costs for permits in its bid, as the necessary permit costs will be reimbursed by the City.

The California Environmental Quality Act (Public Resources Code, Section 21000 to 21177) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from State or local agencies in connection with performing the Work. The Contractor shall comply with the provisions of that Act in obtaining such permits, licenses and other authorizations, and all permits, licenses and other authorizations shall be obtained in sufficient time to prevent delays to the Work.

The Contractor shall maintain the applicable Contractor's license as identified in the Notice to Contractors and City business license for the duration of the Work.

5-1.20 **WATER POLLUTION.** The Contractor shall comply with all water pollution control rules, regulations, ordinances and statutes which apply to any Work performed pursuant to the Contract, including any water pollution control rules, regulations, and statutes, specified by the most current State of California NPDES General Permit for Stormwater

Discharges Associated with Construction Activity.

The Contractor shall take all necessary precaution to protect streams, vernal pools, ponds, reservoirs, and lakes from pollution with fuels, oils, bitumen, calcium chloride, and other harmful materials as consistent with the law. Also, the Contractor shall conduct and schedule operations so as to avoid discharging pollutants, such as but not limited to: sediment and silt to the storm drain system. The storm drain system consists of all facilities that are designed to convey stormwater to the Waters of the State as defined in the California Water Code. The storm drain system includes, but is not limited to, all streets, gutters, drain inlets, roadside ditches, streams, vernal pools, ponds, and lakes. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

5-1.21 **PROTECTION AND USE OF PROPERTY.** The Contractor shall be responsible for and provide and maintain all proper temporary walkways, covered walkways, barriers, roads, guards, railings, lights, warning signs, and take precaution at all times to avoid injury or damage to any person or any property, and upon completion of the Work, or at other times as directed, restore Premises and adjacent property to a proper condition. In the event of such injury or damage, Contractor shall report such injury and damage to City within forty-eight (48) hours of occurrence.

The Contractor shall protect adjoining property and nearby buildings, including City buildings, City roads, and public streets or roads, from dust, dirt, debris, or the nuisance arising out of the Contractor's operations or storage practices, and, if ordered by the Director, the Contractor shall provide and Install suitable safeguards, approved by the Director, to protect such objects from damage. If such objects are damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense.

If the Contractor damages any buildings, roads, utilities, or other property which belong to the City, or any Department or agency thereof, then the Director, at his or her option, may retain from the money due under the Contract an amount sufficient to insure repair of the damage.

The Director may make or cause to be made such temporary repairs as are necessary to restore to service any such damaged facility. The cost of such repairs shall be borne by the Contractor and may be deducted from any moneys due or to become due the Contractor under the Contract.

5-1.22 **RESPONSIBILITY FOR DAMAGE AND INDEMNIFICATION.**

The City of Roseville, its officers, agents, employees, and volunteers, including but not limited to the Director and his or her designee, shall not be answerable or accountable in any manner: for any loss or damage that may happen to the Work or any part thereof; for any loss or damage to any of the materials or other things used or employed in performing the Work; for injury to or death of any person, either workers or the public; or for damage to property from any cause which might have been prevented by the Contractor, its workers, or anyone employed by the Contractor or the Contractor's Subcontractors.

The Contractor shall be responsible for any liability imposed by law and for injuries to, or death of, any person including, but not limited to, workers and the public, or damage to property resulting from defects or obstructions, or from any cause whatsoever during the progress of the Work or at any time before its completion and final Acceptance.

To the fullest extent allowed by law, the Contractor shall defend (through counsel acceptable to the City), indemnify, and save and hold harmless the City, and its respective officers, agents, Subcontractors, employees, and volunteers, and the successors and assigns of

any of them, (hereinafter referred to as “Indemnitees”) from and against all claims, demands, liability, suits, actions, costs or expenses for any and all loss or damage, including but not limited to, personal injury, property damage, or economic loss, arising out of or resulting from allegations of (1) Contractor’s use of the City’s property or any activities or Work performed hereunder by the Contractor; (2) the Contractor’s performance of the Work under the Agreement; or (3) the Contractor’s breach of any provision of the Agreement. The duty of the Contractor to indemnify and save harmless includes the duties to defend as set forth in Civil Code Section 2778. The only exception to these provisions is that the Contractor’s obligations under this section will not apply to the extent that the claims, demands, liability, suits, actions, costs or expenses are caused by Indemnitees’ active negligence, willful misconduct, criminal acts, or for defects in design furnished by the Indemnitees, misconduct, criminal acts, or for defects in design furnished by the Indemnitees.

The Contractor waives any and all rights to any type of express or implied indemnity against the City, its officers, agents, employees, or volunteers.

The Contractor’s responsibility for such defense and indemnity obligations shall survive the termination or completion of this Contract for the full period of time allowed by law. The defense and indemnity obligations of this Contract are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Contract. The parties intend that the defense and indemnity obligations in this Contract shall be broadly construed.

Any person, firm or corporation that Contractor authorizes to Work on the City’s property including Subcontractors, shall be deemed to be an agent of the Contractor for purposes herein, shall be subject to all the applicable terms herein, and shall be within the scope of the Contractor’s indemnity obligation described herein.

In addition to any remedy authorized by law, so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the Department may be retained by the City until disposition has been made of such suits or claims for damages.

The retention of money due the Contractor shall be subject to the following:

A. The City will give the Contractor thirty (30) Days' notice of its intention to retain funds from any partial payment which may become due to the Contractor prior to Acceptance of the Contract. Retention of funds from any payment made after Acceptance of the Contract may be made without such prior notice to the Contractor.

B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 7-1.07, "Progress Payments," of these General Conditions.

C. If the City has retained funds and it is subsequently determined that the City is not entitled to be indemnified and saved harmless by the Contractor in connection with matter for which such retention was made, the Department shall be liable for interest on the amount retained at the legal rate of interest for the period of such retention.

5-1.23 **INSURANCE COVERAGE.**

A. Evidence of Maintenance Required. The Contractor shall, at its expense, procure and at all times maintain in full force and effect at a minimum the insurance required by this section on all of its operations; and the Contractor shall not allow any Subcontractor to commence work until similar insurance required of the Subcontractor has been obtained and filed. An original Certificate of Insurance, and copies of all required endorsements, all in a form approved by the Risk Manager, evidencing all required coverage or policies shall be filed after the award of the bid and prior to approval of the Contract by the City Council. Contractor shall

provide ten (10) days prior written notice to the City of any reduction of coverage limits or cancellation of the coverage or policies shall be given to the City of Roseville as Certificate holder.

B. Qualifying Insurers. With the exception of the State Compensation Insurance Fund, all required insurance policies shall be issued by companies acceptable to the City and licensed to do business in the State of California and who hold a current policy holders alphabetic and financial size category rating of not less than AVII according to the most recent issue of Best's Insurance Reports.

C. Insurance Required.

1. Commercial General Liability (CGL): Insurance Services Office Form CG 00 01 covering CGL on an “occurrence” basis, including products and completed operations with limits of no less than Two Million Dollars (\$2,000,000) per occurrence for bodily injury, personal injury and property damage for projects under One Million Dollars (\$1,000,000) and limits of no less than Five Million Dollars (\$5,000,000) per occurrence for bodily injury, personal injury and property damage for projects over One Million Dollars (\$1,000,000). If a general aggregate limit applies, either the aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

The Commercial General Liability insurance shall include the following, copies of which shall be provided:

a. Inclusion of the City of Roseville, and its officers, agents, employees, and volunteers, as additional insureds (except for workers’ compensation) as respects services or operations under the Contract. The additional insured endorsement for the general liability policy shall be at least as broad as the ISO CG 2010 10 01 combined with ISO CGL

Endorsement CG 2037 10 01. Any other endorsement must be approved in writing by the City. Endorsements must include coverage for on-going and completed operations, which coverage shall be maintained for four (4) years following completion of the Project. Endorsements shall cover the City of Roseville, its officers, agents, employees, and volunteers.

b. The insurance shall provide coverage for claims by one insured against another insured and the policies shall not contain any cross-suits exclusions, cross-liability exclusions, or insured versus insured exclusions. The policies shall not contain any classification exclusions purporting to deny coverage for any work to be performed by Contractor or any of its Subcontractors.

c. Stipulation that the insurance is primary and noncontributory, as evidenced by a separate endorsement (CG 20 01 04 13 or an equivalent) or section of the policy, and that neither the City nor its insurers will be called upon to contribute to a loss.

d. Such insurance shall specifically cover the contractual liability of the Contractor.

e. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

f. Waiver of subrogation endorsement.

g. The Contractor shall furnish a certificate for the period covered.

2. Automobile Liability: Insurance Services Office Form Number CA 0001 covering Code 1 (any auto), or if Contractor has no owned autos, Code 8 (hired) and Code 9

(non-owned), with limits of no less than One Million Dollars (\$1,000,000) per accident for bodily injury and property damage.

3. Workers' Compensation: In accordance with the provisions of the California Labor Code, Contractor is required to be insured against liability for Workers' Compensation or to undertake self-insurance. Statutory Workers' Compensation and Employers' Liability of at least One Million Dollars (\$1,000,000) shall cover all Contractors staff while performing any work incidental to the performance of this Agreement.

4. Professional Liability: Professional Liability (Errors and Omission) Insurance appropriate to Contractor's profession, with a limit of liability not less than One Million Dollars (\$1,000,000) per occurrence or claim and Two Million Dollars (\$2,000,000) aggregate to cover all design and engineering services rendered by Contractor pursuant to the Agreement. Coverage must commence from the first day that Contractor or any of its Subcontractors provided any design or engineering services in connection with the Project.

5. Builder's Risk/Course of Construction Insurance (If Required by Risk Management): The Contractor shall be responsible for all loss, damage or destruction whatsoever to the work called for by this Contract until the approval of a Notice of Completion or acceptance of the Work if no Notice of Completion is to be recorded.

The Contractor shall secure "All Risk" type of builder's Risk Insurance of the type covering one hundred percent (100%) of the value of the work performed under this Contract (the value is presumed to be the Contract amount unless otherwise stated in Supplemental Conditions) and all materials, equipment, or other items to be incorporated therein while the same are located at the construction site, a bonded warehouse, or its place of manufacture. At any time, the policy shall cover the value of the work completed. The policy shall cover hazards

including the losses due to fire, explosion, hail, rain, lightning, flood (separate insurance as needed), vandalism, malicious mischief, wind, collapse, aircraft, and smoke.

The policies providing such insurance shall name the City as a loss payee as its respective interests may appear, and certified copies of such policies shall be filed with the City. The maximum deductible allowable under the Builder's All Risk policy shall be five percent (5%) of the Contract amount.

Builder's Risk Insurance is not required for coverage of losses in excess of five percent (5%) of the Contract amount for damages resulting from earthquake in excess of a magnitude of 3.5 on the Richter scale, or tidal waves. Coverage in the amount of five percent (5%) of the Contract amount for such losses is required.

6. Pollution Coverage: Contractor shall procure pollution liability coverage or other insurance covering claims for bodily injury or property damage arising out of the abatement, removal, storage, transportation, or other exposure to hazardous materials or pollutants, in limits not less than Two Million Dollars (\$2,000,000). Contractor shall add the City and all parties required to be indemnified by Contractor as additional insured on all pollution liability policies.

7. Higher Coverage Limits: If Contractor maintains higher coverage limits than the amounts shown above, then the City requires and shall be entitled to coverage for the higher coverage limits maintained by Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

8. Claims Made Coverage: Liability insurance coverage may not be written on a "claims made" or modified occurrence basis. The Certificate of Insurance must clearly provide that the coverage is on an "occurrence" basis.

5-1.24 **OTHER INSURANCE PROVISIONS.**

A. The requirements of the Standard Specifications as to types and limits of insurance coverage to be maintained by the Contractor, and any approval of insurance by the City, are not intended to, and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification, nor preclude the City from taking any other action available to it under any other provision of the Contract or law.

B. The City acknowledges that some insurance requirements contained in these Standard Specifications may be fulfilled by self-insurance on the part of the Contractor. However, this shall not in any way limit liabilities assumed by Contractor under the Contract. Any self-insurance must be approved in writing by the City, in its sole discretion and shall not reduce the limits of liability. Any deductibles or self-insured retentions (“SIR”) must be declared on the certificate of insurance and approved by City in writing. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

C. The Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Contract, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor’s work. Furthermore, the Contractor shall require its subcontractors to agree to be bound to the Contractor and the City in the same manner and to the same extent as the Contractor is bound to the City under this Contract. Additionally, the Contractor shall obligate its subcontractors to comply with these

same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of the City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request. Alternatively, the Contractor may insure subcontractor(s) under its own policy.

D. The City, its officers, agents, employees, and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under California Insurance Code Section 11580.04.

E. The limits of insurance required in this Contract may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of the City (if agreed to in a written contract) before the City's own insurance shall be called upon to protect it as a named insured.

F. The insurance procured by Contractor shall be subject to the approval of the City, but any acceptance of insurance certificates by the City shall in no way limit or relieve Contractor of its duties and responsibilities under the Agreement.

G. Contractor shall be responsible for all premiums, deductibles, and self-insured retention applicable to the insurance it is required to procure under the Contract. All deductibles or self-insured retentions over five hundred thousand dollars (\$500,000) must be approved by the City, in writing. Contractor shall be responsible for all deductibles, self-insured

retention payments, and/or increased premiums incurred if the City's policies of insurance are forced to cover damages or respond to claims for which Contractor or its Subcontractors were obligated to provide insurance under the Contract.

H. Failure of the City to enforce in a timely manner any of the requirements of these insurance provisions shall not act as a waiver to enforcement of any of these provisions at a later date.

I. Contractor's indemnity obligations shall not be limited by these insurance provisions and shall survive the expiration of the Contract and the insurance provisions of the Contract shall likewise not be limited by the indemnity provisions of the Contract.

J. THE CITY RESERVES THE RIGHT TO WITHHOLD ANY PROGRESS PAYMENTS TO THE CONTRACTOR IN THE EVENT OF NONCOMPLIANCE WITH ANY INSURANCE REQUIREMENTS.

5-1.25 **THIRD PARTY BENEFICIARY.** No provisions in the Contract Documents shall in any way inure to the benefit any third party (including the public at large or any member thereof) so as to constitute such person a third party beneficiary of the Contract, or of any term or condition or other provision of the Contract or otherwise give rise to any cause of action in any person not a party to the Agreement, except as expressly provided elsewhere in the Contract Documents.

5-1.26 **COORDINATION AND ACCESS.** The Contractor acknowledges that the City may award, or has already awarded, other construction contracts for additional work or may perform additional work with its own forces and that such work may affect the Work under this Agreement. Additionally, the Contractor acknowledges that the State and other public and private agencies may be granted a right-of-entry by the City for the purpose of constructing

facilities within and adjacent to the Work Site. It is the obligation of the Contractor to coordinate its Work with the work of others working within or adjacent to the City's property.

During performance of its Work, the Contractor shall not have exclusive access to or use of the work areas. The City may also require that certain facilities and areas be used concurrently by the Contractor and by other contractors working in the area. When two (2) or more contractors are employed on related or adjacent City work, each shall conduct its operations in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to any work, to persons or property caused to the other by its operations, and for loss caused the other due to any unnecessary delays or failure to finish the work within the time specified for completion.

If any party of the Contractor's Work depends on the work of any other contractor and/or the City for proper execution and/or results, the Contractor shall promptly notify the City of any discrepancies and/or defects in said other work that would render its work unsuitable for proper execution and/or results prior to proceeding with the Contractor's own Work. If it becomes necessary, the City will resolve coordination and access problems.

The Contractor and its representative in charge of the Work shall familiarize themselves with the City's property and Work Site, and adjacent surroundings in the vicinity of said Work, and any private or public operations on adjoining properties.

5-1.27 **OCCUPANCY BY THE DEPARTMENT PRIOR TO**

ACCEPTANCE. The City may at any time notify the Contractor in writing that it intends to take Beneficial Occupancy of any portion of the Work even though the Work may not be substantially complete. Unless the reason for the City's taking Beneficial Occupancy is that the Contractor has not completed the Work (or portions thereof) in accordance with the Contract

Time, the City's Beneficial Occupancy shall relieve the Contractor from its responsibility for maintenance, loss or damage to that portion of the Work for which the City has taken Beneficial Occupancy other than that resulting from the Contractor's act or omission, negligence, willful misconduct or breach of warranty.

Should the Work (or portion thereof) not be completed in accordance with the Construction Schedule within the Contract Time (as adjusted under the terms of the Contract Documents), the City shall have the right, but not the obligation, to take Beneficial Occupancy of the Work. In such event, the Contractor shall not be entitled to any additional compensation on account of said occupancy by the City, nor shall the Contractor be relieved of any of its responsibilities under the Contract Documents, including, without limitation, Contractor's obligation to complete the Work in accordance with the Construction Schedule.

Beneficial Occupancy shall not be deemed an Acceptance by the City either of the Work or of any portion thereof, nor will it relieve the Contractor of full responsibility for correcting defective Work or materials found at any time before the formal written Acceptance of the entire Contract by the Director or during the full warranty period after such Acceptance, as provided in Section 7-1.12, "Warranty," of these General Conditions.

The City's Beneficial Occupancy shall not relieve the Contractor of its responsibility to maintain all insurance and bonds required under the Contract Documents until the entire project is accepted by the City.

5-1.28 **RIGHT TO OPERATE UNSATISFACTORY FACILITIES AND EQUIPMENT.** If, after Installation, the operation or use of the facilities or equipment to be furnished under this Contract proves to be unsatisfactory to the Director, the City shall have the right to operate and use such facilities or equipment until they can, without damage to the City,

be taken out of service for correction or replacement. Such period of use of the defective facilities or equipment, pending correction or replacement, shall in no way decrease the warranty period required for the acceptable corrected or replaced facilities or equipment.

5-1.29 **CONTRACTOR'S RESPONSIBILITY FOR THE WORK.** Except as otherwise provided herein, the Contractor shall have the charge and care of the Work and shall bear the risk of injury or damage to any part of the Work by the action of the elements or from any other cause whether arising from the execution or from the nonexecution of the Work until the Acceptance of the Contract by the Director. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the Work occasioned by any cause before its completion and Acceptance, and shall bear the expense thereof. In case of suspension of Work from any cause whatever, the Contractor shall be responsible for the Work and it shall also be responsible for all materials, and shall properly store them if necessary, and shall provide suitable drainage and erect temporary structures where necessary.

The Contractor will be relieved of responsibility for any injury or damage to the Work caused by the following:

- A. An earthquake in excess of a magnitude of 3.5 on the Richter Scale or a tidal wave, when the effect of such has been proclaimed a disaster or state of emergency by the Governor of the State of California or by the President of the United States, or was of such magnitude at the site of the Work as to have been sufficient to have caused a proclamation of disaster or state of emergency, had it occurred in a populated area.
- B. Occupancy and use by the Department or the public prior to the completion of the entire project.
- C. Acts of the Federal Government or the public enemy.

5-1.30 **RESPONSIBILITY FOR UTILITIES.** The Contractor shall be responsible at its own cost for any and all Work, expense or special precautions caused or required by the existence or proximity of utilities encountered in performing the Work, including without limitation, repair of any or all damage and all hand or exploratory excavation required. The Contractor is cautioned that such utilities may include communication cables or electrical cables which may be high voltage, and when working or excavating in the vicinity of such cables, or the ducts enclosing such cables, the Contractor shall undertake at its own cost any special precautions required. Suitable warning signs, barricades, and safety devices shall be erected as necessary or required.

However, if during the course of the Work the Contractor encounters utility Installations which are not shown or indicated in the Contract Documents or which are found in a location substantially different from that shown, and such utilities are not reasonably apparent from visual examination, then the Contractor shall promptly notify the Director in writing. Where necessary for the Work of the Contract, the Director shall issue a written order to the Contractor to make such adjustments, rearrangement, repair, removal, alteration, or special handling of such utility, including repair of the damaged utility. The Contractor shall perform the Work described in such written order, and compensation therefor will be made in accordance with Section 3 of these General Conditions relating to changes in the Work. Except for the items of cost specified in said Section 3, the Contractor shall receive no compensation for any other cost, damage, delay, interference, or hindrance to him or her due to the presence of such utility. If the Contractor fails to give the notice specified above and thereafter acts without instructions for the Director, then the Contractor shall be liable for any or subsequent to discovery thereof, and the Contractor shall repair and make good such damage at its own cost.

The precise location of underground facilities can only be determined by careful probing or hand digging in compliance with Article 6 of the Cal/OSHA Construction Safety Orders which states in part:

“Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate location of such an installation, the exact location shall be determined by careful probing or hand digging, and, when it is uncovered, adequate protection shall be provided for the existing installation.”

The location of known existing utilities and pipelines are shown on the Contract Drawings in their approximate locations. Some of the locations include multiple conduits. The Contractor shall exercise care in avoiding damage to those facilities which are to remain in service subsequent to the construction of the particular new facility involved and the Contractor will be held responsible for any repairs if damaged. The Contractor shall also exercise care in maintaining those pipes and facilities required for continuing operation of the existing facilities until such time as they can be abandoned. There is no guarantee that all utilities or obstructions are shown on the Contract Drawings or that the locations indicated are accurate.

The Contractor shall exercise extreme caution in working in the area adjacent to the existing pipelines and utility services. It is essential that all the existing facilities be maintained in service. Construction of the connections between the existing facilities and the new facilities shall be at times and during periods acceptable to the City. The Contractor shall advise the Director in writing of its proposed Construction Schedule for these connections at least forty-eight (48) hours in advance.

The Contractor shall uncover all piping and conduits, to a point one foot (1') below the pipe, where crossings, interferences, or connections are shown on the Contract Drawings, prior to trenching or excavating for any pipe or structures, to determine actual elevations. New pipelines shall be laid to such grade as to clear all existing facilities which are to remain in service. If the Contractor does not expose all required utilities, it shall not be entitled to additional compensation for Work necessary to avoid interferences nor for repair to damaged utilities. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury or damage to workers and to the electrical ducts or conduits.

5-1.31 **PROPERTY RIGHTS IN MATERIALS.** Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the Work or soil or after partial payment has been made as provided in Section 7-1.07, "Progress Payments," of these General Conditions for material delivered on the ground or stored subject to or under the control of the City and unused. All such material shall become the property of the City upon being so attached or affixed or upon payment for materials delivered on the ground or stored subject to or under the control of the City and unused, as provided in said Section 7-1.07.

5-1.32 **COURT ORDERED DELAY.** If, pursuant to court order, the Department temporarily suspends performance of all or any portion of the Work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted.

5-1.33 **NO PERSONAL LIABILITY.** Neither the Director, nor any other officer or authorized employee of the City, shall be personally responsible for any liability arising under or by virtue of the Contract.

5-1.34 **RIGHTS IN LAND AND IMPROVEMENTS.** The Contractor shall make no arrangements with any person or entity to permit occupancy or use of any land, structure or building within the limits of the Work, for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the City and any third party owner, former owner, or tenant of such land, structure or buildings. The Contractor shall not occupy City-owned property outside the limit of the Work shown on the Contract Drawings unless it obtains prior approval.

5-1.35 **ANTITRUST CLAIMS.** The Contractor's attention is directed to the following provision of Public Contract Code Section 7103.5(b), which is applicable to the Contractor and its Subcontractors:

“ In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgement by the parties.”

5-1.36 **RIGHTS TO DRAWINGS, TECHNICAL DATA PATENTS.** Shop

Drawings and Working Drawings submitted to the City by the Contractor, Subcontractor or any lower tier Subcontractor pursuant to the Agreement, are the property of the City and the City may use, and disclose in any manner and for any purpose, Shop Drawings and Working Drawings delivered under the Contract.

Technical Data including manuals or instructional materials, computer or microprocessor software which are delivered or submitted to the City by the Contractor, Subcontractor, or any lower tier Subcontract pursuant to the Contract are the property of the City, and the City may use or disclose same in any manner and for any purpose.

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the Work, and shall defend, indemnify and save and hold harmless the City, and its duly authorized representatives, from all suits at law, or in equity, and actions of every nature for, or on account of the use of any patented materials, equipment, devices or processes. In case some materials, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor, at its expense, shall:

1. Secure for the City the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license or licenses; or
2. Replace such materials, equipment, devices, processes; or
3. Modify them so that they become non-infringing or remove the enjoined materials, equipment, devices or processes and refund the sums paid therefor without prejudice to any other rights of the City.

5-1.37 **PAYMENT OF TAXES.** Contractor shall pay all taxes and duties applicable to and assessable against any Work, equipment, materials, services, processes, and

operations incidental to or involved in the Agreement, including but not limited to, retail sales and use, transportation, export, import, business, and special taxes. The Contractor is responsible for ascertaining and acquainting itself with such taxes and making all necessary arrangements to pay them. The Contractor will maintain records that are auditable records, and these records shall be subject to the City's review to verify that Contractor's tax payments are current at all times.

The Contract Price paid for the Work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State or local government, including, without being limited to, Federal excise tax. No tax exemption certificate nor any document designed to exempt the Contractor from payment of any tax will be furnished to the Contractor by the Department, as to any tax on labor, services, materials, transportation, or any other items furnished pursuant to the Contract.

The Contractor shall withhold and pay any and all sales and use taxes, withholding taxes, whether Federal, State, or local, Social Security taxes, State Unemployment Insurance charges and all other taxes which are now or hereafter may be required to be paid or withheld under any laws.

5-1.38 **GRATUITIES AND CONFLICT OF INTEREST.** The Contractor shall not offer or provide gratuities in the form of gifts, entertainment, loans, meals, rewards, and/or services to representatives of the City, including but not limited to, officers, employees, agents, Engineering Service Consultants, Consulting Engineers and Architects, Inspectors and/or Testing Agencies retained by the City. If it is found that the Contractor has violated this provision, the Contract may be subject to termination for default as defined elsewhere in these General Conditions.

During the term of the Contract and until the final payment has been made to the Contractor, the Contractor shall not employ or compensate in any manner whatsoever, the City's officers, employees and authorized representatives, agents, and any Engineering Service Consultants, Consulting Engineers and Architects, Inspectors, and/or Testing Agencies retained by the City. Any exception to the employment or compensation to any of the above named parties must be made in writing by the City. If the Contractor offers or provides employment or compensation to those named above during the term of the Contract, the Contract may be subject to termination for default.

5-1.39 **COOPERATION.** Should construction be under way by City forces or other forces or by other Contractors within or adjacent to the limits of the Work or should Work of any other nature be under way by such forces within or adjacent to said limits, the Contractor shall cooperate with all such forces to the end that any delay, interference or hindrance to their Work will be avoided. The right is reserved to perform other or additional Work at or near the site at any time, by the use of such forces.

5-1.40 **DIGGING TRENCHES OR OTHER EXCAVATIONS.** In the event any work involves digging trenches or other excavations that extend deeper than four feet (4') below the surface, City and Contractor shall comply with the following:

A. The Contractor shall promptly, and before the following conditions are disturbed, notify City in writing of any:

1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the site differing from those made available to Contractor for inspection as provided in the project proposal.

3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract.

B. The City shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work shall issue a Change Order under the procedures described in the Contract.

C. In the event that a dispute arises between the City and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties. However, no claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required by this Section. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Contract.

5-1.41 **CONTRACTOR REGISTRATION.** No contractor or subcontractor may work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. During the performance of this Contract, the Contractor and its subcontractors shall have a continuing legal obligation to maintain current

registration with the Department of Industrial Relations. The Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

5-1.42 **CITY OF ROSEVILLE ENCROACHMENT PERMITS AND RIGHTS-OF-WAY.** The Contractor need not obtain a separate encroachment permit from the City prior to construction within street rights-of-way or other City rights-of-way. Execution of the Contract by the City shall be deemed an encroachment permit for work required by the Contract within rights-of-way. All work shall conform to the rules and regulations of encroachment permits and shall be subject to the inspection and approval of the Director and City Engineer.

To the extent indicated in the Contract Drawings, the City will provide the rights-of-way over private lands or the site to enable the Contractor to perform its work. The Contractor shall be solely responsible for securing any additional rights-of-way desired by the Contractor. The City will not be a party to nor assume any liability for any separate agreements reached between the Contractor and any third parties with respect to these additional rights-of-way. The Contractor shall procure evidence that agreements are in place with said third parties before the Contractor uses those areas covered by the agreements. Any damage to such private lands caused by the Contractor's operations shall be the sole responsibility of the Contractor.

SECTION 6

PROSECUTION AND PROGRESS

6-1.01 **SUBLETTING AND SUBCONTRACTING.** The Contractor shall be

responsible for all Work performed under the Contract. The Contractor shall give its personal attention to the fulfillment of the Contract and shall keep the Work under its control. Nothing in the Contract Documents shall create any contractual relationship between the City and any Subcontractor. The Contractor is fully responsible to the City for the acts and omissions of its Subcontractors of any tier. When any Subcontractor fails to prosecute a portion of the Work in a manner satisfactory to the Director, that Subcontractor shall not again be employed on the Work. Although the sections of the Contract may be arranged according to various trades, or general grouping of the Work, the Contractor is not obligated to sublet the Work in such manner. The Director will not arbitrate disputes among Subcontractors or between Contractor and one or more Subcontractors concerning responsibility for performing any part of the Work.

The on-site production of materials produced by other than the Contractor's own forces shall be considered as subcontracted. The erection, establishment or reopening of on-site plants for production of materials and the operation thereof in the production of materials for use on the Work shall conform to the requirements relating to labor set forth in the Contract Documents.

The Contractor shall also be responsible for coordinating the Work performed by Subcontractors and Suppliers.

The Contractor shall not substitute any person as Subcontractor in place of a Subcontractor listed on its bid proposal without the written approval of the Director. Substitutions must be in accordance with the provisions of the "Subletting and Subcontracting Fair Practices Act" beginning with Public Contract Code Section 4100. Violations of this Act by the Contractor may subject it to penalties which may include cancellation of Contract, Assessment of ten percent (10%) of the Subcontractor's bid, and disciplinary action by the Contractors State License Board.

The Contractor shall pay any Subcontractors approved by the City for work that has been satisfactorily performed no later than seven (7) Days from the date of Contractor's receipt of progress payments by the City. Within seven (7) Days after receipt from the City of funds attributable to work performed by a Subcontractor, Contractor shall release any retainage payments withheld to the Subcontractor. In the event Contractor does not make progress payments or release retention to Subcontractors in accordance with the time period specified herein, Contractor may be subject to prompt payment penalties per statute.

6-1.02 **ASSIGNMENT.** The performance of this Contract may not be assigned, except upon the written consent of the City Council of the City of Roseville. Consent will not be given to any proposed assignment which would relieve the original Contractor or its surety of their responsibilities under the Contract nor will the City consent to any assignment of a part of the Work under the Contract.

The Contractor may assign moneys due or to become due to it under the Contract and such assignment will be recognized by the City, if given proper notice thereof, to the extent permitted by law, but any assignment of moneys shall be subject to all proper set-offs in favor of the City and to all deductions provided for in the Contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the City for the completion of the Work in the event that the Contractor should be in default therein.

6-1.03 **BEGINNING OF WORK.** After the execution of the Contract by both parties, the City will issue the Notice to Proceed upon its determination that it is appropriate for the Contract Time to commence.

The Contractor shall begin Work within fifteen (15) Days after receiving the Notice to Proceed from the Director, subject to the requirements stated elsewhere in the Contract

Documents regarding, among other things, the submittal of Baseline Schedule, and shall diligently prosecute the same to completion within the time limit provided in the Supplemental Conditions. Contractor shall also achieve any and all Contract milestones as described elsewhere in the Contract Documents.

The Contractor shall notify the Director, in writing, of its intent to begin Work at least seventy-two (72) hours before Work is begun. The notice shall be delivered to the Director and shall specify the date the Contractor intends to start. If the project has more than one (1) location of Work, a separate notice shall be given for each location.

The Contractor is not authorized to perform any Work until it has received a Notice to Proceed from the City. Should the Contractor begin Work in advance of receiving notice that the Contract has been approved as above provided, any Work performed by it in advance of the said date of approval shall be considered as having been done by the Contractor at its own risk and as a volunteer unless said Contract is so approved thereafter.

6-1.04 **PROGRESS SCHEDULE.**

A. Preliminary Progress Schedule. The Contractor shall submit to the Director, within twenty (20) Days after date of the Notice to Proceed, a Preliminary Progress Schedule covering the Contractor's activities over the first three (3) months of operation in detail and the remainder of the project in summary. The Preliminary Progress Schedule shall schedule the project within the Contract Time for completion of the Work, and shall be subject to favorable review by the Director.

B. CPM Schedule. The Contractor shall submit an acceptable Critical Path Method (CPM) Schedule to the Director within thirty (30) Days after the receipt of the Notice to Proceed. Subsequent revisions to said schedule shall be submitted as set forth hereinafter. The

requirement for the CPM schedule is included to allow for adequate planning and execution of the Work, to determine the critical nature of delays, and to assist the Director in appraising the reasonableness of the proposed schedule and evaluating progress of the Work. The CPM schedule submitted under this Section shall utilize a CPM format, either the precedence or arrow diagramming method. The definitions of CPM terms and functions shall be as provided in the Associated General Contractors of America book *CPM in Construction, A Manual for General Contractors*, or a favorably reviewed alternative publication or reference. No progress payment will be made prior to submission and acceptance of the CPM Schedule.

1. The CPM schedule system shall consist of diagrams and accompanying mathematical analyses. The diagrams shall show elements of the project in detail and an entire project summary. Diagrams shall show the order and interdependence of activities and sequence in which the Work is to be accomplished as planned by the Contractor. The basic concept of a network analysis diagram shall be followed to show how the start of a given activity is dependent on the completion of preceding activities and its completion restricts the start of following activities. Detailed network activities shall include, in addition to construction activities, the submittal and favorable review of samples of material and Shop Drawings, the procurement of critical materials and equipment, fabrication of special material and equipment, and their Installation and testing. All activities of the City and the Director that affect progress and required Contract dates for completion of all or parts of the Work shall be shown. The selection and number of activities shall be subject to favorable review by the Director. Summary networks shall be time scaled. Durations shall be in Days and shall not exceed fifteen (15) Days, except for submittal and delivery items. Where the duration of continuous Work exceeds fifteen (15) Days, Work items in the Construction Schedule shall be subdivided by location,

approximate stationing or other sub-element of the Work.

The graphic network diagram shall include for each activity, the description, activity number, the estimated duration in Days, and all activity relationship lines. The network diagram shall be drawn for the early start of activities. All significant Submittals shall be scheduled along with manual Submittals and training on all large or critical pieces of equipment. If the precedence technique is utilized, the schedule project shall include a calendar in Work Days, a network report sorted by early start and a logic table report sorted by preceding Work item. If the arrow technique is utilized, the schedule report shall include a calendar in Work Days, a network report sorted by early start, a network report sorted by I-J numbers, and a network sorted by slack time and I-J numbers.

2. The critical path shall be shown on all reports and on the graphic network diagram. The activities which constitute the critical path shall be identified.

3. The mathematical analysis of the network diagram shall include a tabulation of each activity. The following information shall be furnished as a minimum for each activity:

- (a) preceding and following event numbers
- (b) activity description and number
- (c) estimated duration of activities
- (d) earliest start date (by calendar date)
- (e) earliest finish date (by calendar date)
- (f) actual start date (by calendar date)
- (g) actual finish date (by calendar date)
- (h) latest start date (by calendar date)

- (i) latest finish date (by calendar date)
- (j) slack or float
- (k) percentage of activity completed

4. The program shall be capable of accepting revised completion dates as modified by approved time adjustments and recomputations of all tabulation dates and float accordingly.

5. Submission and review of the system shall be as follows:

(a) The complete network analysis system, consisting of the detailed network mathematical analysis and network diagrams, shall be submitted within thirty (30) Days after receipt of the Notice to Proceed.

(b) The Contractor shall participate in a review and evaluation of the proposed network diagrams and analysis by the Director. Any revisions necessary as a result of this review shall be resubmitted for review by the Director within ten (10) Days. When completed, the favorably reviewed schedule shall then be the schedule to be used by the Contractor for planning, organizing and directing the Work and for reporting progress. If the Contractor thereafter desires to make significant changes in its method of operating and scheduling, the Contractor shall notify the Director in writing stating the reasons for the change.

(c) The Contractor shall submit at monthly intervals a report of the actual construction progress. Each monthly report shall cover a period of approximately thirty (30) Days ending around the 20th of each month. The monthly reports shall be submitted within ten (10) Days of the end of the reporting period.

(1) If the project is proceeding on schedule, the monthly update report may consist of a marked-up copy of the graphical network diagram. This

submittal shall clearly indicate the status of any minor shifts in sequence or schedule and the estimated completion date or percent complete of all activities currently in progress. The Contract completion date shall also be indicated. The Contractor shall submit a narrative report relating to status of construction, the schedule, and factors which may affect the remainder of the schedule. The report shall show the activities or portions of activities completed during the reporting period. The report shall state the percentage of the Work actually completed and scheduled as of the report date and the progress along the critical path in terms of Days ahead or behind the allowable dates.

(2) If, in the opinion of the Director, the project is behind schedule, the monthly report shall include a revised network diagram and/or mathematical analysis showing the Contractor's proposed revised schedule. An analysis of the effect that the delay has on progress along other paths shall also be included in the report. The Contractor shall also submit a narrative report with each updated analysis which shall include but not to be limited to a description of current and anticipated problem areas, delaying factors and their impact, and an explanation of corrective actions taken or proposed.

(3) Periodic report shall be submitted in sufficient copies to cover Contractor needs plus five (5) copies and an available electronic copy to be retained by the Director.

6. To the extent that the favorably reviewed initial Construction Schedule, or revisions thereto, indicate anything not jointly agreed upon, it shall be deemed to be not favorably reviewed by the Director. Any omission of Work from the detailed schedule, otherwise required for Contract compliance, will not excuse the Contractor from completing

such Work within any applicable completion date. The CPM schedule shall be generated by computer methods.

C. Schedule Review. Once each month, on a date mutually agreed upon, but no later than seven (7) business days after the monthly schedule progress report date, a Work Site meeting will be held to review the Construction Schedule and job progress. The Contractor shall also attend weekly meetings scheduled by the Director to review the progress of the Work in the preceding week and in the subsequent week, coordinate the Work with public agencies or other Contractors as required, and allow the Director to plan his or her activities for testing, inspection, etc.

D. Schedule Revisions. The conditions under which the Director will require revisions of the Construction Schedule include the following:

1. When delay in completion of any Work item or sequence of Work items results in an estimated extension of project completion by either twenty (20) business days or by ten percent (10%) of the remaining duration of time to complete the Contract, whichever is less.
2. When delays in Submittals or deliveries make replanning or rescheduling of the Work necessary.
3. When the schedule does not represent actual prosecution and progress of the Work.
4. When any change to the sequence of activities, the completion date for major portions of the Work, or when changes occur which affect the critical path.
5. When Contract Amendments or a Change Order necessitates schedule revision, the Contractor shall submit a schedule analysis of all Change Order Work

with its proposal.

E. Cash Flow Projection. A cash flow projection shall be submitted with the Construction Schedule. This cash flow projection shall be revised and resubmitted when revisions of the Construction Schedule will result in changes to the projected cash flow.

F. Schedules showing project completion dates earlier than specified in the Supplemental Conditions will be rejected unless justification can be provided for early completion.

6-1.05 **SCHEDULE OF VALUES.** Prior to preparation of the first estimate for a progress payment, the Contractor shall submit for favorable review by the Director a detailed Schedule of Values or cost breakdown of the Work under each bid item awarded. The breakdown will then become the basis for partial payment determination. Elements of Work shall be grouped by structure, pipeline, system, etc. Within each grouping, Work should be itemized by readily measurable quantities of Work complete in place. For example, concrete should be in units of cubic yards including form Work and reinforcing steel. Move-on costs, bond and insurance costs, and Overhead costs shall not be considered an item of cost for this purpose but shall be prorated over items of Work. In the event the Schedule of Values is not favorable reviewed by the Director, another Schedule of Values shall be submitted that is mutually acceptable to the Contractor and the Director.

6-1.06 **CITY'S RIGHT TO STOP WORK.** The Director shall have the authority to order the Contractor, in writing, to suspend the Work wholly or in part, for such period as the Director may deem necessary due to the failure on the part of the Contractor to correct Work that is not in accordance with the requirements of the Contract Documents or if Contractor persistently fails to carry out Work in accordance with the Contract Documents.

The Contractor shall immediately comply with the written order of the Director to suspend the Work wholly or in part. The suspended Work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the Director.

Any stoppage of work under this section shall be at the Contractor's sole expense, and the Contractor shall have no claim against the City based on the Contractor's failure to perform the Work in accordance with the Contract Documents.

In addition to the City's right to stop Work, the City may order the Contractor to submit to the City at no additional cost to the City, additional information concerning Contractor's planned Work if the Contractor fails to promptly correct Work that is not in accordance with the requirements of the Contract Documents or persistently fails to carry out Work in accordance with the Contract Documents. The additional information ordered by the City may include, but is not limited to, preparation of Submittals or Working Drawings not otherwise required to be submitted under the Contract Documents.

In the event the City discovers that the Contractor has created an unsafe condition the City may arrange for other work forces to remedy the condition. Such remedial work shall be at the sole discretion of the City. If this action is required, the City may unilaterally terminate Work under the Contract, and will pay only for the quantities of Work actually performed, less the cost of the City's remedial Work. In the event that Work is not halted, the Contractor must take immediate steps to correct the situation. There will be no extra payment for Work required to correct unsafe conditions.

The right of the City to suspend the Work shall not give rise to a duty on the part of the City to exercise this right for the benefit of the Contractor or any other person or entity. This right shall be in addition to and not in restriction or derogation of the City's other rights under

the Contract Documents.

In the event of a suspension of Work under any of the conditions set forth in this Section 6-1.06, such suspension of Work shall not relieve the Contractor of its legal responsibilities as set forth in these General Conditions.

6-1.07 **TIME OF COMPLETION.** The Contractor shall complete the entire Work, including Installation, repairs, startup, troubleshooting, painting, and touchup, training, submittal or record drawings, and manuals, cleanup, demobilization, and all other Work within the number of Days set forth in the Supplemental Conditions. The time for completion includes an allowance for working time lost due to normal inclement weather.

Extensions of time may be allowed for unusual inclement weather under the provisions hereinafter described. Unusual inclement weather is weather which adversely affects “controlling” operations or the critical path of construction and which meets one of the following criteria:

A. For the particular calendar month in question, the number of individual Days with rainfall exceeding 0.10 inches exceeds the average number of such Days for that month over the immediately preceding five (5) years of record by at least three (3) Days.

B. For the particular calendar month in question, the total cumulative rainfall for that month exceeds the average cumulative rainfall for that month over the immediately preceding five (5) years of record by at least two inches (2”).

Rainfall shall be measured at a publicly operated, maintained, and reported station in reasonable proximity to the construction site. A claim for delay shall indicate the period of rainfall which is claimed as “unusual,” the specific dates during which the unusual rainfall and subsequent wet soil conditions prevented Work, and the specific critical path tasks adversely

affected by such unusual weather. A claim for delay due to unusual inclement weather shall be filed within ten (10) Days of the apparent end of the unusual inclement rainfall period, whether or not the monthly totals are available at that time. The burden of proof that weather meets the criteria for unusual weather shall be solely the responsibility of the Contractor.

It is the responsibility of the Contractor to order materials required for the Work properly and promptly on a Notice to Proceed. If evidence presented demonstrates that, in spite of the Contractor's efforts, government-established priorities controls delay material deliveries, suitable extension of time will be made.

If performance of extra Work ordered by the City or failure of the City to provide the necessary site for Installation affects construction tasks which are “controlling” or which are on the “critical path” of the Construction Schedule, suitable extensions of time will be made.

The Contractor shall not be entitled to a time extension for delays in activities on non-critical paths of the favorably reviewed schedule unless the duration of the excusable delay exceeds the total float of the activities being delayed. If the duration of an excusable delay does exceed the total float of the activities affected by the delay, the Contractor shall be entitled to an extension equal to the difference.

C. Determination that a day is a non-working day by reason of inclement weather or conditions resulting immediately therefrom, shall be made by the Director.

6-1.08 **LIQUIDATED DAMAGES.** It is agreed by the parties to the Contract that in case all the Work called for under the Contract in all parts and requirements is not completed within the number of Days as set forth in the Supplemental Conditions, damage will be sustained by the City and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the City will sustain in the event of and by

reason of such delay; and it is therefore agreed that the Contractor will pay to the City, the monetary amount indicated in the Supplemental Conditions in dollars (U.S.) per day for each and every calendar day of delay in completing the Work in excess of the number of Days prescribed and the number of additional calendar days, if any, authorized by Contract Change Order; and the Contractor agrees to pay said Liquidated Damages herein provided for, and further agrees that the City may deduct the amount thereof from any moneys due or that may become due the Contractor under the Contract.

It is further agreed that in case the Work is not finished and completed in all parts and requirements within the number of Days specified, the City shall have the right to increase the number of Days or not, as it may deem best to serve the interest of the City, and if it decides to increase the said number of Days, it shall further have the right to charge to the Contractor, its heirs, assigns or sureties and to deduct from the final payment for the Work all of any part, as it may deem proper, of the actual cost of engineering, inspection, superintendence, and other Overhead expenses which are directly chargeable to the Contract, and which accrue during the period of such extension, except that cost of preparation of final statement shall not be included in such charges.

6-1.09 **DELAYS AND EXTENSIONS TO THE WORK.** The Contractor must complete all Work within the time specified in the Agreement. The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering and inspection for any delay in substantially completing the Work (or parts thereof) beyond the time set forth in the Agreement, provided that such delay was caused by unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include acts of public enemy, fire, floods, abnormal weather (as described below),

earthquakes, epidemics, quarantine restrictions, strikes, labor disputes and freight embargoes, fire, changes made pursuant to the provisions of “Changes in the Work” under Section 3 of these General Conditions or acts or neglect of the City not contemplated by the Contract Documents.

In all cases, any extension of time is conditioned on the following:

1. That the cause is not due to the fault or negligence of the Contractor, and the Contractor has taken reasonable precautions to prevent and minimize the effects thereof; and
2. That the Contractor notifies the Director in writing within three (3) Days from the beginning of such delay specifying the nature of the delay and the measures that have been or will be taken to prevent or minimize the delay. Failure to submit written notice within this time period shall constitute an absolute waiver of any claim for a time extension.

No extension of time will be granted for a delay caused by a shortage of materials, unless the Contractor furnishes to the City documentary proof that it has diligently made every effort to obtain such materials from all known sources within reasonable reach of the work and further proof, as acceptable to the Director, that the inability to obtain such materials when originally planned did in fact cause a delay in Final Completion of the entire Work which could not be compensated for by revising the sequence of the Contractor’s operations. Only the physical shortage of material will be considered as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical or economical cost or price, unless it is shown to the satisfaction of the City that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and the usual practices in obtaining such quantities.

No extension of time will be granted for a delay caused by Contractor's staff turnovers, understaffing or insufficient quantity of qualified staff able to perform the necessary work.

The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the Contract Documents.

No extensions of time will be granted for delays that have no measureable impact on the completion of the Work (or parts thereof) under the Contract Documents. When extensions of time are granted, they will be limited to the period equivalent to the actual number of Days lost on the critical path or controlling operations of the Construction Schedule, taking into account the extent to which that delay could be decreased by reasonable mitigation measures by the Contractor. All requests for extensions of time must be supported with a critical path analysis showing the critical path and impacts to it. Contractor's failure to submit this analysis will be sufficient cause for denial of any request for a time extension.

Within a reasonable period of time after the Contractor submits the notice and information required by this section, the City will determine whether an extension of time is justified and, if so, the number of days for the extension.

Abnormal weather may be a valid basis for a time extension under the Agreement. "Abnormal Weather" occurs when the number of days of rain above 0.5 inches in a 24 hour period exceeds the average for such rainfall in a particular month as determined by the National Weather Service. The Contractor will only be entitled to, at most, a time extension for the number of days of rain exceeding the average for that month in the locale where the Work is to be performed. If delays are caused by the Contractor or those for whom the Contractor is

responsible, the Contractor will only be entitled to, at most, a time extension for the number of rain days exceeding the average for the month when the Work should have been performed.

In addition, before a time extension may be granted for abnormal weather, the Contractor must establish that the rain either significantly impacted at least sixty percent (60%) of the planned work of the controlling operations for a particular day or prohibited at least five (5) hours of work on the controlling operations planned for that day. Contractor shall employ reasonably methods to mitigate the impact of abnormal weather (i.e., dewatering, protection of site, etc.) The occurrence of rain during non-work hours or having minimal impact to work on the controlling operation shall not constitute a day of abnormal weather.

In the event that the project experiences favorable weather for a particular month (e.g., the number of actual rain days in a month less than that indicated above for allowable rain days per months), the additional float resulting from such favorable weather shall accrue to the project.

Any Contractor claim for damages or additional compensation based on delay shall be limited to only those circumstances where the Contractor has fulfilled each of the following three (3) requirements:

1. Contractor has established its entitlement to a time extension pursuant to the provisions described above regarding delay and extensions to the Work.
2. The delay was caused solely by the City's issuance of changes made pursuant to the provisions of "Changes in the Work" under Section 3 of these General Conditions or by acts or neglect of the City.
3. The delay was unreasonable under the circumstances and not within the contemplation of the parties.

It is expressly understood and agreed that delays caused by the City will be non-compensable when there are concurrent delays caused by the Contractor. Also, the Contractor shall have no entitlement to additional compensation for any delay where there have been concurrent delays caused by non-compensable delays, including, but not limited to, fire, floods, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, and freight embargoes.

Contractor's damages and/or additional compensation for delays will consist solely of the extended costs of maintaining the Contractor's Work Site presence. The Contractor will not be entitled to any extended home office overhead.

Compensation for idle time of equipment will be determined in the same manner as determinations are made for equipment used in the performance of extra work paid for on a Force Account basis with the following exceptions:

1. The time for which compensation will be paid will be the actual normal working hours during which such delay conditions exists, but in no case will exceed eight (8) hours in any one day.
2. The days for which compensation will be paid will be each calendar day of the work week (defined elsewhere in the Contract Documents) and Legal Holidays, during the existence of such delay, except that when rental of the equipment is paid for under the provisions in Section 3-1.06C, "Force Account Payment – Equipment," of these General Conditions, no payment will be made for delays in accordance with the provisions of this section.

Actual loss shall be understood to include no items of expense other than idle time of personnel, cost of extra moving of equipment, and cost of longer hauls. Compensation for idle time of equipment will be determined as provided in this section and compensation for idle time

of personnel will be determined pursuant to Section 3-1.06A, “Force Account Payment – Labor,” of these General Conditions. No markup will be added in either case for Overhead and profit. The cost of extra moving of equipment and the cost of longer hauls will be paid for as extra work as provided pursuant to “Changes to the Work” elsewhere in the Contract Documents.

6-1.10 **TERMINATION.**

6-1.10A **TERMINATION OF AGREEMENT – CONVENIENCE OF**

CITY. The Department reserves the right to terminate the Contract at any time and for any reason if the Director determines that to do so would be in the best interest of the City. Any termination which is not based on the circumstances set forth in Section 6.1-10B below shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination becomes effective.

Upon the Contractor’s receipt of a written Notice of Termination for convenience, the Contractor shall cease Work as to those portions of the project so terminated and shall undertake the steps outlined in Section 6-1.10B below.

1. Acceptance of the Contract as hereinafter specified shall not relieve the Contractor of responsibility for damage to materials except as follows:
 - a. The Contractor's responsibility for damage to materials for which partial payment has been made as provided in Section 7-1.07, “Progress Payments,” of these General Conditions and for materials furnished by the City for use in the Work and unused shall terminate when the Director certifies that such materials have been stored in the manner and at the locations he or she has directed.

- b. The Contractor's responsibility for damage to materials purchased by the City subsequent to the issuance of the notice that the Contract is to be terminated shall terminate when title and delivery of such materials has been taken by the City.
- c. When the Director determines that the Contractor has completed the Work under the Contract directed to be completed prior to termination and such other Work as may have been ordered to secure the project for termination, the Contractor will recommend that the City formally accept the Work, and immediately upon and after such Acceptance by the City, the Contractor will not be required to perform any further Work thereon and shall be relieved of its contractual responsibilities for injury to persons or damage to property which occurs after the formal Acceptance of the project by the City.

2. The total compensation to be paid to the Contractor shall be determined by the Director on the basis of the following:

- a. The reasonable cost to the Contractor, without profit, for all Work performed under the Contract, including mobilization, demobilization and Work done to secure the project for termination. Reasonable cost will include a reasonable allowance for project Overhead and general administrative Overhead not to exceed a total of seven percent (7%) of Direct Costs of such Work.
- b. A reasonable allowance for profit on the cost of the Work performed as determined under subsection (a), provided the Contractor establishes to the

satisfaction of the Director that it is reasonably probable that it would have made a profit had the Contract be completed and provided further, that the profit allowed shall in no event exceed four percent (4%) of said cost.

- c. The reasonable cost to the Contractor of handling material returned to the vendor, delivered to the Department or otherwise disposed of as directed by the Director.
- d. A reasonable allowance for the Contractor's administrative costs in determining the amount payable due to termination of the Contract.

All records of the Contractor and the Contractor's Subcontractors, necessary to determine compensation in accordance with this Section, shall be open to inspection or audit by representatives of the Department at all times after issuance of the notice that the Contract is to be terminated and for a period of three (3) years, and such records shall be retained for that period.

After Acceptance of the Work by the Director, the Director may make payments on the basis of interim estimates pending issuance of the Final Statement, when in his or her opinion the amount thus paid, together with all amounts previously paid or allowed, will not result in total compensation in excess of that to which the Contractor will be entitled. All payments, including payment upon the Final Statement, shall be subject to deduction for prior payments and amounts, if any, to be kept or retained under the provisions of the Contract.

In the event that the City terminates this Contract under Section 6-1.10B below and it is determined for any reason that there was not sufficient cause to do so, the City's termination automatically will convert to a termination for convenience under this section and the terms and conditions outlined in this section automatically will be applied to effectuate the Contract

termination. Thus, damages to which a Contractor may be entitled as a result of an improper default termination will be limited to the amounts provided for in this section.

The provisions of this section shall be included in all subcontracts.

6-1.10B **TERMINATION OF AGREEMENT - FOR CAUSE.** An

“Event of Default” as referred to in this section shall occur if the Contractor:

1. Fails to maintain progress of the Work in accordance with the requirements of the Contract Documents; or
2. Fails to prosecute the Work or any of its components in accordance with the Contract Documents; or
3. Persistently or repeatedly fails or refuses to supply sufficient properly skilled workers or proper material to permit the performance of the Work in accordance with the Contract Documents; or
4. Fails to make prompt payment to Subcontractors or Suppliers in accordance with the respective agreements between the Contractor and the Subcontractor and Contractor and Supplier; or
5. Fails to comply with applicable laws, ordinances or rules, regulations or orders of a public authority having jurisdiction over the Work; or
6. Abandons, assigns or sublets the Contract without approval of the City; or
7. Becomes bankrupt or is subject to appointment of a receiver on behalf of the Contractor; or
8. Otherwise is guilty of a substantial breach of a provision of the Contract Documents.

Upon the City’s reasonable belief that there has been an Event of Default by the Contractor, the City may elect to give the Contractor written notice thereof. The Contractor

thereafter shall cure the default as soon as possible and in no event after ten (10) Days from the Contractor's receipt of the City's written notice.

If the Contractor does not timely cure its default, the City may, without waiver of any of its other rights and remedies, elect to terminate the Contract, or portion thereof.

Upon the City's election to terminate the Contract, or portion thereof, the City shall have the right to complete the Work, or portion involved, by whatever means and methods it deems expedient, including the hiring of others on such terms as the City deems advisable. The City shall have the right to take possession of the Contractor's materials, plant, tools, equipment and property of any kind provided by or on behalf of the Contractor for the purpose of the Work, or a portion of them, without being responsible to the Contractor for wear and tear. The Contractor shall have no rights in such property during its use by the City. The City shall not be required to obtain the lowest prices for completing the Work or a portion of it but shall make such expenditures as, in the City's sole judgment, best accomplish such completion.

The expense of completing such Work or portion thereof, together with a reasonable charge for engineering, managerial and administrative services, as certified by the City, shall be charged to the Contractor, and the expense so charged shall be deducted by the City out of such monies as may be due or may at any time thereafter become due to the Contractor. In case such expense is more than the sum which otherwise would have been payable to the Contractor under the Agreement, then the Contractor or its surety or sureties shall promptly pay the amount of such excess so due. When the City terminates the Contract under this section, the Contractor shall not be entitled to receive any further payments until the Work is completed and there has been a final settlement of costs of completing the Work covered by such notice of default.

The City will issue to the Contractor a written notice specifying that the Contract, or

portion thereof, is terminated. Upon receipt of said written notice and, except as otherwise directed in writing by the City, the Contractor shall:

1. Stop all Work under the Contract; or if partial termination, stop Work relating to the terminated portion of the Agreement;
2. Perform Work the City deems necessary to secure the Work Site for termination including measures to leave the Work Site in a safe condition;
3. Remove equipment from the site of Work, as specified by the City;
4. Take such action as is reasonably necessary to protect materials from damage;
5. Notify all Subcontractors and Suppliers that the Contract or portion thereof is being terminated and that their contracts or orders are not to be further performed unless otherwise authorized in writing by the City;
6. Provide the City with an inventory list of all materials previously produced, purchased or ordered from Suppliers for use in the Work and not yet used in the Work, including its storage location, and such other information as the City may request;
7. Dispose of materials not used in the Work as directed by the Director. It shall be the Contractor's responsibility to provide the City (a) with good title to all materials purchased by the City hereunder, including materials for which partial payment has been made by the City and (b) with bills of sale or other documents of title for such materials;
8. Subject to the prior written approval of the City, settle all outstanding liabilities and all claims arising out of Subcontractors or orders for materials terminated hereunder.

To the extent directed by the City, the Contractor shall assign to the City all rights,

- title and interests of the Contractor under subcontracts or orders for materials terminated hereunder. The City shall be at liberty to negotiate with and engage any Subcontractors who had contracted with the Contractor for the Work;
9. Furnish the City with the documentation required to be furnished by the Contractor under the provisions of the Contract Documents, including, on projects as to which Federal funds are involved, all documentation required under the Federal requirements included in the Agreement; and
 10. Take such other actions as the City may direct.

If only a portion of the Work has been terminated, the Contractor shall perform the remainder of the Work in conformity with the Contract Documents and in such a manner as not to interfere with the City or others in their performance and completion of the portion of the Work which was terminated.

The City may recover from the Contractor the amount of any loss or damage, including consequential damages, suffered or incurred as a result of the Contractor's default.

SECTION 7

ACCEPTANCE AND PAYMENT

7-1.01 **ACCEPTANCE.** When the Contractor believes that the entire Work is fully and finally completed, including the satisfactory completion of inspections, tests, and documentation specified in the Contract Documents and completion of all punch list and clean-up items, the Contractor shall submit to the City a written request for final Acceptance within fifteen (15) Days thereafter, specifying that the Work is fully and finally completed and the date on which it was completed. Within thirty (30) Days after receipt of the request for final Acceptance, the City will inspect the Work and will either:

1. Reject the request for final Acceptance, specifying the defective and/or uncompleted portions of the Work; or
2. Notify the Contractor that the Work will be accepted by Resolution of the City Council of the City of Roseville, and a Notice of Completion will be caused to be recorded by the City Clerk; or
3. Notify the Contractor that the Work has been accepted by the City but no Notice of Completion will be recorded.

If the City rejects the request for final Acceptance, the Contractor shall promptly remedy the defective and/or uncompleted portions of the Work. Thereafter, the Contractor shall again submit a written request for final Acceptance of the Work, specifying a new date based on the date the defective and/or uncompleted portions of the Work were corrected. Thereafter, the foregoing procedure shall apply successively until the City has verified that the Work is fully and finally completed and accepted the Work by Resolution of the City Council or by written

notification from the Director. Immediately upon such Acceptance, the Contractor shall be relieved of the duty of maintaining the Work as a whole.

All warranties commence upon final Acceptance of the Work. The City's final Acceptance of the Work shall not be construed as an acceptance by the City of any latent defects discovered with regard to the Contractor's work. Furthermore, Contractor's obligations under Section 5-1.22 "Responsibility for Damage and Indemnification" shall still remain applicable after the City's grant of final Acceptance of the Work.

Prior to final Acceptance, the Contractor shall submit to the City the Record Documents and Operation and Maintenance Manuals as specified in the Contract Documents.

7-1.02 **SCOPE OF PAYMENT.** The Contractor shall accept the compensation provided in the Contract as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all Work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the Acceptance by the Director and for all risks of every description connected with the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as provided in the Contract; and for completing the Work according to the Contract. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective Work or material.

No compensation will be made in any case for loss of anticipated profits.

7-1.03 **NOTICE OF POTENTIAL CLAIM.** The Contractor shall not be entitled to the payment of any additional compensation for any act or failure to act by the City,

including failure or refusal to issue a Change Order, or for the happening of any event, thing, occurrence or other cause unless the Contractor has given the City due written Notice of Potential Claim as hereinafter specified, provided, however, that compliance with this Section 7-1.03 shall not be a prerequisite as to matters within the scope of the notice provisions in Section 6-1.07, "Time of Completion," or the notice provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions, nor to any claim which is based on differences in measurement or errors of computation as to correct quantities.

The written Notice of Potential Claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. The said Notice as above required must have been given to the Director prior to the time that the Contractor shall have performed the Work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Director, or in all other cases within seven (7) Days after the happening of the event, thing, occurrence or other cause giving rise to the potential claim.

If the Notice of Potential Claim does not include complete information about the claim or the parties do not execute a Contract Change Order in connection with the Notice of Potential Claim, Contractor shall submit complete information about its claim for additional compensation and/or extension of time for performance within fifteen (15) Days after such work is performed. Failure to provide written notice of claim prior to undertaking such work or failure to timely submit a complete and specific information about the claim for additional compensation and/or extension of the time for performance shall be deemed a waiver and abandonment of such claim.

If there is a dispute over any claim, the Contractor shall continue to Work during the dispute resolution process in a diligent and timely manner as directed by the City, and shall be

governed by all applicable provision of the Agreement.

The Contractor shall maintain cost records of all Work that is the basis of any dispute. On a daily basis, Contractor shall submit to City completed daily forms, the format of which will be acceptable to the City, with respect to the Contractor's costs of performing the disputed work. These daily forms shall itemize all of Contractor's costs in performing the disputed work, including, but not limited to, all costs relating to materials, labor and equipment with respect to the disputed work. These daily forms shall provide names or identification and classification of affected workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated. Said daily work forms shall be duly signed and verified by the Contractor or its authorized representative. The City's receipt of the Contractors' daily forms shall not constitute an approval of the Contractor's claim. Contractor's failure to submit the daily forms on a daily basis shall constitute a waiver of the Contractor's right to claim any additional compensation for the disputed work.

Each Contractor claim shall include full and complete information concerning the Claim. Contractor shall provide a clear, concise recital of the basis, upon which the claim is asserted, including a designation of the provisions of the Contract Documents upon which the claim is based. Contractor shall also include a statement as to the amount of time and/or compensation sought pursuant to the claim; if Contractor's claim arises from an ongoing occurrence, Contractor shall so state in its claim, including a description of the specific Work activities affected by the claim. All costs, expenses or damages and extensions of time claimed shall be described in reasonable detail under the circumstances together with complete supporting documentation.

The City will review any timely Notice of Potential Claim and supporting information

submitted by Contractor. In conducting this review, the City shall have the right to require the Contractor to submit such additional or supporting documents, data and other information as the City may require.

If an agreement can be reached which resolves the Contractor's claim, the parties will execute a Contract Change Order to document the resolution of the claim. If the parties cannot reach agreement with respect to the Contractor's claim, the Contractor shall still be obligated to comply with the claim identification provisions identified in these General Conditions, including but not limited to Section 7-1.04.

It is the intention of this Section 7-1.03 that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Director at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any Claim that may be based on any such act, failure to act, event, thing or occurrence for which no timely written Notice of Potential Claim as herein required was filed.

7-1.04 **CLAIMS.** Contractor must submit all Claims, for which it has previously submitted a Notice of Potential Claim, prior to Acceptance of the Work. Each such Claim must be sent to the City by registered mail or certified mail with return receipt requested and must contain reasonable documentation to support the Claim.

Upon receipt of a Claim, the City shall conduct a reasonable review of the Claim and, within a period not to exceed forty-five (45) Days, or such further time as mutually agreed upon or necessary pursuant to Public Contract Code Section 9204, the City shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. If the City does not respond to a Claim from the Contractor within the time

specified herein, such Claim shall be deemed rejected in its entirety.

Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) Days after the City issues its written statement.

If the Contractor disputes the City's written response, or if the City does not respond within the time specified herein, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within thirty (30) Days for settlement of the dispute.

Within ten (10) business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the City shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) Days after the City issues its written statement. Any disputed portion of the Claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and the Contractor shall mutually agree to a mediator within ten (10) business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be resolved in accordance with Section 7-1.05 below.

7-1.05 **DISPUTE RESOLUTION PROCEDURE.** All Claims not resolved

pursuant to Section 7-1.04, shall be resolved pursuant to Public Contract Code Section 10240, et seq.

7-1.06 **STOP PAYMENT NOTICES.** The City, by and through the Department or other appropriate office or officers, may at its option and at any time retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Civil Code Section 9350, et seq., including an amount to provide for the reasonable cost of any litigation thereunder.

7-1.07 **PROGRESS PAYMENTS.** Within fifteen (15) Days after the effective date in the Notice to Proceed, but in any event prior to Contractor's first Application for Payment, the Contractor shall submit to the City a detailed Schedule of Values.

Upon its approval, the Schedule of Values will form a basis for determining the compensation payable to the Contractor based on its actual progress of Work with respect to each Lump Sum bid item. The City, prior to any progress payment being made, must approve the Schedule of Values.

At the Director's discretion the approved Schedule of Values may be used as the basis for calculating the adjustment in compensation for a lump sum bid item due to changes ordered by the Director. When an ordered change increases or decreases the quantities shown in an approved Schedule of Values, at the Director's discretion, the adjustment in compensation may be determined in the same manner specified for increases and decreases in the quantity of a bid item of work in accordance with Section 3-1.05(B), "Contract Price Adjustment," of these General Conditions.

The Contractor once in each month shall submit an Application for Payment, for approval by the Director. Contractor's Applications shall be based on the Schedule of Values submitted to the City. These applications shall be supported by: (1) documentation requested by the City to

substantiate the payment request; (2) statutory releases from Contractor and all Subcontractors and suppliers pursuant to Civil Code Sections 8132 and 8138; and (3) certified payroll records for the period for which payment is requested. Specifically, the Contractor will submit conditional waivers upon progress payment executed by all contractors and suppliers that will be receiving sums sought in the instant payment request and also submit unconditional waivers upon progress payment executed by all contractors and suppliers that have been paid to the date of the payment request. The Contractor shall certify that the Work for which payment is requested has been accomplished. When requested by the City, the Contractor shall submit receipts, invoices and other documentation that the City requires to be furnished for purpose of evaluating the application.

The City will pay the Contractor within thirty (30) Days after its receipt of an undisputed and properly submitted Application for Payment, after deducting all previous payments, retention, and other sums as described in the Contract Documents. Within seven (7) Days of its receipt of the Contractor's Application for Payment, the City will determine whether it complies with the provisions of the Contract Documents. As appropriate, the City will return the application to the Contractor accompanied by a document prepared by the City setting forth the reasons for the rejection. Thereafter, the Contractor shall correct and resubmit the Application for Payment. Progress payments may be withheld for Work that is not performed in accordance with the Contract Documents.

The City may deduct the following from each progress payment:

1. An amount equal to one hundred and twenty-five percent (125%) of the amount claimed under any stop payment notice or other lien filed against the Contractor, which includes an amount to provide for the reasonable cost of any litigation

thereunder.

2. Any Liquidated Damages or Assessments that have accrued as of the date of the Application for Payment.
3. Any sums expended by the City in performing any of the Contractor's obligations under the Agreement that the Contractor has failed to perform.
4. Any other sums that the City is entitled to recover from the Contractor under the terms of the Contract including damages to the City's property.
5. The failure of the City to deduct any of the above identified sums from a progress payment shall not constitute a waiver of the City's right to such sums.

No such estimate or payment shall be construed to be an acceptance of any defective Work or improper materials.

Under no circumstances will the City make payment to unlicensed Contractors. As a condition of payment, the Contractor is required to maintain the applicable Contractor's license as identified in the Notice to Contractors for the duration of the Work.

7-1.08 **PAYMENT FOR MATERIALS AND EQUIPMENT ON HAND.**

Partial payments may be made to the extent of seventy-five percent (75%) of the cost of materials and equipment plus delivery to be incorporated in the Work, provided that such materials and equipment meet the requirements of the Contract Documents and are delivered to acceptable sites on the plant site or at other sites in the vicinity that are acceptable to the City and only with the prior written approval by the City. Such delivered costs of stored or stockpiled materials and equipment may be included in the next progress payment after the following conditions are met:

- A. Equipment and materials will only be eligible if given conditional or final

Acceptance by the Director and are in apparent compliance with favorably reviewed Submittals.

B. Only equipment or materials which have received favorable review of Shop Drawings will qualify.

C. The material or equipment has been stored or stockpiled adequately protected against damage in a manner acceptable to the Director at an approved site.

D. The Contractor has furnished the Director with acceptable evidence of the quantity and the quality of such stored or stockpiled materials or equipment with identification of where they will be incorporated into the project with Specification reference.

E. The Contractor has furnished the Director with satisfactory evidence that the material or equipment and transportation costs have been paid.

F. The Contractor has furnished the City legal title (free of liens or encumbrances of any kind) and lien releases to the material or equipment so stored or stockpiled.

G. The Contractor has furnished the City evidence that the material or equipment so stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the Work.

It is understood and agreed that the transfer of title and the City payment for such stored or stockpiled materials or equipment shall in no way relieve the Contractor of its responsibility for furnishing and placing such materials or equipment in accordance with the requirements of the Contract Documents.

In no case will the amount of progress payments for materials or equipment on hand exceed the Contract Price for such materials or equipment or the Contract Price for the Contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant

materials.

The Contractor shall bear all costs associated with the progress payment of stored or stockpiled materials or equipment in accordance with the provisions of this Section.

7-1.09 **RETENTION ON PROGRESS PAYMENTS.** From each progress payment estimate, five percent (5%) will be deducted and held in retention by the City. The remainder, less any deductions described in Section 7-1.07, “Progress Payments,” of these General Conditions, will be paid to the Contractor as progress payments.

Pursuant to Public Contract Code Section 22300, the successful Bidder may submit Securities in lieu of retention payments by the City. Upon the Contractor’s request, the City will make payment of funds withheld from progress payments, pursuant to the requirements of California Public Contract Code Section 22300, if the Contractor deposits in escrow with the City or with a bank acceptable to the City, securities eligible for investment under California Government Code Section 16430, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the City, upon the following conditions:

1. The Contractor shall bear the expenses of the City and the escrow agent in connection with the escrow deposit made.
2. Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amounts of retention to be paid to the Contractor pursuant to this section.
3. Contractor shall enter into an escrow agreement satisfactory to the City, which agreement shall be substantially similar to the form provided in California Public Contract Code section 22300.

4. The Contractor shall obtain the written consent of the surety to such agreement.

7-1.10 **FINAL PAYMENT.** Final payment will be made only after Contractor has achieved Final Completion of the Work pursuant to the provisions of Section 7-1.01, “Acceptance,” of these General Conditions. Before final payment can be made, the Contractor shall have furnished the City with the following:

1. All Record Documents, catalogues, instruction sheets and information as required by the Contract Documents.
2. Conditional Waivers and Releases Upon Final Payment executed by Contractor and all Subcontractors and Suppliers, as provided by Civil Code Section 8136. Unconditional Waivers and Releases Upon Final Payment, as provided in Civil Code Section 8138, executed by Contractor and all Subcontractors and Suppliers, must be provided for all Subcontractors and Suppliers that have been paid in full.

Within thirty (30) Days of the date of the City’s Acceptance of the Work, the Contractor shall prepare and submit a Final Invoice, showing the proposed total amount due the Contractor, segregated by Bid item quantities, Change Order Work, and other basis for payments; deductions made or to be made for prior payment; and amounts previously retained. Prior invoices and payments shall be subject to correction in the proposed Invoice for Final Payment. Payments to the Contractor will be made only for actual quantities of the Contract items of work constructed in accordance with the Contract Documents.

The City will review the Contractor’s proposed Final Invoice and necessary changes or corrections will be forwarded to the Contractor. Within ten (10) Days thereafter, the Contractor

shall submit a revised proposed Final Invoice incorporating changes or corrections made by the City together with any new claims resulting therefrom. Upon approval by the City, the corrected proposed Final Invoice will become the approval Final Invoice.

If agreements are reached on all questions regarding the Final Invoice, the City will pay the entire sum found due on the approved application. However, the City will withhold sums sufficient to pay all unsettled claims for which stop payment notices have been filed pursuant to Section 9350, et seq. of the California Civil Code, together with the reasonable cost of any litigation thereunder.

Final payment will be made within thirty (30) Days after receipt of an approved Final Invoice and other required Submittals referenced above or within sixty (60) Days after Acceptance of the work by the City, whichever is later, provided, however, that if an approved Final Invoice has not been submitted within sixty (60) Days after Acceptance of the Work by the City, the City may elect to make payment of sums not in dispute without prejudice to the right of either the City or the Contractor in connection with such disputed sums. Notwithstanding the foregoing, if a Notice of Completion is recorded, final payment shall not be made prior to the expiration of the thirty-five (35) calendar day lien period. The start of this lien period is the date the Placer County Recorder's Office records the Notice of Completion.

The City may withhold from the Final Payment an amount not to exceed one hundred fifty percent (150%) of any amount in dispute between the City and the Contractor.

The making of Final Payment shall not operate to release the Contractor or its sureties from obligations arising under the Contract, the Contract bonds and warranties as herein provided. Specifically, the making of final payment shall not constitute a waiver and release of claims by the City arising from:

1. Unsettled or future liens;
2. Failure of the Work to comply with the requirements of the Contract Documents;
3. The terms of any warranties required by or contained in the Contract Documents;
4. The right to any insurance proceeds or the right to make any insurance or bond claims;
5. Any claims with respect to Contractor's obligations of indemnity with respect to claims asserted by third parties; or
6. Any latent deficiencies with the Work or Contractor's fraud.

7-1.11 **CLERICAL ERRORS.** Notwithstanding the provisions of Section 7-1.10, "Final Payment," of these General Conditions, for a period of three (3) years after Acceptance of the Work, all estimates and payments made pursuant to said Section 7-1.10, are subject to correction for clerical errors in the calculations involved in the determination of quantities and payments. The Contractor and the City agree to pay to the other any sum due under the provisions of this Section 7-1.11, provided, however, if the total sum to be paid is less than \$100, no such payment shall be made.

7-1.12 **WARRANTY.** Notwithstanding inspections and Acceptance by the City of Work furnished under the Contract Documents, the Contractor hereby unconditionally guarantees that all materials and equipment furnished will be of good quality and new, that the Work will be free from defects in workmanship and materials and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

This warranty by the Contractor is in addition to any warranties or guarantees required elsewhere in the Contract Documents. This warranty shall be in effect notwithstanding any disclaimers, or limiting or conditional terms contained in such separate warranties furnished by manufacturers or suppliers.

The Contractor hereby agrees to repair or replace any and all Work, together with any other adjacent Work which may be displaced in so doing, that may prove to be not in accordance with the requirements of the Contract or that may be defective in its workmanship or material during the greater of a period of one (1) year after Acceptance of the Work by the City or the period specified in the Special Conditions, without any expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted.

The Contractor further agrees, that within ten (10) Days after being notified in writing by the Department of any Work not in accordance with the requirements of the Contract Documents or of any defects in the Work, the Contractor will commence and prosecute with due diligence all Work necessary to fulfill the terms of this warranty, and to complete such Work within a reasonable period of time. In the event Contractor fails to comply, it does hereby authorize the Department to proceed to have such Work done at the Contractor's expense and the Contractor will honor and pay the cost and charges therefore upon demand. The Department shall be entitled to all costs and expenses, including reasonable attorneys' fees, necessarily incurred upon the Contractor's refusal to honor and pay the above costs and charges.

All warranties set forth in the Contract Documents shall be deemed cumulative and not alternative or exclusive. Nothing contained in this section shall be construed to establish a period of limitation with respect to any other obligation, which Contractor has under the Contract Documents or under any separate warranty or guaranty required thereby. The establishment of a

specific warranty period relates only to the specific obligation of Contractor to correct defective Work, and it has no relationship to the time within which its obligation to comply with the Contract Documents or applicable provision of law may be sought to be enforced, nor to the time within which proceedings may be commenced to establish Contractor's liability with respect to its obligations other than specifically to correct the Work. Without limiting the foregoing, it is understood and agreed that Contractor shall remain responsible for latent defects with its work, regardless of the expiration of any warranty period set forth in the Contract Documents.

7-1.13 **WARRANTY OF TITLE.** No material, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment Installed or incorporated in the Work and agrees upon completion of all Work to deliver the Premises, together with all improvements and appurtenances constructed or placed thereon by it, to the City free from any claim, liens, security interest, or charges, and further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by this Contract shall have any right to a lien upon the Premises or any improvement or appurtenances thereon. Provided, that this shall not preclude the Contractor from Installing metering devices and other equipment of utility companies, the title of which is commonly retained by the utility company. In the event of the Installation of any such metering device or equipment, the Contractor shall advise the City as to the legal owner thereof. Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the City.

The provisions of this paragraph shall be inserted in all subcontracts and material Contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work when no formal Contract is entered into for such materials.

[END OF GENERAL CONDITIONS]

TEXT OF AB 626

Assembly Bill No. 626

CHAPTER 810

An act to add and repeal Section 9204 of the Public Contract Code, relating to public contracts.

[Approved by Governor September 29, 2016. Filed with Secretary of
State September 29, 2016.]

LEGISLATIVE COUNSEL'S DIGEST

AB 626, Chiu. Public contracts: claim resolution.

Existing law prescribes various requirements regarding the formation, content, and enforcement of state and local public contracts. Existing law applicable to state public contracts generally requires that the resolution of claims related to those contracts be subject to arbitration. Existing law applicable to local agency contracts prescribes a process for the resolution of claims related to those contracts of \$375,000 or less.

This bill would establish, for contracts entered into on or after January 1, 2017, a claim resolution process applicable to any claim by a contractor in connection with a public works project. The bill would define a claim as a separate demand by the contractor for one or more of the following: a time extension for relief from damages or penalties for delay, payment of money or damages arising from work done pursuant to the contract for a public work, or payment of an amount disputed by the public entity, as specified.

This bill would require a public entity, defined to exclude certain state entities, upon receipt

of a claim sent by registered or certified mail, to review it and, within 45 days, provide a written statement identifying the disputed and undisputed portions of the claim. The bill would authorize the 45-day period to be extended by mutual agreement. The bill would require any payment due on an undisputed portion of the claim to be processed within 60 days, as specified. The bill would require that the claim be deemed rejected in its entirety if the public entity fails to issue the written statement.

This bill would authorize, if the claimant disputes the public entity's written response or if the public entity fails to respond to a claim within the time prescribed, the claimant to demand to meet and confer for settlement of the issues in dispute. The bill would require any disputed portion of the claim that remains in dispute after the meet and confer conference to be subject to nonbinding mediation, as specified. The bill would provide that unpaid claim amounts accrue interest at 7% per annum. The bill would prescribe a procedure by which a subcontractor or lower tier contractor may make a claim through the contractor.

This bill would require the text of these provisions, or a summary, to be set forth in the plans or specifications for any public work which may give rise to a claim. The bill would specify that a waiver of these rights is void and contrary to public policy, except as specified. The bill would also specify that it does not impose liability on a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

By increasing the duties of local agencies and officials, this bill would impose a state-mandated local program.

This bill would, on January 1, 2020, repeal the provision establishing the claim resolution

process.

This bill would specify that these provisions constitute a matter of statewide concern.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

The people of the State of California do enact as follows:

SECTION 1. Section 9204 is added to the Public Contract Code, to read:

9204. (a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for

delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the

Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.

(vii) The High-Speed Rail Authority.

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made

within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but

not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the

claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2020, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

SECTION 2.

The Legislature finds and declares that it is of statewide concern to require a charter city, charter county, or charter city and county to follow a prescribed claims resolution process to ensure there are uniform and equitable procurement practices.

SECTION 3.

If the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

SUPPLEMENTAL CONDITIONS

Project: Regional Pump Station 26 and Force Main Capacity Improvement

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Scope of Supplemental Conditions

1. The Work shall be performed in accordance with the General Conditions and Department Standards, except as the General Conditions may be modified by the following additional City Standards, incorporated herein by this reference, if so indicated.

	COMMUNITY DESIGN GUIDELINES 311 Vernon Street, Roseville, CA 95678
	SPECIFICATIONS FOR COMMERCIAL CONSTRUCTION (ELECTRIC) 2090 Hilltop Circle, Roseville, CA 95747
	PARKS CONSTRUCTION STANDARDS 316 Vernon Street, Suite 400, Roseville, CA 95678
X	DESIGN AND CONSTRUCTION STANDARDS 311 Vernon Street, Roseville, CA 95678
	OTHER

Above documents are available at: www.roseville.ca.us

2. Numbering in these Supplemental Conditions conforms to that in the General Conditions. The existence of a section in these Supplemental Conditions means that the corresponding section in the General Conditions is modified in some respect. Unless otherwise specified, the modified General Condition is deleted entirely and the provisions of these Supplemental Conditions are substituted.

SECTION 1. DEFINITIONS AND TERMS

1-1.24 **DEPARTMENT.** Section 1-1.24 of the General Conditions is amended to include the following:

The Department for Contract Administration is the Environmental Utilities Department of the City of Roseville.

1-1.28 **ENGINEER OR ARCHITECT.** Section 1-1.28 of the General Conditions is amended to include the following:

ENGINEER's Consultant(s): The person, firm(s) or corporation(s) named as such below:

1-1.28.a. Bajada Geosciences, Inc.; 1300 Market Street, Suite 201, Redding, CA 96001.

1-1.28.b. Control Point Engineering, Inc.; 3941 Park Drive, Unit 20, El Dorado Hills, CA 95762.

SECTION 1. DEFINITIONS AND TERMS is amended to include the following:

OWNER. Owner is defined as the individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed (City).

SUBSTANTIAL COMPLETION. Substantial Completion is defined as (i) that degree of completion of the Project's operating facilities or systems sufficient to provide OWNER the full time, uninterrupted, and continuous beneficial operation of the Work; and (ii) all required functional, performance and acceptance or startup testing has been successfully demonstrated for all components, devices, equipment, and instrumentation and control to the satisfaction of ENGINEER in accordance with the requirements of the Specifications.

SECTION 2. CONTROL AND SCOPE OF THE WORK

2-1.05 COORDINATION AND INTERPRETATION OF CONTRACT

DOCUMENTS. Section 2-1.05 of the General Conditions is amended to include the following:

Figure dimensions on Drawings will take precedence over scale dimensions.

Detailed Drawings will take precedence over general Drawings.

2-1.08 SUBMITTALS. Section 2-1.08 of the General Conditions is amended to include the following:

The time allowed for review of each submittal is (10) ten Days after receipt of the submittal by the Director.

SECTION 3. CHANGES IN THE WORK

There are no amendments to the General Conditions.

SECTION 4. CONTROL OF MATERIALS

There are no amendments to the General Conditions.

SECTION 5. LEGAL RELATIONS AND RESPONSIBILITY

5-1.14 **AIR POLLUTION CONTROL AND ASBESTOS.** Section 5-1.14 of the General Conditions is amended to include the following:

To the best of the City's knowledge, asbestos is present in the vicinity of the Project.

Per As-Built, there is a parallel 12 inch asbestos cement pipe (ACP) water main located north of East Roseville Parkway. The ACP water main is offset approximately 50 feet to the west of a 10 inch sewer main which will be improved on this project. We do not anticipate this project will affect the aforementioned ACP water main, but are providing the information for the Contractor's convenience.

Additional information shall be made available to Contractor upon request.

SECTION 6. PROSECUTION AND PROGRESS

6-1.04 **PROGRESS SCHEDULE.** Section 6-1.04F of the General Conditions is amended to include the following:

Progress schedules showing project completion dates more than 30 Days earlier than specified in Section 6-1.07 shall be rejected.

6-1.07 **TIME OF COMPLETION.** Section 6-1.07 of the General Conditions is amended to include the following:

The Contractor shall begin Work within 21 business days after receiving a Notice to Proceed and shall diligently prosecute the Work to completion. The Work shall be completed within 110 business days of the Notice to Proceed. Construction activities must be limited to between April 15th and October 15th to avoid the rainy season. Work that cannot be completed prior to October 15th, 2023, due to supply issues outside of the Contractor's reasonable control, must be negotiated with the City and the City, in its sole discretion, may extend the timelines.

If landscaping plants require an establishment period, that period will be 60 calendar days. Start of the establishment should be as outlined in the Specifications.

6-1.08 **LIQUIDATED DAMAGES.** Section 6-1.08 of the General Conditions is amended to include the following:

The amount of Liquidated Damages is the sum of \$1,500.00 per Day.

SECTION 7: ACCEPTANCE AND PAYMENT

Section 7-1.02 of the General Conditions is amended to include the following:

Unless special payment is specifically provided in the Measurement and Payment Section, all incidental work and expense in connection with the Completion of Work Under the Contract will be considered a subsidiary obligation of the Contractor and all such costs shall be included in the appropriate items in the Schedule of Bid Items in connection with which costs are incurred.

[END OF SUPPLEMENTAL CONDITIONS]

SPECIAL PROVISIONS

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SECTION 1. GOVERNOR NEWSOM EXECUTIVE ORDER N-6-22 (EO)



April, 2022

RE: Contractor and Grantee Compliance with Economic Sanctions Imposed in Response to Russia's Actions in Ukraine

Dear Vendor:

On March 4, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (EO) regarding sanctions in response to Russian aggression in Ukraine. The EO is located at <https://www.gov.ca.gov/wp-content/uploads/2022/03/3.4.22-Russia-Ukraine-Executive-Order.pdf>.

The EO directs all agencies and departments that are subject to the Governor's authority to take certain immediate steps, including notifying all contractors and grantees of their obligations to comply with existing economic sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law.

This correspondence serves as a notice under the EO that as a contractor or grantee, compliance with the economic sanctions imposed in response to Russia's actions in Ukraine is required, including with respect to, but not limited to, the federal executive orders identified in the EO and the sanctions identified on the U.S. Department of the Treasury website (<https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information/ukraine-russia-related-sanctions>). Failure to comply may result in the termination of contracts or grants, as applicable.

Please note that for any agreements or grants valued at \$5 million or more you must report to the City of Roseville your compliance with economic sanctions including steps you have taken in response to Russia's actions in Ukraine, including, but not limited to, desisting from making new investments in, or engaging in financial transactions with, Russian entities, not transferring technology to Russia or Russian entities, and directly providing support to the government and people of Ukraine.

Sincerely,

DocuSigned by:
Shannon Wiest 4/25/2022
61215600A1B747E
Shannon Wiest
City of Roseville
Purchasing and Warehouse Manager

TECHNICAL SPECIFICATIONS

Project: Regional Pump Station 26 and Force Main Capacity Improvement

DOCUMENTS FOR THE CONSTRUCTION OF
CITY OF ROSEVILLE
PUMP STATION NO. 26 IMPROVEMENTS
RFP #08-109

TECHNICAL SPECIFICATIONS
(DIVISIONS 01-40)

DECEMBER 2022

BID SET



ENGINEER:



WATER WORKS ENGINEERS, LLC.

CONTACT:

Mike Fisher, P.E.
(916) 780-2888

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Pump Station No. 26 Improvements

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 01 11 03

SUMMARY OF WORK

PART 1 - GENERAL

1.1 LOCATION AND DESCRIPTION OF WORK

- A. The Work is located along Sierra College Boulevard and Rockwood Court and Eureka Road and just past Old Auburn Road in Roseville, California 95661. The Work covers the replacement of existing 8" and 10" PVC gravity sewer pipes via pipe bursting and open cut methods as well as improvements to Pump Station #26 located at 9705 Sierra College Blvd., Roseville, CA 95661.
1. Work Zone 1:
 - a. Open cut replacement of approximately 21 LF of 10" DIP gravity sewer line with 12" VCP
 - b. Pipe bursting of approximately 172 LF of existing 10" DIP gravity sewer line with 12" HDPE pipe
 - c. Construction of a weir manhole
 2. Work Zone 2
 - a. Pipe bursting of approximately 538 LF of existing 8" DIP gravity sewer line with 10" HDPE pipe to be done in segments delineated by manholes A08-010 and B08-196.
 3. Work Zone 3
 - a. Open Cut replacement of approximately 236 LF of existing 8" DIP gravity sewer line with 10" VCP to be done manhole B08-196 to manhole B08-113.
 4. Work Zone 4
 - a. Pipe bursting of approximately 1204 LF of existing 10" VCP gravity sewer line with 12" HDPE pipe to be done in segments delineated by manholes B08-105, B08-083, and B08-077.
 5. Work Zone 5
 - a. Pipe bursting of approximately 415 LF of existing 10" VCP gravity sewer line with 12" HDPE pipe to be done in segments delineated by manholes B08-077 and B08-062.
 6. Pump Station #26:
 - a. Open cut replacement of approximately 36 LF of 10" DIP gravity sewer line with 12" VCP
 - b. Removal and Replacement of existing pumps and discharge piping.
 - c. Electrical:
 - 1) All Electrical Contractor work, including coordination with electric utility and installation of electric service to site including conduit and wiring.
 - 2) Installation of all conduit, wire, supports, pullboxes, etc. to support the new system.
 - d. The Electrical Contractor shall furnish and install all of the systems shown in the Contract Documents, including but not limited to the following:
 - 1) Standby Generator with concrete pad.
 - 2) New Meter/Main Switchboard (MSB) with Main Disconnect and concrete pad.
 - 3) New Motor Control Center (MCC) with concrete pad, Automatic Transfer Switch (ATS), Lighting Panel, Transformer, and Reduced Voltage Soft Starter (RVSS) pump controls with motor overtemperature and seal leakage

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- detection, forward/reversing contactors, and automatic de-ragging functionality.
 - 4) New PLC Control Panel with air conditioner.
 - 5) Associated conduit, wire, fiber optic cabling, pullboxes, supports, field terminal enclosures, and site lighting to support the new system.
 - 6) Wetwell level transducer, three (3) level floats, and associated isolation barriers.
 - e. Instrumentation and Controls:
 - 1) PLC programming, local Operator Interface Terminal programming, and SCADA application programming shall be performed by OTHERS and is excluded from Contractor's Scope of Supply. The Contractor shall coordinate equipment testing as required by the Contract Documents and with the City's Applications Programmer to complete Start-up and Testing requirements.
 - 7. Project Management and Administration:
 - a. Preparing and providing submittals.
 - b. Maintaining project schedule.
 - c. Maintaining As-Built Contract Drawings on a continuous basis.
 - d. Preparing Requests for Information.
 - e. Startup, testing, training and project closeout tasks to provide a complete and functional system.
- B. The Project features sole-source pre-purchase by the OWNER of some of the major equipment. The CONTRACTOR shall be responsible for the acceptance, handling, installation and startup of this and all other equipment for the Project.

1.2 PROJECT DOCUMENTS

- A. The Work is described in the following project documents:
- 1. Volume 1 – City of Roseville Buildings & Grounds Project Manual
 - 2. Volume 2 – Technical Specifications
 - 3. Volume 3 – Drawings
- B. Refer to the Contract Documents for the following supplemental information referenced from the Drawings and Specifications:
- 1. Geotechnical Report

1.3 COORDINATION

- A. The CONTRACTOR shall be solely responsible for coordination of all of the Work of this Contract.
- B. The CONTRACTOR shall supervise, direct and cooperate fully with all Subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and all others whose services, materials or equipment are required to ensure completion of the Work within the Contract Time.
- C. Work of Others:
- 1. The CONTRACTOR shall cooperate with and coordinate CONTRACTOR's Work with the work of any other contractor, utility service companies, or CITY's representatives performing work at the site.

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2. The CONTRACTOR shall also coordinate their Work with the work of others to assure compliance with schedules.
 3. The CONTRACTOR shall attend and participate in all project coordination or progress meetings and report on the progress of all Work and compliance with schedules.
 4. If any part of the work depends upon the work of others for proper execution or results, the CONTRACTOR shall inspect and promptly report to the ENGINEER any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results.
 5. Failure of the CONTRACTOR to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the work by the CONTRACTOR.
- D. Interference with work on utilities:
1. The CONTRACTOR shall cooperate fully with all utility forces of the CITY or forces of other public or private agencies engaged in the relocation, altering, repair, or otherwise rearranging of any facilities which interfere with the progress of the work.
 2. The CONTRACTOR shall schedule the work so as to minimize interference with said relocation, altering, repair, or other rearranging of facilities.
- E. Responsibility for Damage:
1. The CONTRACTOR shall not be responsible for damage done by CONTRACTORS not under their jurisdiction.
 2. The CONTRACTOR will not be liable for any such loss or damage, unless it is through the negligence of the CONTRACTOR.

1.4 WORK BY OTHERS

- A. The CITY will perform the following work:
1. Operation of all existing system valves and equipment, unless specified otherwise.
 2. PLC and SCADA programming.
 3. Installation of bells at existing manholes and structures.
 4. Roseville Electric to install transformer at PS-26 prior to project commencement.
- B. PG&E
1. PG&E to hold PG&E pole in front of PS-26 during pipe bursting operations.
 2. PG&E to relocate gas line at Sierra College and East Roseville Parkway prior to project commencement.

1.5 SITE CONDITIONS

- A. Site Investigation and Representation
1. The CONTRACTOR acknowledges that it has satisfied itself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.
 2. The CONTRACTOR further acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from

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exploratory work that may have been done by the CITY or included in these Contract Documents. Any failure by the CONTRACTOR to become acquainted with all the available information will not relieve the CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the work or for properly installing the Work.

3. Field Verification:

- a. Before undertaking each part of the work, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements.
- b. As the work proceeds, the CONTRACTOR shall field verify the depth and location of all buried utilities, and existing systems, and location of hazardous waste and contaminants.
- c. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any work affected thereby.

B. Existing Utilities and Improvements

1. Location of Underground Utilities:

- a. Known existing underground conduits, pipelines and other utilities have been shown on the contract drawings in their approximate locations (within 3 feet of actual location). However, the accuracy or completeness of utilities indicated on the drawings is not guaranteed.
- b. It shall be the responsibility of the CONTRACTOR to determine the exact location of all utilities and their service connections.
- c. All potholing or other procedures for verifying utility location shall be performed by the CONTRACTOR as necessary to prepare for excavation at least 4 working days in advance of scheduled excavation.
- d. The CONTRACTOR shall immediately notify the ENGINEER as to any utility located by him which has been incorrectly shown or omitted from the Drawings.
- e. If the CONTRACTOR cannot locate an underground utility whose presence is indicated on the Drawings, the ENGINEER shall be notified in writing.
- f. The CONTRACTOR shall ascertain the exact locations of underground utilities whose presence is indicated on the Drawings. The locations of their service laterals work and of service laterals or appurtenances of any other underground utilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes shall be obtained prior to doing work that may damage such utilities or interfere with their service.

g. Utilities Not Shown on Drawings:

- 1) Attention is directed to the possible existence of underground utilities not indicated on the Drawings and to the possibility that underground utilities may be in a location different from that indicated on the Drawings.
- 2) If the ENGINEER determines that the underground utility for which such notice has been given has not been depicted on the Drawings with reasonable accuracy (within 3 feet of actual location), the additional cost incurred in locating the utility will be paid for as extra work as provided in the Agreement.
- 3) If the CONTRACTOR discovers a buried utility not indicated on the Drawings, the CONTRACTOR shall immediately give the ENGINEER and the Utility Company written notification of the existence of such utility.

- 4) Such utilities shall be located and protected from damages as directed by the ENGINEER and the cost of such work will be paid for as extra work as provided in the Agreement.
 2. Utility Coordination:
 - a. The CONTRACTOR shall notify Underground Service Alert (USA) at least 4 days prior to excavation, telephone (800) 642-2444.
 - b. The CONTRACTOR shall also contact all utility owners not registered with USA but known to have utilities in the project area to field locate underground utilities at least 4 days prior to excavation.
 - c. The CONTRACTOR shall notify all owners of utilities when the Work is in progress and shall make arrangements as are necessary to coordinate outages or make any emergency repairs.
 - d. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained; and all utilities that are constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.
 3. Utility Protection and Damage:
 - a. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained, and all utilities that are constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.
 - b. Should any damage to a utility occur during the progress of the work, the CONTRACTOR shall notify the CITY or the utility owner at once and render all assistance possible to repair the damage and restore the service.
 - c. No extra compensation will be made for the repair of any services or utility damaged by the CONTRACTOR nor for any damage incurred through neglect or failure to provide adequate protection to existing utilities.
 - d. The provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.
 - e. Damage Report:
 - 1) If the CONTRACTOR damages any underground utilities not shown on the Drawings or not depicted on the Drawings with reasonable accuracy (within 3 feet of actual location) or any lateral service the location of which could not be inferred by the CONTRACTOR, a written report thereof shall be made immediately to the ENGINEER by CONTRACTOR.
 - 2) The CONTRACTOR's report shall also advise the ENGINEER of any schedule delays as a result of utility damages. Compensation for such delays will be determined in accordance with the Agreement. The CONTRACTOR shall be entitled to no other compensation for any such damage.
 4. All utilities encountered along the line of the work shall remain continuously in service during all work under the Contract, unless otherwise shown on the drawings, or unless other arrangements satisfactory to the ENGINEER are made with the owner of said utilities.
- C. CONTRACTOR's Responsibility for Utility Facilities and Service
1. Where the CONTRACTOR's operations could cause damage or inconvenience to railway, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the CONTRACTOR shall make all arrangements necessary for the protection of these utilities and services.

2. The CONTRACTOR shall be solely and directly responsible to the owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
3. Neither the CITY nor its officers or agents shall be responsible to the CONTRACTOR for damages because of the CONTRACTOR's failure to protect utilities encountered in the Work.
4. In no event shall interruption of any utility service be allowed outside working hours unless granted by the owner of the utility.
5. No sand, mud, rocks or other construction debris shall be disposed of in the sanitary sewers or storm sewers.
6. Any discharge of construction water to the sewer or storm drain systems requires a City of Roseville discharge permit a minimum of 7 calendar days prior to planned discharge, as approved by ENGINEER.
7. Where bypassing of sewage is required to perform sewer repairs or service relocations and where temporary pumps are required to bypass any sewage across traffic lanes, the discharge lines crossing the traffic lanes shall be buried a minimum of 4 inches below the pavement surface and backfilled with temporary asphalt concrete surfacing. The CONTRACTOR shall take all necessary steps to assure continuous flow of sewage. Bypassing of untreated wastewater to surface waters or courses will not be permitted.
8. The CONTRACTOR shall replace, at its own expense, any and all existing utilities or structures removed or damaged during construction, to their existing condition unless otherwise provided for in these Contract Documents.
9. The CONTRACTOR shall repair or replace, at its own expense, all pavement damaged during the construction, to its existing condition unless otherwise provided for in these Contract Documents.

D. Names of Known Utilities Serving the Area

1. The following is a list of the known public utilities serving the area:
 - a. City of Roseville:
 - 1) Water – (916) 774-5750
 - 2) Storm Water – (916) 774-5790
 - 3) Recycled Water – (916) 774-5750
 - 4) Sewer – (916) 774-5750
 - 5) Electric – (916) 797-6937
 - 6) Traffic Signals – (916) 746-1760
 - b. Pacific Gas and Electric (PG&E):
 - 1) Gas – (530) 320-2908
 - 2) Electric – (530) 320-2908

E. Interfering Structures

1. The CONTRACTOR shall take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented as a guide to avoid possible difficulties.
2. The CONTRACTOR shall protect all existing structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.

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3. Where existing fences, gates, buildings, or any other structure must be removed to properly carry out the work, or are damaged during the work, they shall be restored at the CONTRACTOR's expense to their original condition or better.
 4. Without additional compensation, the CONTRACTOR may remove and replace in a condition as good as or better than original, any small structures such as fences, and signposts that interfere with the CONTRACTOR's operations.
- F. Field Relocation
1. During the progress of construction, it is expected that minor relocations of the work will be necessary.
 2. Such relocations shall be made only by direction of the ENGINEER.
 3. If existing structures are encountered that will prevent construction as shown, notify the ENGINEER before continuing with the work in order that the ENGINEER may make such field revisions as necessary to avoid conflict with the existing structures.
 4. Any CONTRACTOR request(s) for additional compensation or contract time resulting from necessary field relocations will be considered as set forth in the Agreement.
 5. If the CONTRACTOR fails to notify the ENGINEER when a structure which interferes with construction is encountered, and proceeds with the work despite this obstruction, the CONTRACTOR shall do so at their own risk and at no additional cost to the CITY.
- G. Traffic Control shall be per City of Roseville Design Standards. All traffic control plans (including signage) shall be per the current CAMUTCD (California Manual on Uniform Traffic Control Devices).

1.6 REFERENCE POINTS AND SURVEYS

- A. Locations and elevations of benchmarks are shown on Drawings.
- B. Dimensions for lines and elevations for grades of structures, appurtenances, and utilities are indicated on Drawings, together with other pertinent information required for laying out Work. If conditions vary from those indicated, notify CITY immediately, who will make or approve minor adjustments, as required.
- C. CITY may perform checks to verify accuracy of CONTRACTOR's layout Work and that completed Work complies with Contract Documents.
- D. Any existing survey points or other control markers destroyed without proper authorization will be replaced by owner of the survey points or control markers at CONTRACTOR's expense.
- E. CONTRACTOR's Responsibilities:
1. Provide all survey and layout required.
 2. Locate and protect reference points prior to starting site preparation.
 3. Notify CITY at least 3 working days in advance when grade and line surveying will be performed by CONTRACTOR.
 4. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
 5. In event of discrepancy in data provided by CITY, request clarification before proceeding with Work.
 6. Provide cut sheets for all staking.

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7. Preserve and leave undisturbed control staking until ENGINEER has completed checks it deems necessary.
8. Re-establish reference points resulting from destruction by CONTRACTOR's operations.
9. Cooperate with ENGINEER so that checking and measuring may be accomplished with least interference to CONTRACTOR's operations.

1.7 SEQUENCE AND PROGRESS OF WORK

- A. The CONTRACTOR shall submit a Construction Schedule covering the entire Work in accordance with Section 01 32 13, Progress Schedule.
- B. The CONTRACTOR shall incorporate the requirements of Section 01 14 03, Special Project Constraints, into the Construction Schedule.
- C. Alternate Sequence:
 1. The CONTRACTOR's schedule may use a different sequence from that shown or specified, if techniques and methods known to the CONTRACTOR will result in cost and time savings to the CITY and still achieve the required objectives.
 2. The ENGINEER's determination on the acceptability of any alternative sequence from that shown or specified shall be final.

1.8 CONTRACTOR'S USE OF PREMISES

- A. The CONTRACTOR shall coordinate use of the premises, for the CONTRACTOR's storage and the operations of the CONTRACTOR's workmen, with CITY and utility service companies.
- B. Restriction of Work Area:
 1. The full use of the premises for storage, the operations of workmen and for all other construction activities will not be available to the CONTRACTOR.
 2. The CONTRACTOR must operate entirely within the space allowed to the CONTRACTOR.
 3. The Drawings defines the area allocated to the CONTRACTOR.
- C. The CONTRACTOR shall be solely responsible for obtaining and paying all costs in connection with any additional work area, storage sites, access to the site or temporary right-of-way, which may be required for proper completion of the Work.
- D. Limitations on Use of Work Area:
 1. It shall be understood that responsibility for protection and safe-keeping of equipment and materials on or near the site will be entirely that of the CONTRACTOR and that no claim shall be made against the CITY or their authorized representatives by reason of any act.
 2. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials or equipment, the ENGINEER shall direct the CONTRACTOR owning or responsible for the stored materials and equipment to immediately move the same.
 3. No materials or equipment may be placed upon the property of the CITY, other than in the designated areas as shown on the Drawings, unless the ENGINEER has agreed to the location contemplated by the CONTRACTOR to be used for storage.

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Summary of Work

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4. All stored materials shall be labeled according to the appropriate contractor or Subcontractor with the manufacturer's label as well.
 5. Appropriate material safety data sheets (e.g., MSDS) shall be provided.
- E. The CONTRACTOR shall be required to share use of the premises with other Contractors whose services the CITY has obtained or will obtain for construction of other facilities on the site.

1.9 USE OF OWNER'S FACILITIES

- A. The CONTRACTOR may use existing facilities or equipment in the Work for construction purposes, only if the CITY's written permission is obtained.
- B. Restore existing facilities and equipment used for temporary purposes to original condition in a manner satisfactory to CITY.
- C. The full use of the premises for storage, the operations of workmen, and for all other construction activities, will not be available for the CONTRACTOR.
- D. The CONTRACTOR must operate entirely within the space allowed to the CONTRACTOR.
- E. The Drawings define the Work Zone area allocated to the CONTRACTOR.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

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Summary of Work

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SECTION 01 14 03
SPECIAL PROJECT CONSTRAINTS

PART 1 - GENERAL

1.1 LIMIT OF CONSTRUCTION ACTIVITIES ON WORK SITE

- A. Work Months:
 - 1. Construction activities may only occur between April 15th and October 15th to avoid the rainy season. Work that cannot be completed prior to October 15th, 2023 due to supply issues outside of the Contractor's control must be negotiated with the City.
- B. Traffic Control:
 - 1. During non-work hours, the CONTRACTOR shall keep all lanes of traffic open and clear. All trenches shall be backfilled or covered with suitable steel plates and open to traffic. Steel plates shall sit flush with the existing pavement and shall be pinned and staked. Plates cannot be installed on top of AC.
 - 2. No equipment, construction material or excavated material that will interfere with traffic shall be stored on streets or roadways at any time.
- C. Bypass Pumping
 - 1. See Section 01 57 03

1.2 SEQUENCE OF WORK

- A. General:
 - 1. The CONTRACTOR shall schedule and sequence their work to complete the Work by the specified completion date.
 - 2. The CITY's wastewater collection system must remain operational at all times, with scheduled shutdowns as necessary to complete the Work and with prior approval of CITY, as described herein.
 - 3. Re-vegetation of graded areas shall take place as quickly as possible as weather permits.
- B. Delivery of OWNER-Furnished Equipment:
 - 1. The OWNER-furnished equipment will be delivered to the site within the following periods. The CONTRACTOR shall be prepared to inspect, unload and store the equipment during that period, in accordance with the requirements of Section 01 64 03, Owner-Furnished Equipment.
 - a. Two (2) Flygt Model NP-3202 Submersible Pumps and accessories: PMP101, PMP102

1.3 PROJECT CONSTRAINTS

- A. Maintenance of CITY's Operations:
 - 1. Constraints listed herein involve limits on activities during construction. These limits relate to the critical nature of the existing sewer system.
 - 2. Continuous operation of CITY's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.

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Special Project Constraints

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3. Work Plan:
 - a. The CONTRACTOR shall submit a detailed Work Plan and time schedule for all construction activities that will make it necessary to remove a pipeline, electrical circuit, equipment, structure, road or other facilities from service, including the critical outages identified herein.
 - b. The Work Plan shall, at a minimum, identify:
 - 1) the date and time when each activity will occur;
 - 2) what equipment will be present including standby equipment;
 - 3) what assistance will be required by CITY's operating personnel;
 - 4) an emergency backup plan identifying what action will be taken if Work cannot be completed within the allotted time; and
 - 5) what individual will be in charge of the activity.
 - c. Submit Work Plan 10 working days prior to the scheduled activity.
 4. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption of CITY's operations.
 5. Shutdowns:
 - a. Coordinate proposed Work with CITY and facility operations personnel before affecting unit shutdowns. The CONTRACTOR shall provide written confirmation of the shutdown date and time five (5) working days prior to the actual shutdown.
 - b. Under no circumstances shall the CONTRACTOR cease Work at the end of a normal working day or at the end of a working week if such actions may inadvertently cause a cessation of any facility operating process, in which case, remain onsite until necessary repairs are complete.
 6. Do not close lines, open valves or gates, shut down equipment, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after approval of CITY.
 7. Do not proceed with Work affecting a facility's operation without obtaining CITY's advance approval of the need for and duration of such Work.
- B. Relocation of Existing Facilities:
1. During construction, it is expected that minor relocations of Work will be necessary.
 2. Provide complete relocation of existing structures and Underground Facilities, including piping, utilities, equipment, structures, electrical conduit wiring, electrical duct bank, and other necessary items.
 3. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
 4. Perform relocations to minimize downtime of existing facilities.
 5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by CITY.
- C. Hours of Work and Overtime:
1. Normal working hours at the Construction Site for the project shall be 7A.M. to 5P.M., weekdays, no work during the weekend nor during CITY observed holidays.
 - a. Conduct Work outside normal working hours only after obtaining prior written consent and approval from the CITY.
 - 1) Contractor shall request work-hour variations in writing, a minimum of ten (10) days prior to the start of the proposed work period.
 - 2) Contractor shall not rely on approval of work outside of normal working hours without prior consent of the CITY. Approval shall be at the sole discretion of the CITY.

- b. Contractor will develop Project Schedule assuming work during normal working hours only.
- 2. All overtime Work by the CONTRACTOR necessary to conform to the requirements of this Section and related Sections shall be performed by the CONTRACTOR, at no cost to the CITY and shall be performed in accordance with the Agreement. The CONTRACTOR shall make no claims for extra compensation as a result thereof.

1.4 CONSTRUCTION SEQUENCING CONSTRAINTS

- A. No specific construction sequencing constraints other than those listed in this or other Specification sections have been determined at the time of Final Design.
- B. Construction sequencing constraints will be developed by Design-Assist Team as necessary.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Special Project Constraints

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Special Project Constraints

Pump Station 26 Improvement Project

City of Roseville
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SECTION 01 29 03

MEASUREMENT AND PAYMENT

PART 1 - MEASUREMENT

1.1 BID SCHEDULE DESCRIPTIONS

Bid Schedule Item No. 1 – Mobilization and Demobilization

The LUMP SUM price paid shall include full compensation for bonds, insurance, required permits and fees, shop drawings, project phasing, supervision, coordination of concurrent work with other contractors, meetings, pre-construction documentation of project area (photos and HD video), "as-built" plans or record drawings, clean-up of the work area including removal of USA markings at project completion, movement of personnel, equipment, supplies, and incidentals to and from the project site, surveying, and resetting survey monuments; for the establishment of all other facilities necessary for work on the project, including temporary sanitation facilities for the workers; for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items of work on the project site; for work and improvements called for or implied by the Contract Documents, which are not included in the other bid items but are required to complete the Work. Payment for mobilization at 10% of the lump sum bid price shall be made at the time of the first progress payment after the Contractor has purchased bonds and insurance. Fifty percent shall be paid when the Contractor has mobilized to the project site and initiated work. The remainder of 40% shall be paid at the time of last progress payment after all cleanup and demobilization is completed.

Bid Schedule Item No. 2 – Bypass Pumping

The LUMP SUM price for this work shall include all necessary equipment, materials, and labor needed to provide bypass pumping on Sierra College Boulevard during construction.

Bid Schedule Item No. 3 – Traffic Control

The LUMP PUMP price shall include all necessary equipment, materials, labor, and miscellaneous items. Flagger must be dedicated solely to traffic control purposes and shall not be pulled to perform other work while an active flagger is required. Traffic control is to be in accordance with California Traffic Manual minimum recommended channelizer and sign spacing. This work shall include routing of pedestrian, vehicular, and construction traffic; furnishing labor, tools, equipment, materials and incidentals for implementing and providing the traffic control devices, phasing, signage, striping, and personnel in accordance with the Contract Documents.

Full compensation for Traffic Control, including all services, permits (Caltrans), material costs, delivery, installation, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City shall be considered as included in the lump sum price paid for Bid Item 5, Traffic Control, complete and in-place, and no additional compensation will be allowed therefor.

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Measurement and Payment

Pump Station 26 Improvement Project

Bid Schedule Item No. 4 – Pipe Installation Upstream of PS26 (Work Zone 1)

The LUMP SUM price is for this work shall include all necessary equipment, materials, and labor needed to install the 12" SS between MH No. 2 and MH No. 1 in Work Zone 1: pipe bursting during construction, including excavation, shoring, and inspections during pipe bursting process. Open cut installation shall include the cost of, but is not limited to:

- Identifying the locations of existing subsurface utilities and connection points;
- All pavement, curb, gutter and sidewalk saw-cutting, removal and replacement;
- Trench excavation, backfill, compaction and safety;
- Imported bedding material;
- Sub-grade preparation and all compaction;
- Furnishing and installing VCP sewer pipe as indicated on the Drawings, including fittings and appurtenances;
- Disposal of excess excavated material;
- Removal and replacement where necessary of interfering portions of existing sewer pipes and improvements;
- Placing, joining, and retaining pipe, bends, adapters, couplings, vertical and horizontal offsets, restrained or harnessed joints, end caps, and other fittings not included in other bid items;
- Erosion and sediment control;
- Restoration of damaged and disturbed street improvements; and
- Temporary resurfacing, permanent asphalt concrete and concrete resurfacing as needed; and
- Concrete cross gutter repair.
- All other labor, equipment and material incidental to the installation of the pipe, complete in place.

Full compensation for installing VCP and HDPE Pipe including all labor, equipment, materials, tools and incidentals, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City, shall be considered as included in the unit prices paid per linear foot of pipe installed, complete and in place, and no additional compensation will be allowed therefor.

City shall install bells at existing structures. Work to make connections to the City-installed bells shall be included in this bid item.

Bid Schedule Item No. 5 – Furnish and Install New Weir Manhole (Work Zone 1)

The UNIT PRICE is for this work includes furnishing and installation of new hybrid PVC weir manhole as detailed in Drawing C-10. Included in the cost is pavement cutting removal, excavating, shoring, furnishing and installing the new weir manhole with slide gate and weir blocks.

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Measurement and Payment

Pump Station 26 Improvement Project

Bid Schedule Item No. 6 – MH A08-010 to MH B08-196 (Work Zone 2)

The UNIT PRICE is for this work shall include all necessary equipment, materials, and labor needed to install the 10" HDPE pipe between and connect to MH A08-010 and MH B08-196 in Work Zone 2: pipe bursting during construction, including excavation, shoring, and inspections during pipe bursting process.

Full compensation for installing HDPE Pipe including all labor, equipment, materials, tools and incidentals, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City, shall be considered as included in the unit prices paid per linear foot of pipe installed, complete and in place, and no additional compensation will be allowed therefor.

Bid Schedule Item No. 7 – MH B08-196 to B08-113 (Work Zone 3)

The LUMP SUM price is for this work shall include all necessary equipment, materials, and labor needed to install the 12" SS between MH B08-196 and B08-113 in Work Zone 3: pipe bursting during construction, including excavation, shoring, and inspections during pipe bursting process. Open cut installation shall include the costs described in Bid Schedule Item No. 4.

Full compensation for installing VCP and/or HDPE Pipe including all labor, equipment, materials, tools and incidentals, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City, shall be considered as included in the unit prices paid per linear foot of pipe installed, complete and in place, and no additional compensation will be allowed therefor.

City shall install bells at existing structures where open cut is utilized. Work to make connections to the City-installed bells shall be included in this bid item.

Bid Schedule Item No. 8 – MH B08-113 to MH B08-077 (Work Zone 4)

The UNIT PRICE is for this work shall include all necessary equipment, materials, and labor needed to install the 12" HDPE pipe between and connect to MH B08-113 and MH B08-077 in Work Zone 4: pipe bursting during construction, including excavation, shoring, and inspections during pipe bursting process.

Full compensation for installing HDPE Pipe including all labor, equipment, materials, tools and incidentals, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City, shall be considered as included in the unit prices paid per linear foot of pipe installed, complete and in place, and no additional compensation will be allowed therefor.

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Measurement and Payment

Pump Station 26 Improvement Project

Bid Schedule Item No. 9 – MH B08-077 to MH B08-062 (Work Zone 5)

The UNIT PRICE is for this work shall include all necessary equipment, materials, and labor needed to install the 12" HDPE pipe between and connect to MH B08-077 and MH B08-062 in Work Zone 5: pipe bursting during construction, including excavation, shoring, and inspections during pipe bursting process.

Full compensation for installing HDPE Pipe including all labor, equipment, materials, tools and incidentals, and for conforming to all applicable provisions of the Standard Specifications, these Special Provisions, and the requirements of the City, shall be considered as included in the unit prices paid per linear foot of pipe installed, complete and in place, and no additional compensation will be allowed therefor.

Bid Schedule Item No. 10 – PS26 Improvements

The LUMP SUM price shall include all necessary equipment, materials, labor, and miscellaneous items to complete the following work:

- Demolish existing electrical control panel pad and switch board;
- Install and connect new Control Panel and pad, Emergency Generator and pad, Electrical Instrumentation and Controls;
- Demolish existing fencing;
- Install new fencing and connect to existing fencing;
- PS26 bypass pumping;
- Remove and salvage existing PS26 submersible pumps, chains, guide rails, discharge elbows and DIP;
- Install new City-furnished submersible pumps and accessories, stainless steel and DIP piping in wet well;

Replace 12" DIP between MH No. 1 and PS26 Wet Well with 12" VCP via open cut installation including the costs described in Bid Schedule Item No. 4. City shall install bell at existing PS26. Work to make connections to the City-installed bell shall be included in this bid item.

PART 2 - GENERAL**2.1 GENERAL**

- A. Payment will be made at the price bid for each item listed on the bidding form or as extra work as provided in the General Conditions.
- B. No initial progress payment (other than a single mobilization payment as described in Article 1.3 below) will be made prior to acceptance by the ENGINEER of the CPM Construction Schedule, the associated Schedule of Costs, and the list of anticipated submittals.
- C. No subsequent progress payment will be made prior to receipt by the ENGINEER of the monthly update of the Construction Progress Schedule, as specified in Sections 01 31 19, Project Meetings and 01 32 16, Progress Schedule.

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Measurement and Payment

Pump Station 26 Improvement Project

- D. No subsequent progress payment will be made prior to receipt by the ENGINEER of Certified Payroll for the previous month.

2.2 SCHEDULE OF COSTS FOR PAYMENTS

- A. Submit to the ENGINEER, within 5 days of acceptance of the Construction Schedule, five (5) copies of a Schedule of Costs. The Schedule of Costs shall be a form showing a detailed breakdown of quantities and prices of work and materials required to perform and complete the contract.
- B. The Schedule of Costs shall provide a cost breakdown for each element detailed in the approved Construction Schedule. The total of the price breakdown must agree with the lump-sum price bid. The elements listed and price breakdown shall not be front end loaded or unbalanced, shall be subject to adjustment between the ENGINEER and the CONTRACTOR, and will be used as a basis for progress payments.
- C. The Schedule of Costs will be used as a basis for determining the amount of the monthly progress payments.
- D. Acceptance of the Schedule of Costs by the ENGINEER shall not relieve the CONTRACTOR of the responsibility of performing all the work needed to complete the project at the lump-sum price bid.

2.3 PAYMENT FOR MOBILIZATION

- A. Mobilization Cost Breakdown:
 - 1. As soon as practicable after receipt of the Notice to Proceed, the CONTRACTOR shall submit a breakdown to the ENGINEER for approval, which shall show the estimated value of each major component of mobilization.
 - 2. When approved by the ENGINEER, the breakdown will be the basis for initial progress payments in which mobilization is included.
 - 3. Said breakdown shall not be "front end loaded" or unbalanced.
- B. One CONTRACTOR payment may be made prior to acceptance of the Construction Schedule, Schedule of Costs, and list of anticipated submittals.
 - 1. Payment shall be limited to mobilization items only.
 - 2. The Construction Schedule is described in Section 01 32 13, Simplified Project Schedule
 - 3. Mobilization items are described in Section 01 71 13, Mobilization.
 - 4. The Schedule of Costs is described in Paragraph 1.2 of this Section.
 - 5. The list of anticipated submittals is described in Section 01 33 03, Submittal Procedures.

2.4 PROGRESS PAYMENTS

- A. Progress Payment Request Submittal:
 - 1. Unless otherwise mutually agreed, by the 25th of each month, the CONTRACTOR shall prepare and submit monthly progress payment requests for work completed through the 25th day of the month.
 - 2. Said payment request shall be based on the breakdown of activities as specified in the Schedule of Costs described in Paragraph 1.2 above.

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Measurement and Payment

Pump Station 26 Improvement Project

3. The monthly schedule update shall be submitted as part of the monthly progress payment report.
- B. The ENGINEER will review progress payment requests and make a determination of the percent completion of all activities (rounded to the nearest whole percent) based on an approximate measurement of all materials supplied and work performed.
- C. In the event that the CONTRACTOR fails to provide the OWNER with an acceptable Monthly Contract Record Drawing Submittal in accordance with Section 01 33 03, Submittal Procedures the OWNER shall deduct compensation for such monthly submittal as provided in Section 01 32 13, Simplified Project Schedule. Said deduction shall become the sole property of the OWNER.
- D. Retention:
 1. From the amount thus determined, five percent thereof will be deducted as retention by OWNER for performance security.
 2. Acceptance of separate components shall not operate to release performance retention.
 3. The amount of all payments previously made to the CONTRACTOR and any amounts due the OWNER from the CONTRACTOR for supplies, materials, services, damages, or otherwise deductible under the terms of the contract will be deducted from the remainder.
 4. The remaining amount will be paid as a progress payment by the OWNER to the CONTRACTOR on the third Friday of the succeeding month or as soon thereafter as is practical.
- E. In addition to the retention under Paragraph D above, the whole or part of any payment of the estimated amount due the CONTRACTOR may be withheld as an additional retention if such course be deemed necessary to protect the OWNER from loss due to the CONTRACTOR's failure to perform any of the following: (1) meet CONTRACTOR's payment obligations; (2) execute the work; (3) correct defective work; (4) settle damages as provided; or (5) produce substantial evidence that no stop notices will or have been filed, and/or if it has been determined that unpaid balances may be insufficient to complete the work.
- F. All material and work covered by progress payments thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the CONTRACTOR from sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work or as a waiver of the OWNER's right to require fulfillment of all of the contract terms. Said CONTRACTOR's obligation extends through the close of the warranty period.
- G. Payment for Materials:
 1. No payment shall be made for materials stored offsite.
 2. Payment may be made for those materials delivered to the site but not incorporated in the work to the extent that the materials are included in the Construction Schedule as cost-loaded material delivery activities.
 3. Only material items manufactured specifically for this project and that cost individually in excess of \$20,000 will be considered for partial payment as stored materials.

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Measurement and Payment

Pump Station 26 Improvement Project

4. Partial payment for materials delivered will not be made before the respective shop drawings, installation instructions and O&M manuals have been submitted, reviewed, and accepted in accordance with Section 01 33 03, Submittal Procedures.
5. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the CONTRACTOR to submit to the ENGINEER, at least 7 days prior to the end of said month, a list of such materials.
6. At their sole discretion, the ENGINEER will approve items for which partial payment is to be made.
7. The list of materials and invoices shall be clearly identified by referencing the associated activity or item on the price breakdown.
8. Partial payment for materials delivered to the site or a bonded warehouse will be made in an amount equal to 75% of the respective suppliers' invoices(s) for the actual net cost for the item(s) delivered plus delivery charges.
9. The CONTRACTOR's actual net cost for the materials must be supported by invoices of suppliers.
10. Proper storage and protection of materials shall be provided by the CONTRACTOR. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

2.5 FINAL PAYMENT AND RELEASE OF CLAIMS

1. Upon the completion of the work as determined by the ENGINEER, a Notice of Acceptance will be issued and recorded with the County.
2. The OWNER will pay to the CONTRACTOR within 35 days after filing of the Notice of Acceptance, or as soon thereafter as practicable, the remaining amount due the CONTRACTOR including retainage, less all prior payments and advances whatsoever to or for the account of the CONTRACTOR for supplies, materials, services, damages, stop notices, or otherwise deductible under the terms of the contract.
3. All prior estimates and payments including those relating to extra work shall be subject to correction by this payment, which throughout this contract is called "Final Payment".

2.6 RELEASE OF CLAIMS:

- A. Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR shall have delivered to the OWNER a complete release of all claims against the OWNER arising under and by virtue of this contract and related to undisputed amounts, including claims of Subcontractors and suppliers of either materials or labor.
- B. If disputed contract claims in stated amounts are unresolved 35 days after issuance of the Notice of Acceptance, a progress payment of undisputed amounts and retained funds will be made by OWNER upon receipt of a release specifically excluding the disputed contract claims.
- C. Claims by the OWNER against the CONTRACTOR for liquidated damages or actual damages or other causes will be a valid basis for withholding of funds by the OWNER.
- D. Upon resolution of disputed claims the CONTRACTOR shall execute a supplemental release and, upon delivery the OWNER will make final payment.

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Measurement and Payment

Pump Station 26 Improvement Project

PART 3 - PRODUCTS (NOT USED)

PART 4 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01 31 19

PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRE-CONSTRUCTION CONFERENCE

- A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the ENGINEER will arrange a preconstruction conference to be attended by the CONTRACTOR's superintendent or other project representative authorized to commit on the behalf of the CONTRACTOR and to direct the performance of the work by others, the CITY, the ENGINEER or ENGINEER's representative, and representatives of utilities, major subcontractors, and others involved in the execution of the Work.
- B. The purpose of this conference will be to establish a working relationship and understanding between the parties and to discuss subjects as may be pertinent for the execution of the work.
- C. CONTRACTOR shall be prepared to discuss the following subjects, as a minimum:
 - 1. Required schedules.
 - 2. Status of Bonds and insurance.
 - 3. Sequencing of critical path work items.
 - 4. Progress payment procedures.
 - 5. Project changes and clarification procedures.
 - 6. Use of site, access, and storage areas, security and temporary facilities.

1.2 PROGRESS MEETINGS

- A. The ENGINEER will arrange and conduct progress meetings. The ENGINEER will prepare and circulate a draft agenda of each meeting. The CONTRACTOR may add items as appropriate to the draft agenda.
- B. Progress meetings will be conducted on a regular basis, at such frequency as the CITY and CONTRACTOR may mutually agree. Progress meetings shall be attended by the ENGINEER, CITY Operations personnel, CONTRACTOR's superintendent or other project representative, and representatives of all subcontractors involved in the work at the time of the meeting, required by the CONTRACTOR, or requested by the CITY.
- C. The purpose of the meetings will be to facilitate the work of the CONTRACTOR and any subcontractor or other organization that is not up to schedule, resolve conflicts, identify and resolve any potential delays or necessary changes in the work and in general, coordinate and facilitate the execution of the Work.
- D. The agenda of progress meetings shall include review of work progress, the latest Construction Schedule submittal (monthly), potential project delays, the status of key shop drawings, submittal reviews, information requests, safety concerns, record drawings, and extra work items.

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Project Meetings

Pump Station 26 Improvement Project

1.3 CONSTRUCTION SCHEDULE REVIEW

- A. The Construction Schedule will be reviewed weekly during an agreed upon progress meeting to verify at a minimum:
 - 1. Actual start and finish dates of completed activities since the last progress meeting.
 - 2. Durations and progress of all activities not completed.
 - 3. Critical submittals/materials delivery problems.
 - 4. Potential project delays.
 - 5. Any activity behind schedule and CONTRACTOR's plan to bring it back on schedule.
 - 6. Reason, logic, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.
 - 7. Payment due to the CONTRACTOR based on percentage complete of items in the submittal payment request form.
- B. At the progress meeting, the CONTRACTOR shall provide an update of the Construction Schedule as described in Section 01 32 13, Progress Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01 32 13
PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The work specified in this Section includes the CONTRACTOR's preparation, submittal, maintenance and use of a Critical Path Method (CPM) Construction Schedule to plan and monitor construction progress for the project.
- B. The requirements specified under Section 01 33 03, Submittal Procedures, also apply to the Construction Schedule initial submittal(s) and subsequent updates and revisions.

1.2 PREPARATION AND SUBMITTAL PROCEDURE

- A. Schedule Preparation and Submittal:
 - 1. The CONTRACTOR's on-site construction supervisor (superintendent, project manager, etc.) shall be directly involved in preparation of the Construction Schedule.
 - 2. The Construction Schedule shall be completed and submitted to the ENGINEER within 30 days after Notice to Proceed.
 - a. By preparing and submitting the Construction Schedule the CONTRACTOR represents that the CONTRACTOR can and intends to execute the work and portions thereof within the specified times and constraints and that the CONTRACTOR's bid covers the costs associated with the execution of work in accordance with the Construction Schedule.
 - 3. At the time of submittal of the Construction Schedule, CONTRACTOR's on-site construction supervisor shall review the schedule with ENGINEER's construction project representative.
 - 4. If the initial Construction Schedule submittal is not acceptable to the ENGINEER, it shall be revised in coordination with observations and comments from the ENGINEER and resubmitted within 7 days of the return of the schedule to the CONTRACTOR.

1.3 CONSTRUCTION SCHEDULE CONTENT

- A. The Construction Schedule shall be calendar-based, time-scaled, and show the durations of and relationships between the various work activities.
- B. Work activities shall be selected which reflect actual work to be performed for this specific project. No generic work activities shall be allowed.
 - 1. Work activities shall include non-construction activities such as submittal preparation and review, manufacturing, equipment delivery, mobilization, preparation of Contract Record Drawings, etc. for a complete picture of the CONTRACTOR's plan for project execution.
 - 2. Information on each activity shall include:
 - a. Concise description of the activity.
 - b. Duration in working days.

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Project Schedule

Pump Station 26 Improvement Project

- c. The dates for the beginning and completion of each activity.
 - d. The relationship of each activity to other activities.
 - 3. No work activity shall be longer than 10 working days.
 - a. Work tasks which will take longer than 10 working days shall be broken down into several work activities which are no longer than 10 working days.
 - b. Each work activity must be defined clearly and measurable. For example, a series of work activities such as "Building 1, east wall piping; Building 1, west wall piping; Building 1, north and south wall piping", each with a duration less than 10 days would be acceptable. A series of work activities all labeled "Building 1 Piping", even if each had a duration less than 10 days, would not be acceptable because the tasks are not defined clearly or measurable.
 - 4. Provide a monthly activity for preparation of Contract Record Drawings, in accordance with Section 01 33 03, Submittal Procedures with a minimum monthly cost of \$2,500.
- C. The schedule shall be referenced to calendar dates, and the beginning of the contract time shall be the date of receipt of the Notice to Proceed.
- D. Failure to include an activity required for the execution of the work shall not excuse the CONTRACTOR from completing the work and portions thereof within the specified times and at the price specified in the Agreement, and from meeting the constraints specified for sequence of work and control dates.

1.4 UPDATING THE CONSTRUCTION SCHEDULE

- A. The CONTRACTOR shall review and discuss the project progress relative to the most up to date Construction Schedule (updated monthly) at the weekly progress meetings, as specified in Section 01 31 19, Project Meetings.
- B. The schedule update shall reflect progress to date. The schedule update shall incorporate all revisions to logic and duration.

1.5 ADJUSTMENT OF THE CONTRACT TIME AND CHANGE ORDERS

- A. Adjustments of the contract time due to delays, additional work, or any other cause will only be issued through a contract change order in accordance with the General Conditions.
 - 1. The CONTRACTOR shall include, as part of each change order proposal for which the CONTRACTOR is requesting an adjustment in the contract duration, a proposed revised Construction Schedule.
 - 2. The proposed revised Construction Schedule shall be compared to the most recent Construction Schedule to assess overall schedule impact.
 - 3. If a Change Order is issued by the OWNER, the CONTRACTOR shall incorporate the Change Order into the Construction Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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Project Schedule

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

++ END OF SECTION ++

01 32 13-3
Project Schedule

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

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01 32 13-4
Project Schedule

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 GENERAL

- A. General:
1. This Section outlines in general the items that the CONTRACTOR must prepare or assemble for submittal during the progress of the Work.
 2. There is no attempt herein to state in detail all of the procedures and requirements for each submittal.
 3. The CONTRACTOR's attention is directed to the individual Specification Sections in these Contract Documents, which may contain additional and special submittal requirements.
 4. The CITY reserves the right to direct and modify the procedures and requirements for submittals as necessary to accomplish the specific purpose of each submittal.
 5. The CONTRACTOR shall anticipate resubmitting submittals for major pieces of equipment and for control systems.
 6. Should the CONTRACTOR be in doubt as to the procedure, purpose, or extent of any submittal, inquiries shall be directed to the ENGINEER.
- B. Schedule of Submittals:
1. Within 30 working days after the Notice to Proceed, CONTRACTOR shall submit all submittals to start construction including, but not limited to, any priority submittals identified during the Design-Assist process.
 2. This list shall be updated with "late start" submittal dates within 15 working days of submittal of the CONTRACTOR's Construction Schedule.
 3. The submittal dates shall be updated upon approval of the Construction Schedule and periodically thereafter.
 4. Any additional submittals shall also be included in updates.
 5. Additional submittals and resubmittals shall be provided in a timely manner without delaying the project.

1.2 ADMINISTRATIVE SUBMITTALS

- A. The CONTRACTOR is reminded of their obligation as required by law to make required submittals promptly to the applicable federal, state, or local agency. Failure to comply with this requirement may result in the withholding of progress payments and make the CONTRACTOR liable for other prescribed action and sanctions.
- B. The CONTRACTOR shall submit to the ENGINEER a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, and the like, that the CONTRACTOR submits directly to a federal, state, or other governing agency.
- C. During the performance of the Contract, the CONTRACTOR shall maintain on a daily basis, and submit to the ENGINEER as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, rate of pay, citizenship status, and address of each person, and the cost,

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Submittal Procedures

Pump Station 26 Improvement Project

source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

D. Certified Payroll:

1. No later than the 25th day of each month, the CONTRACTOR shall submit to the ENGINEER a copy of the CONTRACTOR's certified payroll for the previous month, and if requested, copies of certified payrolls for Subcontractors.
2. The payrolls shall include for each employee the full name, address and social security number; the correct classification and rate of pay (including rates of contributions for, or costs assumed to provide various fringe benefits); daily and weekly hours worked; itemized deductions and actual wages paid.
3. The certified payrolls shall be on State of California forms.

1.3 TECHNICAL SUBMITTALS

A. General:

1. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and Sections of these Contract Documents.
2. Submittal Contents and Numbering:
 - a. Each submittal shall have the specification Section and applicable paragraph number clearly identified on the front of the submittal transmittal form for each item submitted. The number shown on the transmittal form for each item shall be labeled in the content of the submittal. For example, if Item 1 is a ball Valve and Item 2 is a gate valve then the cut sheets for each respective valve shall be labeled Item 1 and Item 2.
 - b. Each submittal shall be sequentially numbered starting with the first one delivered for each spec section. For example, the first submittal for Section 02 41 03 should be 02 41 03-1-0.
 - c. Resubmittals shall include the number of the original submittal plus the suffix "-1" for the first resubmittal, "-2" for the second resubmittal. For example, a second resubmittal would be shown as 02 41 03-1-1. Each resubmittal shall be the whole version of the corrected submittal, and shall not reference past versions. Each resubmittal shall include all items including items previously marked as NET.
 - d. Submittals not conforming to these requirements will be rejected.
 - e. If several items (i.e. different types of valves) are combined into the same submittal, none of the items will be approved for installation until the entire submittal is accepted.
3. Submitted data shall be fully sufficient in detail for determination of compliance with the provisions and intent of the Contract Documents.
4. Coordination Responsibilities:
 - a. Shop drawing submittal and coordination are the responsibility of the CONTRACTOR; this responsibility shall not be delegated in whole or in part to Subcontractors or suppliers.
 - b. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the CONTRACTOR rather than the Subcontractor or supplier who has prepared the shop drawings.
5. No equipment or material for which listings, drawings, or descriptive material is required shall be fabricated, purchased, or installed until the ENGINEER has reviewed and accepted such lists, final shop drawings, or other descriptive material. Installation of such equipment or material without accepted submittals will be considered defective work.
6. Submittal Review Time:

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Submittal Procedures

Pump Station 26 Improvement Project

- a. Submittals will be acted upon by the ENGINEER as promptly as possible and returned to the CONTRACTOR not later than the time allowed for review in Paragraph 1.3.B.2 below.
 - b. The CONTRACTOR shall provide in their Construction Schedule the time for CITY review of each submittal (and resubmittal for major equipment and control systems) in accordance with the allowable time specified herein and in Section 01 32 13, Progress Schedule.
 - c. This required time for CITY review shall not be a cause for delay in contract completion nor shall it be a reason for an extension of contract time.
 - d. If the CONTRACTOR is required by the CITY to resubmit data, then neither the time required for the CONTRACTOR to prepare and resubmit such data, nor the required time for CITY review, shall be a cause for delay in contract completion or for an extension of contract time.
 - e. Responsibility for time required for preparing and submitting required data shall be assigned solely to the CONTRACTOR.
7. Excessive Submittal Review:
- a. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item.
 - b. Additional costs of the ENGINEER's review beyond the second submission shall be the responsibility of the CONTRACTOR and may be deducted from the monthly progress payments.
 - c. This applies to all submittals including shop drawings.
8. Changes After Review:
- a. After a submittal has been reviewed and accepted, no changes or substitutions in that submittal will be allowed without the ENGINEER's approval.
 - b. If allowed, the CONTRACTOR will be responsible for the additional costs for engineering, administrative, clerical or other work required for additional review.
9. Intent of Review:
- a. Shop drawings will be reviewed for general conformance with the drawings and specifications.
 - b. The intent of the review is to determine if the CONTRACTOR is submitting materials and equipment which are in general conformance with the Contract Documents.
 - c. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed.
 - d. Additional work and costs, resulting from errors in the shop drawings shall be the CONTRACTOR's responsibility and liability.
 - e. Accuracy, coordination, and completeness of shop drawings shall be the sole responsibility of the CONTRACTOR, including responsibility to backcheck comments, corrections, and modifications from the ENGINEER's review before fabrication.
10. The CONTRACTOR shall indicate on the submittal transmittal form if and how the submittal deviates from the contract requirements. In addition, CONTRACTOR shall include a copy of the relevant specification section in its entirety marked with ACCEPT/DEVIATE next to each paragraph. Failure to include this documentation is grounds for ENGINEER to reject and return the Submittal to the CONTRACTOR for resubmission.
11. Rebar Shop Drawings:
- a. The CONTRACTOR shall supply the ENGINEER with a copy of all reinforcing steel detail drawings.

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Submittal Procedures

Pump Station 26 Improvement Project

- b. Changes to the Contract Documents made by the CONTRACTOR in reinforcing steel shop drawings shall be called out in the letter of submittal.
 - c. Such changes will not be acceptable unless the ENGINEER has expressed consent to such changes in writing.
12. Submittals of shop drawings, layout diagrams, catalog cuts and data, test reports, and information in sufficient detail to show complete compliance with all specified requirements shall be furnished to the ENGINEER, covering but not limited to the following items (as applicable):
- Aggregate Base Course
 - Asphalt mixes
 - Caulking and sealing compounds
 - Chemical systems
 - Concrete mixes
 - Control panels
 - Demolition plan
 - Detection systems
 - Electrical conduit, wire and specials
 - Electrical fixtures and appliances
 - Electrical load centers
 - Electrical substations
 - Electrical conduit, wire and specials
 - Engineered fill
 - Engines and appurtenances
 - Equipment provided by the CONTRACTOR
 - Fences, barricades and gates
 - Gas monitoring systems
 - Generators and appurtenances
 - Glazing
 - Grating
 - Gravel bedding
 - Grout
 - Hardware
 - Imported fill
 - Indicators
 - Instrumentation
 - Landscaping
 - Lights and lighting fixtures
 - Meters
 - Miscellaneous fabricated metals
 - Motor control centers
 - Motors, starters and controls
 - Paints, coatings and finishes
 - Pipe, fittings and specials
 - Pipe supports and anchors
 - Planting plan
 - Plumbing fixtures
 - Precast concrete elements
 - Pressure gauges
 - Primary elements
 - Programmable logic controllers
 - Pumps

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Submittal Procedures

Pump Station 26 Improvement Project

Recorders
Reinforcing steel and layout drawings
Sheet pile, shoring and bracing
Signs
Structural steel
Temporary bypasses
Temporary dewatering systems and equipment
Valve and gate operators and controllers
Valves and gates
Variable frequency drives

B. Submittal Procedure:

1. The CONTRACTOR shall submit to the ENGINEER for review one (1) electronic copy of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.)
2. Shop drawings shall be submitted in sufficient time to allow the ENGINEER not less than twenty (20) working days for examining the shop drawings except for designs for turnkey items for which thirty (30) working days will be allowed, and substitutions for which (40) working days will be allowed.
3. Shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.
4. CONTRACTOR Certification:
 - a. Shop drawings shall be submitted only by the CONTRACTOR, who shall indicate by a signed stamp on the shop drawings, or other approved means, that the CONTRACTOR has checked and approved the shop drawings, and that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved.
 - b. Submitting incomplete or unchecked shop drawings for the ENGINEER to correct or finish will not be acceptable, and shop drawings that, in the opinion of the ENGINEER, indicate that they have not been checked by the CONTRACTOR will be rejected and returned to the CONTRACTOR for resubmission in the proper form.
5. Return of Reviewed Submittals:
 - a. When the shop drawings have been reviewed by the ENGINEER, the appropriate number of submittals will be returned to the CONTRACTOR appropriately stamped.
 - b. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the CONTRACTOR with the need for such changes or corrections indicated.
 - c. The CONTRACTOR shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal.
 - d. If changes are made by the CONTRACTOR (in addition to those requested by the ENGINEER) on the resubmitted shop drawings, such changes shall be clearly explained in a transmittal letter accompanying the resubmitted shop drawings.
6. The review of such shop drawings and catalog cuts by the ENGINEER shall not relieve the CONTRACTOR from responsibility for correctness of dimensions, fabrication details, coordination with other work, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the CONTRACTOR has called attention to such deviations in writing by a letter accompanying the shop drawings and the ENGINEER approves the change or deviation in writing at the time of submission; nor

shall review by the ENGINEER relieve the CONTRACTOR from the responsibility for errors in the shop drawings.

7. The CONTRACTOR agrees that shop drawing submittals processed by the ENGINEER do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the ENGINEER to monitor the CONTRACTOR's progress and understanding of the design.

C. Shop Drawing Requirements: Shop drawings referred to herein shall include shop drawings, catalog cuts and information schematic diagrams, and other submittals for both shop and field-fabricated items. The CONTRACTOR shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:

1. General:

- a. For structures, submit all shop, setting, equipment, miscellaneous iron and reinforcement drawings and schedules necessary for construction. The foregoing shall include detailed "pour drawings" which shall show the sequence of concrete placement, and the type, quantity and location of all embedment items (sleeves, anchor bolts, door frames, etc.)
- b. For pipelines, submit a detailed layout of the pipeline with details of clearances for crossings, bends, closure pieces and fabricated specials and furnish any other details necessary.
- c. For trench excavation, submit detailed plan showing the design of shoring, bracing, sloping or other provisions necessary for safety.
- d. For boring and jacking, submit a detailed description of the process to be used.
- e. For equipment which requires electrical service, submit detailed information to show power supply requirements, MCC and control panel, elevations, wiring diagrams, control and protection schematics, shop test data, operation and maintenance procedures, outline drawings, and manufacturer's recommendation of the interface/interlock among the equipment.
- f. For mechanical equipment submit all data pertinent to the installation and maintenance of the equipment including shop drawings, anchorage requirements, manufacturer's recommended installation procedure, detailed installation drawings, test data and curves, operation and maintenance manuals, and other details necessary.
- g. For architectural fabrication submit all data pertinent to the installation of the fabrications, including shop drawings, manufacturer's recommended installation procedure, detailed installation drawings, and other details necessary.
- h. For shop drawings or equipment drawings, including dimensions, size, and location of connections to other work, and weight of equipment.
- i. Installation or placing drawings for equipment, drives, and bases.
- j. Supporting calculations for equipment and associated supports, or hangers required or specified to be designed by equipment manufacturers, including seismic restraint information and details.
- k. Complete coating manufacturer's specifications, including materials description and paint system.
- l. Performance data and head vs. flow curves for compressor and pumps.
- m. Suggested spare parts list with current price information.
- n. List of special tools required for checking, testing, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and which are not customarily and routinely carried by maintenance mechanics.)

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Submittal Procedures

Pump Station 26 Improvement Project

- o. List of special tools furnished with the equipment.
 - p. List of materials and supplies required for the equipment prior to and during startup.
 - q. Installation instructions.
 - r. List of materials and supplies furnished with the equipment.
 - s. Samples of finish colors for selection.
 - t. Special handling instructions.
 - u. Requirements for storage and protection prior to installation.
 - v. Requirements for routine maintenance required prior to plant startup.
 - w. Startup and operating instructions.
 - x. Seismic design calculations and restraint details for equipment and piping supports. Calculations shall be stamped by a Civil or Structural Engineer registered in the State of California.
- 2. Electrical:
 - a. Wiring and control diagrams of systems and equipment. Local control panel details.
 - b. List of special motor features being provided (e.g., space heaters, altitude corrections, thermal protectors, mounting arrangement, etc.).
 - c. Complete motor rating for all motors, including motor no-load, starting, and full-load current at rated voltage; full-load speed and full-load current at 110 percent voltage; motor service factor; motor efficiency and power factor at 1/2, 3/4, and full-load at rated voltage; recommended maximum kVAR of power factor correction capacitors when capacitors are switched with motor.
 - d. See Division 26, ELECTRICAL, for additional specific submittal requirements.
 - 3. Instrumentation and Control:
 - a. See Technical Sections for additional specific submittal requirements.
 - b. The submittals shall include satisfactory identification of items, units, and assemblies in relation to the Specification Section number, and the system or equipment identification or tag number shown on the Drawings, the Process and Instrumentation Diagram (P&ID), or as provided in applicable Specification Section.
- D. Submittals required for foreign-manufactured items:
- 1. In addition to the submittal requirements stated above, suppliers of foreign-manufactured items shall submit the names and addresses of companies within the United States that maintain technical service representatives and a complete inventory of spare parts and accessories for each foreign-made item proposed for incorporation into the work. Failure to provide the foregoing capabilities shall be just cause for rejection of the foreign-manufactured items.
- E. Final shop drawings to be submitted to CITY:
- 1. Complete sets of reproducible (full size mylar or vellum base) final shop drawings shall be submitted to the CITY before, or at the time of, delivery of equipment onto the site.
- F. Seismic loading design provisions:
- 1. All equipment supports that are not specifically detailed on the Drawings or specified herein shall be the responsibility of the equipment manufacturers and shall be designed by a Civil or Structural Engineer registered in the State of California.
 - 2. The design shall be in accordance with the seismic provisions of the latest edition of the 2016 edition of the California Building Code (CBC) and of the seismic design

requirements listed in Section 01 61 03, General Product Requirements, in addition to all other loading conditions.

G. Submittal of interface information (connection and correlation with other work):

1. Where called for in the Specifications, and as determined necessary by the ENGINEER to provide proper correlation with other equipment, complete interface information shall be submitted.
2. This interface information shall be accurate and contain all information necessary to allow the completion of detailed design and construction of the interfacing or connecting work.
3. The CONTRACTOR shall include in their negotiation for subcontract work, such agreements as may be necessary to ensure the accuracy of Subcontractor's interface submittal information.
4. In the event additional costs are incurred due to subsequent changes to information given in said interface information, such additional costs shall be borne by the CONTRACTOR.

H. Record Drawings

1. The CONTRACTOR shall deliver to the OWNER one complete set of final Record Drawings for OWNER records before the contract will be accepted by the OWNER. The Record Drawings will consist of a set of reproducible drawings of all CONTRACTOR supplied equipment (including control systems) and a marked-up set of Contract Record Drawings.
2. Record Drawings of CONTRACTOR-Supplied Equipment
 - a. Drawings shall be provided in electronic pdf form.
 - b. The overall dimensions of each drawing submitted to the ENGINEER shall be equal to one of the OWNER's standard sheet sizes. The title block area in the lower right hand corner of each drawing shall be clear of all linework, dimensions, details, and notes, except for the CONTRACTOR's title block. The dimensions of the title block area are minimum and are measured from the edges of the drawing sheet.

DRAWING FORMAT	
Sheet Sizes Height x Width	Title Block Area Height x Width
11" x 8-1/2"	2-1/2" x 3-3/4"
11" x 17"	3" x 4"
22" x 34"	3-1/2" x 8"

3. Contract Record Drawings

- a. The CONTRACTOR shall keep an up-to-date set of marked-up Contract Drawings on an OWNER-supplied set of Drawings.
- b. The OWNER-supplied set of Drawings will consist of one set of full-size sepia reproductions of the Contract Drawings, supplied to the CONTRACTOR at the start of the work.

- c. During the progress of the work, the CONTRACTOR shall record on the Contract Record Drawings any changes from or additions to the work described in the Plans and Specifications.
- d. All information recorded on the Contract Record Drawings shall be clearly legible.
- e. Information to be recorded on the Contract Record Drawings shall include, but not be limited to, the following:
 - 1) Actual routing of electrical conduits, whose routing is only indicated in general on the Drawings.
 - 2) Actual location of manhole structures.
 - 3) Actual alignment of all installed pipe.
 - 4) Specific details of pipe connections, and manhole structures.
 - 5) Specific details on the installation and connection of mechanical and electrical equipment.
 - 6) Field dimensions where they differ from those shown on the Drawings.
 - 7) Additions to and/or deletions from the work, including all contract change orders.
 - 8) Other details showing as-built conditions, which are shown differently or only in general on the Drawings.
 - 9) Addenda.
 - 10) Location of buried features located during construction except utility service connections.
- f. It is the CONTRACTOR's responsibility to ensure that any changes, deletions, specific construction details, etc., performed by a Subcontractor are recorded on the Contract Record Drawings.
- g. Location Survey:
 - 1) The CONTRACTOR shall professionally survey the lateral and vertical position of anything buried underground as part of this Contract to within one inch accuracy of the benchmark and baseline provided by the OWNER.
 - 2) The survey information shall be included on the record drawings and the CONTRACTOR shall not be allowed to cover the buried materials until after the OWNER's inspector has verified the information as accurate and complete, and is shown on the record drawings.
- h. Once every month, starting from the completion of mobilization as defined in Section 01 71 13, Mobilization, the CONTRACTOR shall provide the OWNER with a copy of the then up-to-date set of marked-up Contract Record Drawings in accordance with the provisions under Section 01 29 03, Measurement and Payment, and Section 01 32 16, Project Schedule.
- i. At the end of the work, prior to Project Closeout, the CONTRACTOR shall provide the OWNER with the Contract Record Drawings, showing all "as-built" conditions.
- j. See also Section 01 77 03, Operational Completion and Project Closeout.

I.

I. Operation and Maintenance (O&M) Manuals:

- 1. The CONTRACTOR shall furnish five (5) hard-copies (if requested by the Owner at project completion) and two (2) electronic copies on USB drives of a complete instruction manual for installation, operation, maintenance, and lubrication requirements for each component of mechanical and electrical equipment or system.
- 2. All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.

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Submittal Procedures

Pump Station 26 Improvement Project

3. O&M Submittal Review Checklist:
 - a. The CONTRACTOR shall include a completed O&M Manual Submittal Review Checklist (copy included at the end of this Section) with each O&M manual submittal.
 - b. The checklist shall indicate that the O&M manual as submitted complies in all respects to the contract requirements.
 - c. Any O&M manual submitted without a completed checklist will be rejected.
4. The manuals shall be furnished to the ENGINEER upon the delivery of the respective equipment.
5. No payment will be made for equipment or materials or equipment installation before the respective O&M manuals have been approved by the ENGINEER.
6. Each O&M manual shall be complete in all respects for all equipment, controls, accessories, and associated appurtenances.
7. Each O&M manual shall include, but not be limited to, the following:
 - a. Diagrams and illustrations, including pump curves indicating operating points.
 - b. Detailed description of the function of each principal component of the system.
 - c. Performance and nameplate data.
 - d. Installation instructions.
 - e. Starting procedure
 - f. Proper adjustment procedure.
 - g. Test procedures.
 - h. Operating procedure.
 - i. Shutdown instructions.
 - j. Emergency operating instructions and troubleshooting guide.
 - k. Safety instructions.
 - l. Maintenance and overhaul instructions which shall include detailed assembly drawings with part numbers, parts list, instructions for ordering spare parts, and complete preventive maintenance instructions required to ensure satisfactory performance and longevity of the equipment.
 - m. Lubrication instructions which shall list points to be greased or oiled, shall recommend type, grade, and temperature range of lubricants, and shall recommend frequency of lubrication.
 - n. List of electrical relay settings and control and alarm contact settings.
 - o. Electrical interconnection wiring diagram for equipment furnished, including all control and lighting systems.
 - p. Recommendations for spare parts and special tools.
8. Hard-Copy O&M Manuals:
 - a. Each copy of the manual shall be assembled in one or more hard-back type three-ring binders, each with title page, typed table of contents, and heavy section dividers with numbered plastic index tabs.
 - b. Cover label and title page shall be clearly labeled to designate the project title, project number, Specification Section where the item is specified, system or equipment for which it is intended with reference to the facility, equipment number, and equipment manufacturer name.
 - c. Typed table of contents for the entire set, identified by volume number, shall appear in each binder.
 - d. Each manual shall be divided into sections paralleling the equipment specifications.
 - e. All data shall be hole-punched for binding and composition and printing shall be arranged so that punching does not obliterate any data.

- f. Pages larger than 8-1/2" x 11" shall be folded, showing title block or optionally included in binder pockets.
 - g. Where more than one binder is required, they shall be labeled "Vol. 1", "Vol. 2", and so on.
 - h. Submit manual organization and format to the ENGINEER for approval prior to manual preparation.
- 9. Electronic O&M Manuals:
 - a. In addition to the designated number of hard-copies for each required Manufacturer's O&M manual, provide an electronic copy, each on its own separate compact disc/s (CD-ROM).
 - b. The CD-ROM shall contain one full version of the O&M manual in Adobe's Portable Document File (PDF) format.
 - c. In addition, the CD-ROM shall contain the separate text and drawing files used to create the PDF O&M manual.
 - d. An index shall be provided on the CD-ROM as a separate text file with the name "index" and shall include the file name and detailed description of each individual file included on the CD-ROM.
 - e. The CD-ROM and the CD-ROM case shall be labeled with the Project title, Project number, Specification section, equipment number, equipment name, and equipment manufacturer name.
- 10. Manuals shall be transmitted to the ENGINEER upon delivery of the equipment and all equipment shall be serviced in accordance with the manufacturer's recommendations prior to operation. A service record shall be maintained on each item of equipment and shall be delivered to the ENGINEER prior to final acceptance of the project.
- J. Manufacturers' certificates and proper installation:
 - 1. The CONTRACTOR shall submit manufacturers' certificates of proper installation for items of equipment as specified under Section 01 75 06, Testing, Training and Startup.
- K. Samples and test specimens:
 - 1. Where required in the Specifications, and as determined necessary by the ENGINEER, test specimens or samples of materials, appliances, and fittings to be used or offered for use in connection with the work shall be submitted to the ENGINEER at the CONTRACTOR's expense, with information as to their sources, with all cartage charges prepaid, and in such quantities and sizes as may be required for proper examination and tests to establish the quality or equality thereof, as applicable.
 - 2. All samples and test specimens shall be submitted in ample time to enable the ENGINEER to make any tests or examinations necessary, without delay to the work. The CONTRACTOR will be held responsible for any loss of time due to their neglect or failure to deliver the required samples to the ENGINEER, as specified.
 - 3. The CONTRACTOR shall submit additional samples as required by the ENGINEER to ensure equality with the original approved sample and/or for determination of Specification compliance.
 - 4. Laboratory tests and examinations that the OWNER elects to make in its own laboratory will be made at no cost to the CONTRACTOR, except that, if a sample of any material or equipment proposed for use by the CONTRACTOR fails to meet the Specifications, the cost of testing subsequent samples shall be borne by the CONTRACTOR.
 - 5. All tests required by the Specifications to be performed by an independent laboratory shall be made by a laboratory approved by the ENGINEER. Certified test results of all

specified tests shall be submitted in duplicate to the ENGINEER. The samples furnished and the cost for the laboratory services shall be at the expense of the CONTRACTOR and included in the prices bid for the associated work.

6. Approved sample items (fixtures, hardware, etc.) may be incorporated into the work upon approval, and when no longer needed by the ENGINEER for reference.

L. Material and equipment colors:

1. The ENGINEER will provide a schedule of selected colors within 30 days after approval of materials and equipment, and after receiving samples of the manufacturers' standard colors for those items requiring OWNER's selection.

M. Certificates of Compliance:

1. A Certificate of Compliance shall be furnished for materials specified to a recognized standard or code prior to the use of any such materials in the work.
2. The ENGINEER may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.
3. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.
4. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

N. Quality Assurance

1. Source limitations: To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
2. Compatibility of options:
 - a. Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected.
 - b. Compatibility is a basic general requirement of product/material selections.

O. Review by ENGINEER

1. After review by the ENGINEER of each of the CONTRACTOR's submissions, the material will be returned to the CONTRACTOR with actions defined as follows:
 - a. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.
 - b. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the CONTRACTOR.
 - c. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the CONTRACTOR prior to subsequent review by the ENGINEER.
 - d. REJECTED - RESUBMIT: Submitted material does not conform to Plans and Specifications in major respect, e.g., wrong item, wrong size, model, capacity, or material.
2. Review actions (a) and (b) above constitute acceptance by the ENGINEER of the submittal.

P. Requests for Information

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Submittal Procedures

Pump Station 26 Improvement Project

1. Requests for Information about the Contract Documents shall be directed by the CONTRACTOR to the ENGINEER using a Request for Information (RFI) form as agreed to by the OWNER and the ENGINEER. Such requests shall not be transmitted directly to the ENGINEER from a Subcontractor or Supplier.
 2. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.
 3. The ENGINEER will reply to the CONTRACTOR's Request for Information as soon thereafter as practicable.
- Q. Construction Photographs
1. Provide photographs showing the preconstruction site, construction progress, and the post-construction site.
 2. Format: Photographs shall be digital format
 - a. Digital Format:
 - 1) Digital photos shall be taken with a minimum 3.5 mega pixel density and provided in JPG format.
 - 2) Digital photo files shall be provide on a CD accompanied by a text file that lists the file name, date photo was taken, and brief description of the photograph and location where the photograph was taken.
 3. Take a minimum of 50 photos of the preconstruction site and the property adjacent to the perimeter of the construction site. Particular emphasis shall be directed to structures both inside and outside the site, or as directed by OWNER.
 4. Take a minimum of 72 photos monthly showing the progress of construction. The location of these photographs shall be determined by OWNER.
 5. Take a minimum of 50 photos of the post-construction site and the property adjacent to the perimeter of the site. Particular emphasis shall be directed to structures both inside and outside the plant boundary, or as indicated by OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Submittal Procedures

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

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Submittal Procedures

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

O&M MANUAL REVIEW CHECKLIST

SUBMITTAL NO. _____ SPEC. SECTION. _____ SUBJECT _____ EQUIP. ITEM _____ _____	DATED _____ REVIEW DATE _____ REVIEWER _____ SUPPLIER _____ MANUFACTURER _____
--	---

ACCEPTABLE _____ UNACCEPTABLE _____	PROJECT TITLE: _____ PROJECT NO. 21-060
--	--

DISPOSITION	ACCEPTABLE?			COMMENTS
	YES	NO	NA	
HARD-COPY O&M MANUALS				
▪ Minimum five (5) copies.....	_____	_____	_____	_____
▪ Three-ring binder with hard-back cover.....	_____	_____	_____	_____
▪ Cover Label and Title Page (Cover/Title Page):				
Project title and Project number	_____	_____	_____	_____
Specification section	_____	_____	_____	_____
System/Equipment names.....	_____	_____	_____	_____
Facility	_____	_____	_____	_____
Equipment number	_____	_____	_____	_____
▪ Typed table of contents.....	_____	_____	_____	_____
▪ Heavy section dividers w/numbered plastic index tabs .	_____	_____	_____	_____
▪ Sections parallel equipment specifications	_____	_____	_____	_____
▪ Pages punched for 3 ring binder (punching does not obliterate data).....	_____	_____	_____	_____
▪ Info larger than 8-1/2"x11" folded showing title block, or included in binder pockets	_____	_____	_____	_____
▪ Multiple volumes labeled "Vol. 1", "Vol. 2", etc.....	_____	_____	_____	_____
▪ Table of contents for entire set in each binder.....	_____	_____	_____	_____
ELECTRONIC O&M MANUALS				
▪ Minimum two (2) copies on USB Flash Drive	_____	_____	_____	_____
▪ Full version of O&M manual in PDF format.....	_____	_____	_____	_____
▪ PDF "Bookmarks" to label each section of manual	_____	_____	_____	_____
▪ Separate text and drawing files used to create PDF	_____	_____	_____	_____

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O&M Manual Review Checklist

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

DISPOSITION	ACCEPTABLE?			COMMENTS
	YES	NO	NA	
O&M manual.....				
▪ Index on flash drive as separate file titled "index"				
▪ Flash drive labeled with submittal number.....				
TECHNICAL CONTENT				
▪ Equipment Summary Form (See example of required format, Figure 2-1, 2 pages, end of this Section)				
▪ Diagrams and illustrations, including pump curves				
▪ Detailed description of function of principal components.....				
▪ Performance and nameplate data				
▪ Installation instructions.....				
▪ Starting procedure				
▪ Proper adjustment procedure.....				
▪ Test procedures				
▪ Operating procedure (Normal operation and all other operating modes).....				
▪ Shutdown instructions, including emergency shutdown				
▪ Emergency operating instructions & troubleshooting....				
▪ Safety instructions and precautions				
▪ Maintenance procedures and instructions, preventative, reactive and overhaul.....				
▪ Troubleshooting and corrective maintenance procedures				
▪ Lubrication instructions and information				
▪ List of electrical relay settings and control and alarm contact settings				
▪ Electrical interconnection wiring diagrams, including control and lighting systems, panel wiring, control (ladder) diagrams, logic diagrams, loop diagrams, and interconnection diagrams				
▪ Panel layout and assembly drawings				
▪ Mechanical drawings				
▪ Printout of all software programs and configuration files				
▪ Parts list (with exploded view and associated cross-references)				
▪ Recommended spare parts and special tools.....				
▪ Factory and field test procedures and results				
▪ Project specific warranty statement				

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O&M Manual Review Checklist

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

MAINTENANCE SUMMARY FORM

PROJECT: _____

EQUIPMENT LOCATION: _____

1. EQUIPMENT ITEM _____

2. MANUFACTURER _____

3. EQUIPMENT/TAG NUMBER(S) _____

4. WEIGHT OF INDIVIDUAL COMPONENTS (OVER 100 POUNDS) _____

5. NAMEPLATE DATA (hp, voltage, speed, etc.) _____

6. MANUFACTURER'S LOCAL REPRESENTATIVE _____

a. Name _____ Telephone No. _____

b. Address _____

7. MAINTENANCE REQUIREMENTS

Maintenance Operation Comments	Frequency	Lubricant (If Applicable)
List briefly each maintenance operation required and refer to specific information in manufacturer's standard maintenance manual, if applicable. (Reference to manufacturer's catalog or sales literature is not acceptable.)	List required frequency of each maintenance operation.	Refer by symbol to lubricant required.

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FIGURE 2-1

O&M Manual Review Checklist

Pump Station 26 Improvement Project

8. LUBRICANT LIST

Reference Symbol	Shell	Exxon Mobile	Chevron Texaco	BP Amoco	Or Equal
List symbols used in No. 7 above.	List equivalent lubricants, as distributed by each manufacturer for the specific use recommended.				

9. RECOMMENDED SPARE PARTS FOR OWNER'S INVENTORY.

Part No.	Description	Unit	Quantity	Unit Cost

Note: Identify parts provided by this Contract with two asterisks.

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FIGURE 2-1

SECTION 01 42 03

REFERENCE STANDARDS AND ABBREVIATIONS

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the CITY.
- B. The ENGINEER will furnish, upon request, information as to how copies may be obtained.
- C. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AAMA:	Architectural Aluminum Manufacturer's Association
AAN:	American Association of Nurserymen
AAR:	Association of American Railroads
AASHTO:	American Association of State Highway and Transportation Officials, Standard Specifications
AATCC:	American Association of Textile Chemists and Colorists
ACI:	American Concrete Institute, Standards
AFBMA:	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA:	American Gas Association
AGC:	Associated General Contractors
AGMA:	American Gear Manufacturer's Association
AHAM:	Association of Home Appliance Manufacturer's
AI:	The Asphalt Institute
AIA:	American Institute of Architects
AISC:	American Institute of Steel Construction, Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, and the AISC Code of Standard Practice
AISI:	American Iron and Steel Institute
AITC:	American Institute of Timber Construction
AMCA:	Air Moving and Conditioning Association, Standards
ANS:	American Nuclear Society
ANSI:	American National Standards Institute
APA:	American Plywood Association
API:	American Petroleum Institute
APWA:	American Public Works Association, Standard Specifications for Public Works Construction
ASA:	Acoustical Society of America
ASAE:	American Society of Agriculture Engineers
ASCE:	American Society of Civil Engineers
ASHRAE:	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASLE:	American Society of Lubricating Engineers

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Reference Standards and Abbreviations

Pump Station 26 Improvement Project

ASME:	American Society of Mechanical Engineers
ASQC:	American Society of Quality Control
ASSE:	American Society of Sanitary Engineers
ASTM:	American Society for Testing and Materials, Standards
AWG:	American Wire Gauge
AWPA:	American Wood-Preservers' Association, Standards
AWPI:	American Wood Preservers Institute
AWS:	American Welding Society
AWWA:	American Water Works Association, Standards
BBC:	Basic Building Code, Building Officials and Code Administrators International
BHMA:	Builders Hardware Manufacturer's Association
CAL/OSHA:	California/Occupational Safety and Health Administration, Standards
CBM:	Certified Ballast Manufacturer's
CCR:	California Code of Regulations
CEMA:	Conveyors Equipment Manufacturer's Association
CGA:	Compressed Gas Association
CISPI:	Cast Iron Soil Pipe Institute, Standards
CLPCA:	California Lathing and Plastering Contractors Association
CLFMI:	Chain Link Fence Manufacturer's Institute
CMAA:	Crane Manufacturers' Association of America
CMA:	Concrete Masonry Association
CORDCS:	City of Roseville Design & Construction Standards
CORPCS:	City of Roseville Process Control Standards
CRSI:	Concrete Reinforcing Steel Institute, Standards
CSS:	CalTrans Standard Specifications, State of California, Department of Transportation
DCDMA:	Diamond Core Drill Manufacturer's Association
DOSH:	Division of Occupational Safety and Health, State of California, Department of Industrial Relations
EIA:	Electronic Industries Association
ETL:	Electrical Test Laboratories
FED/OSHA:	Federal Occupational Safety and Health Administration, Standards
FM:	Factory Mutual
ICBO:	International Conference of Building Officials
ICEA:	Insulated Cable Engineers Association
IEEE:	Institute of Electrical and Electronic Engineers
IES:	Illuminating Engineering Society
IME:	Institute of Makers of Explosives
IP:	Institute of Petroleum (London)
IPC:	Institute of Printed Circuits
IPCEA:	Insulated Power Cable Engineers Association
ISA:	Instrument Society of America
ISO:	International Organization of Standardization
ITE:	Institute of Traffic Engineers
MBMA:	Metal Building Manufacturer's Association
MPTA:	Mechanical Power Transmission of Association
MTI:	Marine Testing Institute

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Reference Standards and Abbreviations

Pump Station 26 Improvement Project

MSS:	Manufacturers Standardization Society
NAAM:	National Association of Architectural Metal Manufacturers
NACE:	National Association of Corrosion Engineers, Standards
NBS:	National Bureau of Standards
NCCLS:	National Committee for Clinical Laboratory Standards
NEC:	National Electric Code
NEMA:	National Electrical Manufacturers' Association, Standards
NFPA:	National Fire Protection Association
NFPA:	National Forest Products Association
NGLI:	National Lubricating Grease Institute
NMA:	National Microfilm Association
NWMA:	National Woodwork Manufacturers Association
OSHA:	Occupational Safety and Health Administration
PCA:	Portland Cement Association
PCI:	Prestressed Concrete Institute
RIS:	Redwood Inspection Service, Standard Specifications
RVIA:	Recreational Vehicle Industry Association
RWMA:	Resistance Welder Manufacturer's Association
SAE:	Society of Automotive Engineers
SAMA:	Scientific Apparatus Makers Association
SDI:	Steel Door Institute
SIS:	Swedish Standards Association
SMA:	Screen Manufacturer's Association
SMACNA:	Sheet Metal and Air Conditioning Contractors National Association
SPR:	Simplified Practice Recommendation
SSBC:	Southern Standard Building Code, Southern Building Code Congress
SSPC:	Steel Structures Painting Council, Specifications
SSPWC:	Standard Specifications for Public Works Construction
TAPPI:	Technical Association of the Pulp and Paper Industry
TFI:	The Fertilizer Institute
UBC:	Uniform Building Code of the International Conference of Building Officials
UPC:	Uniform Plumbing Code
UL:	Underwriters Laboratories
WCLA:	West Coast Lumbermen's Association, Standard Grading and Dressing Rules
WCLIB:	West Coast Lumber Inspection Bureau
WCRSI:	Western Concrete Reinforcing Steel Institute
WIC:	Woodwork Institute of California
WRI:	Wire Reinforcement Institute, Inc.
WWPA:	Western Wood Products Association

1.2 OTHER ABBREVIATIONS

- A. Common abbreviations can be found on the contract drawings complimentary to the listed abbreviations found below. In the event of a conflict, the abbreviations on the drawings shall supersede.
- B. Other common abbreviations that may be found in the Specifications are, but may not be limited to:

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Reference Standards and Abbreviations

Pump Station 26 Improvement Project

acrylonitrile butadiene styrene	ABS	gallons per hour	gph, gal/hr
alternating current	a-c, AC	gallons per minute	gpm, gal/min
American wire gauge	AWG	gallons per second	gps, gal/s
ante meridiem	am	gram	g
ampere	A, amp	ground fault current interrupter	GFCI
average	avg	hand/off/automatic	HOA
biochemical oxygen demand	BOD	high density polyethylene	HDPE
brake horsepower	bhp	heating, ventilating, and air conditioning	HVAC
British thermal unit	Btu	Hertz	Hz
Centigrade	C	hour	hr
chlorinated polyvinyl chloride	CPVC	horsepower	hp
company	Co	IFC	Issued for Construction
cubic inch	cu in, in ³	inch	in
cubic foot	cu ft, CF, ft ³	inch-pound	in-lb
cubic yard	cu yd, CY, yd ³	input/output	I/O
cubic feet per minute	cfm, ft ³ /min	inside diameter	ID
cubic feet per second	cfs, ft ³ /s	instrumentation and control	I&C
decibel	dB	kilovolt	kV
decibels, A-weighted	dBA	kilovolt-ampere	kVA
degree Centigrade (Celsius)	°C, C	kilowatt	kW
degree Fahrenheit	°F, F	kilowatt-hour	kWhr
diameter	diam, ø	length	L
direct current	d-c, DC	length to least radius of gyration	L/r
dollars	\$	light emitting diode	LED
ductile iron	DI	linear	lin
each	ea, @	linear foot	lin ft, LF
efficiency	eff	liter	l
elevation	El., Elev	manhole	MH
ethylene propylene rubber	EPDM	maximum	max
exhaust fan	EF	mean sea level	MSL
Fahrenheit	F	mercury	Hg
feet	ft	miles per hour	mph
feet per hour	fph, ft/h	milli-amp	mA
feet per minute	fpm, ft/min	milliampere DC	mAdc
feet per second	fps, ft/s	milligram	mg
fiberglass reinforced plastic	FRP	milligrams per liter	mg/l
figure	Fig.	milliliter	ml
flange	flg	millimeter	mm
foot-pound	ft-lb	million gallon	mil
gallon	gal	million gallons per day	mgd
		minimum	min
		motor control center	MCC

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Reference Standards and Abbreviations

Pump Station 26 Improvement Project

net positive suction		relative humidity	RH
head available	NPSHA	revolutions per minute	rpm
net positive suction		second	sec, s
head required	NPSHR	specific gravity	sp gr
number	No., #	square foot	sq ft, SF, ft ²
National Pipe Thread	NPT	square inch	sq in, in ²
		square yard	sq yd, SY, yd ²
Operation and Maintenance	O&M	stainless steel	SS
ounce	oz	standard	std
outside diameter	OD	standard cubic feet	
		per minute	scfm
parts per million	ppm	symmetrical	sym.
post meridiem	pm		
plus or minus	+/-, ±	total dynamic head	tdh
polytetrafluorethylene	PTFE	totally-enclosed, fan-	
polyvinyl chloride	PVC	cooled	TEFC
pound	lb	totally-enclosed, non-	
pounds per square foot	psf, lb/ft ²	ventilated	TENV
pounds per square inch	psi, lb/in ²	twisted shielded	TWSH
pounds per square inch			
absolute	psia	ultraviolet	UV
pounds per square inch		United States	US, USA
gage	psig		
Process and Instrumentation		variable frequency drive	VFD, AFD
Diagrams	P&ID	volt	V
		volts alternating current	VAC
random access memory	RAM	volts direct current	VDC
reinforced concrete pipe	RCP		
reinforced concrete cylinder		water to cement	W/C, wc
pipe	RCCP	water column	W.C.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Reference Standards and Abbreviations

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 01 45 03

QUALITY CONTROL

PART 1 - GENERAL

1.1 OBSERVATION AND SUPERVISION

- A. The ENGINEER or ENGINEER's appointed representative will review the Work and the CONTRACTOR shall provide facilities and access to the Work at all times as required to facilitate this review.
- B. Responsibility:
 - 1. The CONTRACTOR shall be solely responsible to supervise and direct the entire Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to complete the Work in accordance with the Contract Documents.
 - 2. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, quality control, and procedures of construction and safety precautions and programs incidental thereto.
 - 3. The foregoing includes work performed by the CONTRACTOR's Subcontractors.
 - 4. The CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.
 - 5. CONTRACTOR shall be responsible for maintaining a complete hardcopy set of all project documents at the site at all times. Project documents shall include but are not limited to all drawings, specifications, submittals, requests for information (RFI), requests for change (RFC), change orders, and up to date project record drawings.
 - 6. Project documents as described above shall be onsite and available for CITY or ENGINEER review at all times. Failure to maintain or make project documents available will result in the stoppage of work. Schedule and cost changes resulting from stoppage of work are the responsibility of the CONTRACTOR.
- C. Superintendent:
 - 1. The CONTRACTOR shall designate in writing and submit for ENGINEER's approval a technically qualified, English-speaking superintendent, who shall be onsite and responsible for the work, and who shall not be replaced without written acceptance of the ENGINEER.
 - 2. The superintendent shall be the CONTRACTOR's representative at the job site and shall have authority to act on behalf of the CONTRACTOR.
 - 3. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR.
 - 4. The CONTRACTOR's superintendent shall be present at the site of the Work at all times while work is in progress. Failure to observe this requirement shall be considered as suspension of the Work by the CONTRACTOR until such time as such superintendent is again present at the site.
 - 5. CONTRACTOR's superintendent shall be responsible for maintaining a complete hardcopy set of all project documents.

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Quality Control

Pump Station 26 Improvement Project

1.2 RESPONSIBILITY

- A. The CONTRACTOR is responsible for conducting all testing and inspection specifically required by the Specifications and otherwise necessary to ensure compliance with the Contract Documents.
 - 1. Approval of Testing Laboratories and Geotechnical Consultants:
 - a. All laboratory work under this contract shall be performed by a laboratory approved by the ENGINEER, whether the laboratory is employed by the CONTRACTOR, or is owned and operated by the CONTRACTOR.
 - b. The basis of approval includes the following:
 - 1) Testing laboratories performing work in connection with concrete, steel, and bituminous materials shall comply with ASTM E329 and ASTM D3666, respectively.
 - 2) Testing laboratories performing work not in connection with concrete, steel, bituminous materials, soils and non-destructive testing shall comply with ASTM E548.
- B. The ENGINEER may conduct periodic independent testing and inspection to verify compliance with the Contract Documents.
- C. Retesting:
 - 1. The CITY reserves the right to back-charge the CONTRACTOR for retesting of deficient or defective work or products upon written notification.
 - 2. Compensation for retesting on behalf of the CITY will be made through deductions from the Progress Payments.
- D. The CONTRACTOR is responsible for correcting all defective work discovered prior to final acceptance of the Contract, despite the failure of the Inspector(s) to discover it.

1.3 TESTS AND INSPECTIONS

- A. The CONTRACTOR shall be responsible for scheduling all inspections and tests required.
 - 1. The ENGINEER shall be given a minimum 48 business hours notice prior to any inspections or tests.
- B. With the exception of the special inspections noted above to be paid for by the CITY; the CONTRACTOR shall pay for all tests, inspections and special inspections including, but not limited to:
 - 1. Standard inspections and tests necessary to comply with laws, ordinances, rules, regulations and orders of public authorities pursuant to General Conditions.
 - 2. Concrete and CLSM compressive strength tests for trial batch mix designs.
 - 3. Tests of materials, inspections, and certifications required by the Specifications.
 - 4. Testing, adjusting, and balancing of equipment and systems required by the Specifications.
 - 5. One tension and elongation test for each 5 tons of steel or fractional part thereof for each size will be required, unless the steel can be identified by heat or melt numbers and is accompanied by mill analysis and test reports. Commercial stock may be used, subject to approval of the ENGINEER.
 - 6. Any testing performed by the CONTRACTOR for their own quality control.
 - 7. All compaction testing, moisture testing, field testing of CLSM for backfill placement, geotechnical observations, and all certifications necessary to comply with the specifications.

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Quality Control

Pump Station 26 Improvement Project

8. Retests or re-inspections by the CITY, if required, and tests or inspections required due to CONTRACTOR error or lack of required identifications of material.
 9. Any and all water used by the CONTRACTOR in any testing.
- C. The CONTRACTOR shall be responsible for scheduling all tests and inspections pertaining to soils which includes all items covered by 31 05 03 Earthwork. CONTRACTOR shall hire a third party accredited laboratory and geotechnical consultant for approval by CITY a minimum of 30 days in advance of using the laboratory or geotechnical consultant.
- D. Two copies of the agency or laboratory report of each test or inspection shall be provided to the ENGINEER. All tests of materials shall be made in accordance with the commonly recognized standards of national technical organizations, and such other special methods and tests as are prescribed in the Contract Documents. Hardcopies of soils testing daily reports shall be provided to the ENGINEER before close of business the day tests are completed.
- E. Purchase Orders:
1. One copy of each of the CONTRACTOR's purchase orders for materials forming a portion of the work shall be furnished to the ENGINEER, if requested.
 2. Each such purchase order shall contain a statement that the materials included in the order are subject to inspection by the CITY.
 3. Materials purchased locally will be inspected at the point of manufacture or supply, and materials supplied from points more than 50 miles from the job site will be inspected upon arrival at the job, except when other inspection requirements are provided for specific materials in other Sections of this Specification.
- F. Samples:
1. The CONTRACTOR shall furnish samples of materials as are required by the ENGINEER, without charge.
 2. No material shall be used until the ENGINEER has had the opportunity to test or examine such materials.
 3. Samples will be secured and tested whenever necessary to determine the quality of the material.
 4. Samples and test specimens prepared at the job site, such as concrete test cylinders, shall be taken or prepared by the ENGINEER in the presence and with the assistance of the CONTRACTOR.

1.4 AUTHORITY AND DUTIES OF INSPECTOR

- A. Inspectors employed by the CITY shall be authorized to inspect all work done and materials and equipment furnished to complement the CONTRACTOR furnished independent inspector.
1. Such inspection may extend to all or any part of the Work, and to the preparation, fabrication, or manufacture of the materials and equipment to be used.
 2. The Inspector will not alter or waive the provisions of the Contract Documents.
 3. The Inspector will keep the ENGINEER informed as to the progress of the work and the manner in which it is being done.
 4. The Inspector will call the CONTRACTOR's attention to nonconformance with the Contract Documents that the Inspector may have observed.
 5. The Inspector will not be responsible for the adequacy or correctness of the CONTRACTOR's means, methods, techniques, sequences, or procedures for construction.

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Quality Control

Pump Station 26 Improvement Project

6. The Inspector will not approve or accept any portion of the work, issue instructions contrary to the Contract Documents, or act as foreman for the CONTRACTOR.
7. The Inspector may reject defective materials, equipment, or work when it is not in compliance with the Contract Documents.
8. The Inspector will not be responsible for:
 - a. The CONTRACTOR's quality control program.
 - b. The CONTRACTOR's safety program.
 - c. Coordinating the work or activities of the CONTRACTOR or their Subcontractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Quality Control

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 01 51 03

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

PART 1 - GENERAL

1.1 CONTRACTOR'S STAGING AREA AND WORK ACCESS PLAN

- A. The CONTRACTOR shall limit the location of the storage of equipment and materials to the staging area(s) designated on the Drawings and as directed by the ENGINEER.
- B. The CONTRACTOR shall make their own arrangements for additional space that may be required and shall bear all associated costs.
- C. Work Access Plan: The CONTRACTOR shall submit a work access plan showing the planned access route for deliveries of supplies and mobilization of work force for ENGINEER's approval prior to mobilization.
- D. On-Site Project Office:
 - 1. The CONTRACTOR shall maintain near the work in progress a suitable office or other protected area in which shall be kept project copies of the Contract Documents, project progress records, project schedule, shop drawings and other relevant documents which shall be accessible to the OWNER and ENGINEER during normal working hours.
 - 2. The CONTRACTOR shall make their own arrangements for additional space that may be required and bear all associated costs.
- E. Temporary Facilities Plan:
 - 1. The CONTRACTOR shall submit to the ENGINEER for approval, as part of the mobilization effort, the proposed plan and layout for all temporary offices, sanitary facilities, temporary construction roads, storage buildings, storage yards, temporary water service and distribution, temporary telephone and temporary power service and distribution.
 - 2. The plan shall show all temporary fencing and gates and all proposed access to the work areas.
 - 3. Prior to the removal of existing fence, the CONTRACTOR shall provide temporary security fencing at least equal to the existing chain link and barbed wire fencing to protect the existing facilities and structures.
- F. Access Roads:
 - 1. The CONTRACTOR shall "winterize" and maintain all access roads at all times to provide a driving surface satisfactory for 2-wheel drive low clearance vehicular traffic.
 - 2. The roads shall be gravel surfaced, smooth, and free from humps and depressions.
 - 3. Contractor shall perform dust control on all access roads.
 - 4. All costs of complying with this requirement shall be included in the lump sum bid.

1.2 STORAGE - GENERAL

- A. The CONTRACTOR shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

1.3 STORAGE BUILDINGS

- A. The CONTRACTOR shall erect or provide temporary storage buildings of the various sizes as required for the protection of mechanical and electrical equipment and materials as recommended by manufacturers of such equipment and materials.
- B. The buildings shall be provided with such environmental control systems that meet recommendations of manufacturers of all equipment and materials stored in the buildings.
- C. The buildings shall be of sufficient size and so arranged or partitioned to provide security for their contents and provide ready access for inspection and inventory.
- D. At or near the completion of the work, and as directed by the ENGINEER, the temporary storage buildings shall be dismantled, removed from the site, and remain the property of the CONTRACTOR.
- E. Combustible materials (paints, solvents, fuels, etc.) shall be safely stored and separated in accordance with the manufacturer's requirements and in compliance with hazardous material storage requirements. CONTRACTOR shall be responsible for providing proper storage buildings for combustible materials.

1.4 STORAGE YARDS

- A. The CONTRACTOR shall provide temporary storage yards as required for the storage of materials that are not subject to damage by weather conditions.
- B. Materials such as pipe, reinforcing and structural steel, shall be stored on pallets or racks, off the ground, and stored in a manner to allow ready access for inspection and inventory.
- C. Temporary gravel surfacing of the storage yards shall meet with the approval of the ENGINEER.

1.5 PARKING AREAS

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, CITY's operations, or construction operations.

1.6 VEHICULAR TRAFFIC

- A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Assure the least possible obstruction to traffic and normal commercial pursuits.
- B. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.
- C. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for accommodation of public and private travel.

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

1.7 DELIVERY-STORAGE-HANDLING

A. General:

1. The CONTRACTOR shall deliver, handle, and store materials and equipment in accordance with supplier's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft.
2. Delivery schedules shall be controlled to minimize long-term storage at the site and overcrowding of construction spaces.
3. In particular, the CONTRACTOR shall provide delivery/installation coordination to ensure minimum holding or storage for material or equipment recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

B. Transportation and Handling:

1. Materials and equipment shall be transported by methods to avoid damage and shall be delivered in dry, undamaged condition in supplier's unopened containers or packaging.
2. The CONTRACTOR shall provide equipment and personnel to handle the materials, and equipment by methods that will prevent soiling and damage.
3. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging packaging, and surrounding surfaces.

C. Storage and Protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with grease in accordance with manufacturer's recommendations to prevent corrosion. Sensitive materials and equipment shall be stored in weather-tight enclosures and temperature and humidity ranges shall be maintained within tolerances required by supplier's written instructions.
2. For exterior storage of fabricated materials, they shall be placed on sloped support above ground. Materials or equipment subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
3. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
4. Inspection:
 - a. Storage shall be arranged to provide access for inspection.
 - b. The CONTRACTOR shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.
5. Storage shall be arranged in a manner to provide access for maintenance of stored items.

1.8 PROJECT SECURITY

- A. The CONTRACTOR shall make adequate provision for the protection of the work area against fire, theft and vandalism, and for the protection of the public and CITY personnel against exposure to injury, and for the security of any off-site storage areas.
- B. All costs for this protection shall be included within the CONTRACTOR's bid.

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

1.9 TEMPORARY UTILITIES

- A. The CONTRACTOR shall provide and pay for all necessary temporary telephones, fuel, power, potable water, sanitary, and proper toilet accommodations. CONTRACTOR shall not use CITY-owned utilities except for potable water. CITY will work with CONTRACTOR to provide potable water free of charge. The CONTRACTOR, however, shall be required to furnish and lay such pipe and/or provide such other means as may be necessary and/or incidental to the delivery of water at such point or points of use and at such pressure as may be necessary. No additional compensation will be made therefore. Contractor shall not use quick acting valves which might create surges.
- B. The temporary facilities to be provided by the CONTRACTOR as described above shall conform to all requirements in regard to operation, safety, and fire hazards of State and local authorities and of Underwriters.
- C. CONTRACTOR shall return the site and facilities to their original "pre-construction" condition, unless otherwise specified in the Contract Documents, at the completion of the project.

1.10 SOUND CONTROL

- A. The CONTRACTOR shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.
- B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer, so as to produce a maximum noise level of 85 dBA at 5 feet.
- C. No internal combustion engine shall be operated on the project without said muffler.
- D. Special Precautions for Inhabited Areas:
 - 1. In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation.
 - 2. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours.

1.11 DUST/AIR POLLUTION CONTROL

- A. The CONTRACTOR shall comply with all Federal, State and local regulatory requirements with respect to air pollution prevention.
- B. The CONTRACTOR shall take whatever steps, procedures, or means as are required to prevent dust conditions being caused by operations in connection with the execution of the Work; and on any road which the CONTRACTOR or any of their Subcontractors are using, excavation or fill areas, demolition operations, or other activities.
- C. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to agencies having jurisdiction.
- D. Damage to personal property, etc., resulting from the CONTRACTOR's construction operations shall be borne by the CONTRACTOR at no cost to the CITY.

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

- E. The CONTRACTOR shall keep the streets and work area clean at all times by means of mechanical sweepers or hand sweeping. Water will be used for dust control only, and not for cleaning streets.
- F. Burning of waste, rubbish, or other debris will not be permitted on or adjacent to site.

1.12 WASTE DISPOSAL

- A. The CONTRACTOR shall dispose of surplus materials, waste products, and debris and shall make necessary arrangements for such disposal. The CONTRACTOR shall obtain written permission from property owner prior to disposing surplus materials, waste products, or debris on private property.
- B. All waste disposal shall be done in accordance with applicable laws and regulations.
- C. Landfill Disposal:
 - 1. If the CONTRACTOR proposes to dispose of construction debris, trench spoils, excavation spoils, etc., at a landfill, the CONTRACTOR shall be responsible to provide and pay for all permits and analyses required by the landfill.
 - 2. If the analyses determine that the material is hazardous, then an equitable adjustment of the Contract for the cost of hazardous waste disposal will be made in accordance with the General Conditions, and the following:
 - a. Time extension or contract costs will not be granted for delays that could have been avoided by the CONTRACTOR redirecting their forces and equipment to perform other work on the contract.
- D. Ditches, washes, or drainageways shall not be filled.
- E. Disposal operations shall not create unsightly or unsanitary nuisances.
- F. The CONTRACTOR shall maintain the disposal site in a condition of good appearance and safety during the construction period.
- G. Prior to final acceptance of the work, the CONTRACTOR shall have completed the leveling and cleanup of the disposal site.

1.13 CLEAN UP

- A. Throughout the period of construction, the CONTRACTOR shall keep the work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the work, all unused and rejected materials, surplus earth, concrete, plaster, and debris.
- B. Upon completion of the work, and prior to final acceptance, the CONTRACTOR shall remove from the vicinity of the work all plant, surplus material, and equipment belonging to the CONTRACTOR or used under their direction during construction.

1.14 TEMPORARY ENCLOSURES

- A. When sandblasting, spray painting, spraying of insulation, or other activities inconveniencing or dangerous to property or the health of employees, the public or

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

construction workers, are in progress, the area of activity shall be enclosed adequately to contain the dust, over spray, or other hazard.

- B. In the event there are no permanent enclosures of the area, or such enclosures are incomplete or inadequate, the CONTRACTOR shall provide suitable temporary enclosures as required by the ENGINEER to meet field conditions in accordance with the recommendations of the owner-furnished equipment supplier (if applicable) and the CONTRACTOR's equipment supplier requirements.
- C. Said temporary or permanent enclosures shall be adequately ventilated to ensure the safety of the workers.

1.15 DRAINAGE

- A. The CONTRACTOR shall take all necessary actions as required to meet discharge requirements of the State of California and other pertinent local ordinances and regulations pertaining to dewatering and/or site drainage discharged into storm drains and creeks. This may include, but may not be limited to, the use of retention basins and silt basins to settle most of the solids prior to discharge.
- B. In excavation, fill, and grading operations, care shall be taken to disturb the pre-existing drainage pattern as little as possible.
- C. Particular care shall be taken not to direct drainage water onto private property or into streets or drainageways inadequate for the increased flow.
- D. Drainage means shall be provided to protect the work.

1.16 TEMPORARY LIGHTING

- A. The CONTRACTOR shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by OSHA standards.

1.17 CONSTRUCTION FACILITIES

- A. Construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.
- B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. Whenever required by safety regulations, the CONTRACTOR shall submit design calculations for staging and shoring prior to application of loads.

1.18 REMOVAL OF TEMPORARY FACILITIES AND UTILITIES

- A. At such time or times as any temporary construction facilities and utilities are no longer required for the Work, the CONTRACTOR shall notify the ENGINEER of their intent and schedule for removal of the temporary facilities and utilities, and obtain the ENGINEER's approval before removing the same.

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

- B. As approved, the CONTRACTOR shall remove the temporary facilities and utilities from the site as CONTRACTOR's property and leave the site in such condition as specified, as directed by the ENGINEER, and/or as shown on the Drawings.
- C. In unfinished areas, such as planted medians, the condition of the site shall be left in a condition that will restore original drainage, evenly graded, seeded or planted as necessary, and left with an appearance equal to, or better than original.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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Temporary Construction Facilities and Utilities

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 01 57 03

SEWER BYPASS PUMPING

PART 1 - GENERAL

1.1 GENERAL

- A. Scope: This Section covers temporary bypass pumping requirements, required of the CONTRACTOR, that shall apply during construction, including but not limited to furnishing all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing sanitary sewer flow around the work area for the duration necessary to complete the work.
- B. The CONTRACTOR shall inform all Subcontractors and manufacturers of the requirements herein and include the required services in their costs for the work specified in these Contract Documents.
- C. The design, installation and successful operation of the temporary pumping system shall be the CONTRACTOR's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- D. The bypass system shall be designed, installed and operated by the CONTRACTOR to prevent any and all leakage or discharge of sewage to the environment. If a sewage leak or discharge occurs, CONTRACTOR shall be solely responsible for the remedy of the leak, containment and clean-up of the discharge, as well as responsible for any direct or consequential damages, including fines, that are associated with the leak.
- E. Scheduling:
 - 1. Temporary bypass pumping is requisite to satisfactory completion of the Contract and, therefore, shall be completed within the contract time.
 - 2. All temporary bypass pumping activities shall be realistically allowed for and shown on the CONTRACTOR's Construction Schedule.
 - 3. Schedule and perform work in a manner that does not cause or contribute to sanitary sewer overflows, releases or spills of sewage from surrounding collection system or bypass system.
 - 4. All temporary bypass pumping shall be scheduled in conformance with the restrictions specified in Section 01 14 03, Special Project Constraints.

1.2 SUBMITTALS

- A. Temporary Bypass Pumping Plan:
 - 1. Not less than 1 month prior to CONTRACTOR's intended start of temporary bypass pumping, the CONTRACTOR shall submit a detailed Temporary Bypass Pumping Plan for each of the pipeline segment replacements and pump station improvements that require bypass pumping per the Drawings to the ENGINEER for review.

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2. Temporary Bypass Pumping shall not commence without written approval of the plan from the ENGINEER.
3. The Temporary Bypass Pumping Plan (for each separate area of work) shall include:
 - a. Detailed description of the Temporary Bypass Pumping Plan, including a drawing identifying suction manholes, suction piping, high-level alarm float switch locations/elevations, pumps, discharge piping, and discharge connection details.
 - b. Description of sewer plugging method and types and location of plugs.
 - c. Number, size, material, location and method of installation of suction piping.
 - d. Number, size, material, location and method of installation of discharge piping
 - e. Bypass pump information, including make, model, size, curves with operating range clearly delineated, number of each size to be on site and power requirements.
 - f. Description of backup pump, power and piping equipment.
 - g. Calculations for static lift, flow velocity, friction and fittings losses.
 - h. Power generator size, location, fueling plan.
 - i. Method of protecting discharge manholes or structures from erosion and damage.
 - j. Thrust and restraint block sizes and locations.
 - k. Any temporary pipe supports and anchoring required.
 - l. Method of crossing streets while maintaining traffic flow requirements.
 - m. Schedule for installation and maintenance of bypass pumps and piping.
 - n. Startup, leakage and pressure testing plan:
 - 1) Testing shall be conducted using clean water
 - 2) ENGINEER shall be notified a minimum of 24 hours prior to testing.
 - o. Identification of any coordination required with the CITY's staff.
 - p. Plan for monitoring upstream manholes for backup impacts.
 - q. Procedures for setup and breakdown of pumping operations.
 - r. System Monitoring Plan
 - s. Emergency Response Procedures:
 - 1) Provide detailed emergency procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage.
 - 2) Maintain copy of emergency procedures on site for duration of project.
 - 3) Include emergency contact numbers for CITY and CONTRACTOR personnel.
 - 4) Provide emergency contact hierarchy for day and night operations.
 - 5) Provide spill reporting procedures.
 - 6) List all containment and clean up equipment and supplies to be on site and available at all times.
 - 7) Provide detailed procedures for spill containment and cleanup.
 - t. Proposed use of vac-trucks
 - u. Valve/piping system plan for removable bypass piping sections

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All bypass piping shall be fusion bonded High Density Polyethylene.
- B. Discharge piping diameter: velocity not to exceed 5 feet per second

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- C. Suction piping diameter: Determined according to pump size, flow calculations, and manhole depth following manufacturer's specifications and recommendations.
- D. High-Density Polyethylene (HDPE) Pipe:
1. High density solid wall and following ASTM F714 Polyethylene (PE) Plastic Pipe (SDR-DR) based on Outside Diameter, ASTM D1248 and ASTM D3550.
 2. Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.
 3. Defective areas of pipe: Cut out and joint fused as stated herein.
 4. Assembled and joined at site using couplings, flanges or butt-fusion method to provide leak proof joint. Follow manufacturer's instructions and ASTM D 2657. Threaded or solvent joints and connections will not be permitted.
 - a. Fusing: By personnel certified as fusion technicians by manufacturer of HDPE pipe and/or fusing equipment.
 - b. Butt-fused joint: True alignment and uniform roll-back beads resulting from use of proper temperature and pressure.
 - c. Allow adequate cooling time before removal of pressure.
 - d. Watertight and have tensile strength equal to that of pipe.
 5. Flexible Hoses and Associated Couplings and Connectors:
 - a. Abrasion resistant.
 - b. Suitable for intended service.
 - c. Rated for external and internal loads anticipated, including test pressure.
 - 1) External loading design: Incorporate anticipated traffic loadings, including traffic impact loading.
 - d. When subject to traffic loading, compose system, such as traffic ramps or covers.
 - 1) Install system and maintain HS-20-44 loading requirements while in use or as directed by the ENGINEER.
- E. Valves and Fittings:
1. Provide all valves and fittings necessary to operate the Bypass Pumping System and to enable quick adjustments or modifications to the system, such as pump switchout.
 2. Selection shall be appropriate for raw municipal wastewater and shall be based on flow calculations and system operating pressures.
 3. At minimum, the following valves shall be provided:
 - a. Check valves on the discharge of each pump
 - b. Isolation valves that enable either the duty or the standby pump to be brought online or taken offline without delay.
 4. Cam Lock or quick release fittings shall not be allowed.
 5. Where a removable bypass piping section is proposed, CONTRACTOR shall provide valve/piping system to allow for removal of bypass piping section in intersection of roadway. CONTRACTOR shall submit a plan for the valve/piping system and gain approval from ENGINEER/CITY prior to implementation.
- F. Plugs: Selected and installed according to size of line to be plugged, pipe and manhole configurations, and based on specific site.
1. Plugs shall be inspected for defects prior to use
 2. Provide redundant plugs available in the event a plug fails

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- G. Aluminum irrigation piping or glued PVC piping will not be permitted.
- H. Discharge hose will only be allowed in short sections when approved by ENGINEER.

2.2 EQUIPMENT

- A. Pumps: Provide fully automatic self-priming units that do not require foot-valves or vacuum pumps for priming.
 - 1. Leak proof design.
 - 2. Capable of passing minimum 2" diameter solids.
 - 3. Pumps shall have minimum 4" suction and discharge connections.
 - 4. Electric or diesel powered. CONTRACTOR shall provide generator if electric powered, no electric service shall be assumed to be available at the work sites.
 - 5. Able to run dry without damage.
 - 6. Provide start/stop controls for each pump, complete with visual and auditory alarming systems.
 - 7. Provide a high-level alarm float switch near the suction of the bypass pumping system that when activated will indicate the pumping system is not keeping pace with influent sewage flows.
 - 8. Provide noise attenuation system for pumps producing noise louder than 60 dBA at 30 feet from pump. Provide similar noise attenuation for all generators used.
 - 9. Bypass System Capacity:
 - Bypass system shall have sufficient capacity to pump the peak anticipated sewer flows at each bypass point. Peak anticipated sewer flows at each bypass point are as follows: 350 gpm maximum if work is done prior to PS 26 pump installation; 900 gpm maximum if work is done after PS 26 pump installation.
 - 1) Work Zone 1: Existing 10" line (parallel to Sierra College Boulevard)
 - 2) Work Zone 2: Existing 8" line (parallel to Sierra College Boulevard)
 - 3) Work Zone 3: Existing 8" line (intersection of East Roseville Parkway and Sierra College Boulevard)
 - 4) Work Zone 4: Existing 10" line (parallel to Sierra College Boulevard)
 - 5) Work Zone 5: Existing 10" line (parallel to Sierra College Boulevard)
 - 6) PS #26:
 - a) Existing 10" line (perpendicular to Sierra College Boulevard)
 - b) Removal and replacement of existing pumps
 - 10. Standby Equipment:
 - a. Provide a minimum of one full capacity standby pump for each size maintained on site. A minimum of one standby pump shall be provided for up to two duty pumps and a minimum of two standby pumps shall be provided for three or more duty pumps.
 - b. Standby pump shall be maintained online, isolated from duty pump by a valve.
 - c. A sufficient number of valves, tees, elbows, connections, tools, piping, and other parts of the system hardware for the different pipe sizes as needed, shall be on site and readily available to ensure immediate repair or modifications of any part of the system as necessary.
 - d. If the pumps are electrical, a standby generator shall be provided on site at all times.

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PART 3 - EXECUTION

3.1 GENERAL

- A. Raw sewage is prohibited from entering any drain inlets, storm drain manholes, or other outlets that flow into a stream, creek, river, or other waterway. Raw sewage shall not leave the sewer collection system.
- B. Bypass pumping and/or diversion shall be provided as required for acceptable completion of the sewer mainline replacement via open cut and pipe bursting methods as well as the improvements to City of Roseville Pump Station #26.
- C. Bypass pumping shall be done in such a manner as not to damage public or private property or create a nuisance or health menace.
- D. Bypass pumping shall adhere to CITY easement boundaries and encroachment permits.
- E. The CONTRACTOR shall be liable for all cleanup, damage, and/or resultant fines in the event of a sewage spill. After the Work is completed, flow shall be returned to the rehabilitated sewer and all temporary equipment removed.

3.2 INSTALLATION AND REMOVAL

- A. Provisions and requirements must be approved by ENGINEER before implementation.
- B. CITY and ENGINEER shall be notified of the schedule and present during installation of Bypass Pumping system.
- C. Access manholes or make connections to existing sewer and construct temporary bypass pumping structures at access locations indicated on ENGINEER approved Drawings.
- D. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, remove in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
- E. When working inside manholes, follow all OSHA, Local, State and Federal safety requirements. Take required measures to protect workforce against sewer gases and/or combustible or oxygen-deficient atmosphere.
- F. Installation, Operation and Removal of Bypass Pipelines:
 - 1. When bypass pipeline crosses local streets and private driveways, place in roadway ramps.
 - 2. When roadway ramps cannot be used, place bypass in trenches and cover with temporary pavement as approved by ENGINEER.
 - 3. Prior to any excavation required, CONTRACTOR shall locate all utilities in the proposed area and notify the ENGINEER of any potential conflicts.

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4. During bypass pumping operation, protect sewer lines from damage inflicted by equipment.
5. Upon completion of bypass pumping operations, and after the receipt of written permission from ENGINEER, remove piping, restore property to pre-construction condition and restore pavement. Bypass pipeline shall be flushed with potable water prior to removal to prevent spillage of sewage to the environment.

3.3 INITIAL TESTING

- A. Pressure testing of the bypass pipeline shall be conducted and witnessed by the ENGINEER prior to initial testing. Pressure testing shall be with potable water. The provision of potable water for testing shall be the responsibility of the CONTRACTOR.
- B. An initial test of the complete bypass pumping system shall be conducted in the presence of the ENGINEER, using potable water. The provision of potable water for testing shall be the responsibility of the CONTRACTOR.
- C. Pumps shall be shown to be capable of self-priming after a loss of prime, with a minimum reprime lift greater than the suction lift that will be required during normal operation.
- D. Suction pipe configuration for reprime test shall incorporate a 2 feet minimum horizontal run, a 90° elbow and vertical run at the minimum specified lift. Pipe size shall be equal to the pump suction diameter.
- E. Repeatability of performance shall be demonstrated by testing three consecutive reprime cycles. Full pump capacity (flow) shall be achieved within five minutes during each cycle. No water should be discharged from the priming system to the environment during priming or operation.

3.4 OPERATION OF THE BYPASS SYSTEM

- A. CONTRACTOR shall have sole responsibility for the operation of the bypass system. Neither CITY nor ENGINEER personnel shall be involved in bypass system operation in any way.
 1. System monitoring:
 - a. CONTRACTOR shall supply personnel dedicated to the monitoring and maintenance of the bypass system full time during all hours that the system is operated (24 hours per day where applicable).
 - b. CONTRACTOR shall be responsible for monitoring bypass pumping operations using CONTRACTOR personnel who are on site performing other functions. Bypass pumping operations shall be monitored, including examination of the entire length of the bypass pipeline at least once every 2 hours during operating hours to confirm that all systems are fully functional, not leaking, and in good condition. CONTRACTOR shall repair any leaks discovered immediately.

3.5 USE OF VACTOR TRUCKS

- A. CONTRACTOR may use sewer plugging and vactor trucks to bypass low flows as indicated on the Drawings or proposed by the CONTRACTOR. CONTRACTOR shall

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confirm and estimate the peak flow rate to be pumped out to confirm pumping with a vactor truck is feasible as opposed to bypass pumping.

- B. When plugging sewer lines, contractor shall regularly monitor upstream manholes for surcharging and pump out the manhole and sewer lines as frequently as required.
- C. CONTRACTOR may discharge pumped flow into a nearby downstream manhole at a rate which does not cause surcharge in the downstream sewer.

+ + END OF SECTION + +

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SECTION 01 61 03

GENERAL PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

- A. All products furnished and installed under this contract shall conform to the general stipulations set forth in this Section except as otherwise specified in other Sections.

1.2 COORDINATION

- A. The CONTRACTOR shall coordinate all details of the products and equipment with other related parts of the Work, including verification that all structures, piping, wiring, and equipment components are compatible. The CONTRACTOR shall be responsible for all structural and other alterations in the Work required to accommodate products or equipment differing in dimensions or other characteristics from that contemplated in the Contract Drawings or Specifications.

1.3 DESIGN REQUIREMENTS

- A. Where CONTRACTOR design is specified, design and installation of systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of 2019 edition of the California Building Code (CBC).
 - 1. Basic Wind Speed: 105 mph, Exposure C.
 - 2. Seismic:
 - a. S_s (maximum short-term spectral response acceleration) = 0.426
 - b. S_1 (maximum 1-second spectral response acceleration) = 0.216
 - c. S_{DS} (design short-term spectral response acceleration) = 0.414
 - d. S_{D1} (design 1-second spectral response acceleration) = 0.312
 - e. I_e (Seismic Importance Factor) = 1.5
 - f. Risk Category = IV
 - 3. Maximum Rain Intensity: 2.22-inches/hour (15 min precipitation intensity)
- B. Proof of Compliance:
 - 1. Structural integrity and anchorage shall be certified by an approved calculation that demonstrates the adequacy of the anchorage system for seismic forces. This calculation may be based on principles of structural analysis and engineering mechanics, or based on similarity to approved shake-table tests.
 - 2. The CONTRACTOR shall submit for review and approval test data or calculations certified by a Civil or Structural Engineer registered in the State of California to show compliance with the above requirements.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 100 feet above sea level.

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- B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of 15 degrees F to 120 degrees F.

1.5 WORKMANSHIP AND MATERIALS

- A. The CONTRACTOR shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage, or other failure. Materials shall be suitable for service conditions.
- B. All equipment shall be designed, fabricated, and assembled in accordance with recognized and acceptable engineering and shop practice. Individual parts shall be manufactured to standard sizes and gages so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
- C. Except where otherwise specified, structural and miscellaneous fabricated steel used in equipment shall conform to AISC standards. All structural members shall be designed for shock or vibratory loads. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment shall be at least 1/4 inch thick.
- D. Except where otherwise specified, all metal which will be exposed to weather, submerged or otherwise exposed to moisture shall be either non-ferrous or stainless steel, as the application may require.

1.6 LUBRICATION

- A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems shall not require attention during startup or shutdown and shall not waste lubricants.
- B. Lubricants of the type recommended by the equipment manufacturer shall be provided in sufficient quantity to fill all lubricant reservoirs and to replace all consumption during testing, startup, and operation prior to acceptance of equipment by CITY. Unless otherwise specified or permitted, the use of synthetic lubricants will not be acceptable.
- C. Lubrication facilities shall be convenient and accessible. Oil drains and fill openings shall be easily accessible from the normal operating area or platform. Drains shall allow for convenient collection of waste oil in containers from the normal operating area or platform without removing the unit from its normal installed position.

1.7 ELECTRIC MOTORS

- A. Unless otherwise specified, motors furnished with equipment shall meet the following requirements:
 - 1. Designed and applied in accordance with NEMA, ANSI, IEEE, AFBMA, and NEC for the duty service imposed by the driven equipment, such as frequent starting, intermittent overload, high inertia, mounting configuration, or service environment.
 - 2. Premium efficiency rated.
 - 3. Rated for continuous duty at 40-degrees Celsius ambient, unless the application is well recognized for intermittent duty service as a standard industry practice.

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4. Insulated with Class F insulation and designed for a service factor of 1.15, or greater.
5. Three phase motors used in conjunction with variable speed drives shall have Class F insulation with a Class B temperature rise at rated nameplate horsepower, and 1.15 service factor.
6. When operating at service factor load, maximum observable temperature rise of insulation and motor parts, as determined by resistance or thermometer methods, shall not exceed the NEMA allowable limits for the type of motor, the type of enclosure, and the particular application with regard to continuous or intermittent duty.
7. To ensure long motor life, nameplate horsepower, regardless of service factor, shall be at least 115 percent of the maximum load imposed by the driven equipment.
8. Designed for full voltage starting.
9. Designed to operate from an electrical system that may have a maximum of 5 percent voltage distortion per IEEE Standard 519.
10. Derated, if required, for the altitude at which the equipment is installed.
11. Clamp-type grounding terminal shall be inside motor conduit box.
12. External conduit boxes shall be oversized at least one size larger than NEMA standard.
13. Totally enclosed motors shall have a continuous moisture drain which also excludes insects.
14. Bearings shall be either oil or grease lubricated.
15. Manufacturer's standard motor may be supplied on integrally constructed, packaged assemblies such as appliances, tools, unit heaters, and similar equipment specified by model number, in which case a redesign of the unit would be required to furnish motors of other than the manufacturer's standard design. However, in all cases, totally enclosed motors are preferred and shall be furnished if offered by the manufacturer as a standard option.
16. Totally enclosed motors shall be furnished on:
 - a. Equipment for installation below grade.
 - b. Equipment operating in wet or dust-laden locations.
17. Drip-proof motors, or totally enclosed motors at the supplier's option, shall be furnished on equipment in indoor, above-grade, clean, and dry locations.
18. Explosion-proof or submersible motors shall be furnished as required by applicable codes, as specified in other Sections, or at the supplier's option.
19. Motors shall be rated and constructed as follows:
 - a. Below 1/2 hp:
 - 1) 115 volts, 60 Hz, single phase.
 - 2) Built-in manual-reset thermal protector, or integrally mounted stainless steel enclosed manual motor starter.
 - b. 1/2 hp and above:
 - 1) 460 volts, 60 Hz, 3 phase.
 - 2) Where specified or required by the drawings, motors used on 240-volt systems shall be 230 volts, 60 Hz, 3 phase.

1.8 DRIVE UNITS

- A. The nominal input horsepower rating of each gear or speed reducer shall be at least equal to the nameplate horsepower of the drive motor. Drive units shall be designed for 24 hours continuous service.
- B. Unless otherwise specified, the use of gearmotors will not be acceptable.

C. Gear reducers:

1. Each gear reducer shall be a totally enclosed unit with oil or grease lubricated antifriction, rolling element bearings throughout.
2. Helical, spiral bevel, combination bevel-helical, and worm gear reducers shall have a service factor of at least 1.50 based on the nameplate horsepower of the drive motor. Shaft-mounted and flange-mounted gear reducers shall be rated AGMA Class II. Helical gear reducers shall have a gear strength rating to catalog rating of 1.5. Each gear reducer shall bear an AGMA nameplate.
3. The thermal horsepower rating of each unit shall equal or exceed the nameplate horsepower of the drive motor. During continuous operation, the maximum sump oil temperature shall not rise more than 100°F above the ambient air temperature in the vicinity of the unit and shall not exceed 200°F.
4. Bearings:
 - a. Each grease lubricated bearing shall be installed in a bearing housing designed to facilitate periodic regreasing of the bearing by means of a manually operated grease gun.
 - b. Each bearing housing shall be designed to evenly distribute new grease, to properly dispose of old grease, and to prevent overgreasing of the bearing.
 - c. The use of permanently sealed, grease lubricated bearings will not be acceptable.
 - d. An internal or external oil pump and appurtenances shall be provided if required to properly lubricate oil lubricated bearings.
 - e. A dipstick or sight glass arranged to permit visual inspection of lubricant level shall be provided on each unit.
5. Gear reducers that require the removal of parts or periodic disassembly of the unit for cleaning and manual regreasing of bearings will not be acceptable.
6. Certification shall be furnished by the gear reducer manufacturer indicating that the intended application of each unit has been reviewed in detail by the manufacturer and that the unit provided is fully compatible with the conditions of installation and service.

D. V-belt drives:

1. Each V-belt drive shall include a sliding base or other suitable tension adjustment. V-belt drives shall have a service factor of at least 1.6 at maximum speed based on the nameplate horsepower of the drive motor.

1.9 ANCHOR BOLTS

- A. Equipment suppliers shall furnish suitable anchor bolts for each item of equipment.
- B. Anchor bolts, together with templates or setting drawings, shall be delivered sufficiently early to permit setting the anchor bolts when the structural concrete is placed.
- C. Anchor bolts shall comply with Section 05 05 06, Anchors, Inserts and Dowels and, unless otherwise specified, shall have a minimum diameter of 1/2-inch.
- D. Unless otherwise indicated or specified, anchor bolts for items of equipment mounted on baseplates shall be long enough to permit 1-1/2 inches of grout beneath the baseplate and to provide adequate anchorage into structural concrete.

1.10 EQUIPMENT BASES

- A. Unless otherwise indicated or specified, all equipment shall be installed on concrete bases at least 6 inches high.
- B. Cast iron or welded steel baseplates shall be provided for pumps, compressors, and other equipment.
- C. Each unit and its drive assembly shall be supported on a single baseplate of neat design.
- D. Baseplates shall have pads for anchoring all components and adequate grout holes.
- E. Baseplates for pumps shall have a means for collecting leakage and a threaded drain connection.
- F. Baseplates shall be anchored to the concrete base with suitable anchor bolts and the space beneath filled with grout as specified in Section 03 60 03, Grout.

1.11 SPECIAL TOOLS AND ACCESSORIES

- A. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

1.12 SHOP PAINTING

- A. Surface Protection:
 - 1. All steel and iron surfaces shall be protected by suitable paint or coatings applied in the shop.
 - 2. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.
 - 3. Exposed surfaces shall be finished smooth, thoroughly cleaned, and filled as necessary to provide a smooth uniform base for painting.
 - 4. Electric motors, speed reducers, starters, and other self-contained or enclosed components shall be shop primed or finished with a high-grade oil-resistant enamel suitable for coating in the field with an alkyd enamel.
 - 5. Coatings shall be suitable for the environment where the equipment is installed.
- B. Shop Primer:
 - 1. Surfaces to be painted after installation shall be prepared for painting as recommended by the paint manufacturer for the intended service, and then shop painted with one or more coats of the specified primer.
 - 2. Unless otherwise specified, the shop primer for steel and iron surfaces shall be:
 - a. Cook "391-N-167 Barrier Coat",
 - b. Koppers "No. 10 Inhibitive Primer",
 - c. Tnemec "37H Chem-Prime HS",
 - d. Valspar "13-R-28 Chromox Primer",
 - e. Or equal.
- C. Machined, polished, and nonferrous surfaces which are not to be painted shall be coated with rust-preventive compound, Houghton "Rust Veto 344", Rust-Oleum "R-9", or equal.

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1.13 PREPARATION FOR SHIPMENT

- A. All equipment shall be suitably packaged to facilitate handling and protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept thoroughly dry at all times.
- B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of ENGINEER.
- C. Grease and lubricating oil shall be applied to all bearings and similar items.
- D. Each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

1.14 STORAGE

- A. Upon delivery, all equipment and material shall immediately be stored and protected until installed in the Work.
- B. Pumps, motors, electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60° F. Equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.
- C. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the work.

1.15 INSTALLATION AND OPERATION

- A. Equipment shall not be installed or operated except by, or with the guidance of, qualified personnel having the knowledge and experience necessary for proper results. When so specified, or when employees of the CONTRACTOR or their subcontractors are not qualified, such personnel shall be field representatives of the manufacturer of the equipment or materials being installed.
- B. Qualified field representatives shall be provided by the equipment manufacturers as required by Section 01 75 06, Testing, Training and Startup.
- C. All equipment installed under this Contract, including that furnished by CITY shall be placed into successful operation according to the written instructions of the manufacturer or the instructions of the manufacturer's field representative. All required adjustments, tests, operation checks, and other startup activity shall be provided.
- D. Acceptance of work in connection with the installation of equipment furnished by others will be subject to approval of the field representative. The CONTRACTOR shall be responsible for planning, supervising, and executing the installation of work, and the

approval or acceptance of ENGINEER or the field representative will not relieve the CONTRACTOR of responsibility for defective work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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General Product Requirements

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SECTION 01 64 03

OWNER-FURNISHED EQUIPMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work specified in this Section includes the unloading, handling, installation, connection, and testing of OWNER-furnished equipment as indicated on the Plans and as specified herein.
- B. OWNER-furnished equipment:
 - 1. Submersible Sewage Pumps
 - a. Equipment Manufacturer: Xylem/Flygt
 - b. Contact Person: Adrian Gutierrez (508) 274-4643
 - c. Components: Two NP 3202 pumps with 310 mm impellers and motors
- C. Definitions: As used in this Section, the following terms have the meaning indicated:
 - 1. Equipment Manufacturer:
 - a. The Company with whom the OWNER has a contract to procure the equipment items.
 - 2. Defective:
 - a. An adjective which when modifying the word "equipment" refers to OWNER-furnished equipment and indicates that such equipment is unsatisfactory, faulty or deficient; that such equipment does not conform to the provisions of the Equipment Specifications; that such equipment does not meet the requirements of any inspection, test, or approval referred to in the Equipment Specifications; or that such equipment is damaged.
 - 3. Equipment specifications:
 - a. The specifications and other Contract Documents covering the purchase and delivery of OWNER-furnished equipment are included in the separate agreement between the OWNER and the Equipment Manufacturer.
 - 4. Approved shop drawings:
 - a. The drawings and data supplied by the Equipment Manufacturer for OWNER-furnished equipment, as approved by the ENGINEER.

1.2 CONTRACTOR COORDINATION WITH EQUIPMENT MANUFACTURER

- A. CONTRACTOR shall be in close coordination with service representatives of the manufacturer of the OWNER-furnished equipment in every phase of installation.
- B. Both the CONTRACTOR and the Equipment Manufacturer have separate responsibilities, both of which must necessarily be interwoven as regards the installation, testing and acceptance of the equipment.
- C. The Agreement between the OWNER and the Equipment Manufacturer, plus approved shop drawings, are available for inspection at the ENGINEER's Office. All prospective Contractors shall review said Agreement and shop drawings.

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Owner-Furnished Equipment

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1.3 QUALITY ASSURANCE

- A. Equipment specifications and approved shop drawings:
 - 1. The CONTRACTOR will be presumed cognizant, prior to entering into the Contract, of the provisions of the Equipment Specifications and approved Shop Drawings.
 - 2. One copy of the approved shop drawings will be made available to the CONTRACTOR to whom the Contract is awarded.
- B. Installation:
 - 1. OWNER-furnished equipment shall be installed as specified in Paragraph 3.1.
- C. Operation:
 - 1. OWNER-furnished equipment shall be operated in accordance with the written instructions furnished with the equipment, and with the instructions issued by representatives of equipment manufacturers.
- D. Testing:
 - 1. After installation, and following certification in writing by Equipment Manufacturer that the installation is ready for electrical testing, the CONTRACTOR shall make electrical tests on OWNER-furnished equipment.
 - 2. The tests shall prove that the equipment has been properly installed; that power, control, instrumentation, and alarms are properly connected and wired from the equipment to points of supply or receipt of signals and are properly calibrated; and that all other work performed by the CONTRACTOR renders the equipment operational as intended.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery of OWNER-furnished equipment:
 - 1. Equipment will be delivered to the CONTRACTOR at the site of the work as specified in the Equipment Specifications and identified in Section 01 11 03, Summary of Work.
 - 2. Changes to the delivery procedure and schedule may be made if mutually agreed between the CONTRACTOR and the OWNER, and if approved by the Equipment Manufacturer.
 - 3. Inspection and Acceptance:
 - a. Upon delivery, conduct with OWNER or ENGINEER a joint inspection for the purpose of identifying product, general verification of quantities, and observation of apparent condition.
 - b. Such inspection will not be construed as final or as receipt of any product that, as a result of subsequent inspections and tests, are determined to be nonconforming.
 - c. Damaged or incomplete products to be returned for replacement will not be unloaded, except as necessary to expedite return shipment.
 - d. OWNER will submit claims for transportation damage and expedite replacement of damaged, defective, or deficient items.
 - e. Indicate signed acceptance of delivery on a copy of the invoice.
 - f. Upon CONTRACTOR's acceptance of OWNER-furnished equipment, it shall be understood that the CONTRACTOR assumes the responsibilities assigned to him in these Specifications in relation to the installation, testing and operation of OWNER furnished equipment.

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Owner-Furnished Equipment

Pump Station 26 Improvement Project

4. Defective Equipment Notice:
- a. The CONTRACTOR shall verify the conditions of OWNER-furnished equipment and shall submit to the ENGINEER within 7 days after delivery date a statement listing all defective equipment items.
 - b. The list shall include the cost and extension to the Contract Time that the CONTRACTOR estimates for the correction and repair of each defective equipment item and a statement of the CONTRACTOR's opinion as to the cause of the defective equipment items.
 - c. If the CONTRACTOR makes no submittal within the time period specified, it shall be understood that the OWNER-furnished equipment is in satisfactory condition and that the CONTRACTOR's acceptance has occurred as of the date of delivery.
 - d. If the CONTRACTOR makes a submittal listing defective equipment items within the time period specified, the ENGINEER will decide on the course of action to be taken. The possible courses of action by the ENGINEER include:
 - 1) Correction By Change Order:
 - a) To authorize the CONTRACTOR to proceed with the correction and repair of defective equipment items through the issuance of a Change Order.
 - b) The CONTRACTOR's consent to perform such repair and correction shall be construed as CONTRACTOR's acceptance for the items included in the Change Order.
 - 2) Correction By Force Account:
 - a) To direct the CONTRACTOR to proceed with the correction and repair of defective equipment items through the procedures specified for force account work.
 - b) It shall be understood that CONTRACTOR's acceptance has occurred for the items covered under force account work on the date of the issuance of the ENGINEER's directive.
 - 3) Correction By Others:
 - a) To have others perform the correction and repair of defective equipment items.
 - b) The CONTRACTOR shall observe the work done by others and notify the ENGINEER in writing of all irregularities, faulty workmanship, or unsatisfactory work done by others.
 - c) The CONTRACTOR observations shall be carried out without obstruction or interference to others performing work.
 - d) Upon completion of the correction and repair, the ENGINEER will notify the CONTRACTOR and it shall be understood that CONTRACTOR's acceptance has occurred for items repaired by others upon receipt of the ENGINEER's notification.
 - 4) Modify the Installation Contract:
 - a) To modify the Plans and Specifications in order to meet changing conditions.
 - b) It shall be understood that CONTRACTOR's acceptance has occurred upon receipt of the ENGINEER's modifications to Plans and Specifications.
 - 5) Reject the Characterization:
 - a) To state to the CONTRACTOR that an item listed by the CONTRACTOR is not a defective equipment item.
 - e. Regarding such items, it shall be understood that CONTRACTOR's acceptance has occurred on the delivery date.

5. If CONTRACTOR is not prepared to accept delivery of OWNER-furnished equipment by either the specified Estimated Date of Arrival or such OWNER-confirmed delivery date, as specified herein, associated costs incurred by OWNER shall be borne by CONTRACTOR. Such costs may include, but not be limited to, demurrage, interest, insurance costs, additional administrative and engineering costs, additional factory and field technical support, additional storage and reshipping costs, cost escalation, and extended warranty costs due.
 6. The CONTRACTOR shall unload the equipment from the delivery vehicle within 24 hours after arrival of the vehicle transporting such equipment to the site. The equipment shall be unloaded in accordance with manufacturers' instructions, or as specified.
 7. The CONTRACTOR shall assume responsibility for storage and handling of equipment after the delivery has been accepted.
- B. Protection of OWNER-furnished equipment:
1. The CONTRACTOR shall protect the equipment in accordance with the Equipment Manufacturer's recommendations against weather conditions, including construction of a temporary cover, and periodic lubrication, if required.
 2. From the time of receipt until the equipment is energized for operations, unless such equipment is being worked on, equipment shall be considered in storage.
 3. While in storage, a 120V, 1 phase source of power shall be provided and connected to space heaters in all items of equipment so equipped. Equipment not provided with space heaters shall be provided with a light bulb or electric heater while in storage to prevent moisture condensation.

1.5 SCHEDULING:

- A. It shall be understood that the CONTRACTOR's review of the Equipment Specifications has allowed the scheduling of their operations in accordance with the dates for the delivery of OWNER-furnished equipment anticipated in said Equipment Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. The CONTRACTOR shall install OWNER-furnished equipment in accordance with the instructions and recommendations furnished with the equipment, approved shop drawings, instructions of the representatives of equipment manufacturers and installation manuals, and as indicated on the Plans.
- B. The CONTRACTOR shall be responsible to include in their bid all labor, materials, and equipment required to install the OWNER-furnished equipment and make the complete system operate satisfactorily.
- C. Equipment shall not be installed or operated except by, or with the guidance of, qualified personnel having the knowledge and experience necessary to obtain proper results. Such personnel shall be field representatives of the Equipment Manufacturer.

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Owner-Furnished Equipment

Pump Station 26 Improvement Project

- D. Factory Service Representatives:
1. Qualified factory service representatives will be provided by the Equipment Manufacturer as required to perform all manufacturers' field services called for in these Specifications.
 2. Equipment Manufacturer will submit resumes of the proposed factory service representatives to the ENGINEER for review and acceptance not less than 21 days prior to the factory services representative's first site visit.
 3. Factory service representatives will observe, instruct, guide, and direct CONTRACTOR's erection or installation procedures, and perform an installation check, as required herein or as requested by the ENGINEER.
 4. Each factory service representative will revisit the site as often as necessary to attain installation satisfactory to ENGINEER.
- E. The CONTRACTOR shall furnish and install all piping, electrical and instrumentation work, interconnections, finish painting and accessories as required to make the OWNER-furnished equipment and system complete and functional.
- F. Provide foundation pads for OWNER-furnished products as shown. Verify exact dimensions and configuration of all pads, including penetrations, with OWNER-furnished product shop drawings.
- G. Anchor Bolts:
1. Where required, provide anchor bolts, fasteners, washers, and templates needed for installation of OWNER-furnished equipment.
 2. Size and locate anchor bolts in accordance with OWNER-furnished product shop drawings and installation instructions.
- H. Mechanical and electrical equipment shall be properly aligned, plumb and level, with no stresses on connecting piping or conduit.

3.2 FIELD FINISHING

- A. Products will be delivered with prime coat(s) applied.
- B. Finish coat as specified in Section 09 91 03, PAINTING.
- C. Touch up or repair damage to coatings resulting from unloading, storage, installation, testing, and startup.
- D. If finish coats are damaged extensively after transfer, completely repaint.
- E. Touch up, repair, or complete repainting shall match color of original paint, and shall be fully compatible with applied primers and finish.

3.3 EQUIPMENT FIELD TESTING

- A. General:
1. Field Testing shall consist of Functional Testing performed by the CONTRACTOR, and Performance Testing performed by the Equipment Manufacturer with OWNER assistance.

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Owner-Furnished Equipment

Pump Station 26 Improvement Project

2. Minimum Functional Testing requirements are specified in Section 01 75 06, Testing, Training and Startup.
 3. The CONTRACTOR shall schedule, coordinate, and perform all Functional Tests required to prove that the equipment has been properly installed and is in satisfactory operating condition.
 4. The Equipment Manufacturer will furnish a factory trained representative to provide technical guidance to assist the OWNER's CONTRACTOR during Functional Testing.
 5. Addition Functional Testing requirements for the Owner-Supplied Equipment are listed in the Technical Specifications.
- B. The CONTRACTOR shall repair, replace or correct to the satisfaction of the ENGINEER all defective equipment items caused by the CONTRACTOR's improper placement and handling of OWNER-furnished equipment.
- C. After testing, the CONTRACTOR shall repair, replace, or correct faulty work.

3.4 SERVICES OF EQUIPMENT MANUFACTURER'S REPRESENTATIVES

- A. The Equipment Manufacturers (through the OWNER) will provide services of skilled representatives of equipment manufacturer's for inspecting the installation, adjustments, start-up and testing of OWNER-furnished equipment.
- B. The extent of services provided by manufacturer's representatives is specified in the Equipment Specifications.
- C. The services will be provided as requested by the ENGINEER.
- D. The CONTRACTOR and their employees shall fully cooperate with the manufacturer's representatives.
- E. The CONTRACTOR shall notify the ENGINEER in writing 15 calendar days before the equipment manufacturer's representative needs to be present at the site.

++ END OF SECTION ++



**Xylem Water Solutions USA, Inc.
Flygt Products**

October 3, 2022

790-A Chadbourne Rd
Fairfield, CA 94534
Tel (707) 422-9894
Fax (707) 422-9808

CITY OF ROSEVILLE
1800 BOOTH RD
1800 BOOTH RD
ROSEVILLE CA 95747-9708

Quote # 2022-FFB-0359
Project Name: City of Roseville
Job Name: PS 26 improvements

Xylem Water Solutions USA, Inc. is pleased to provide a quote for the following Flygt equipment.

Pumps

Qty	Description	Unit Price	Extended Price
2	Flygt Model NP-3202.095 6" volute Submersible pump equipped with a 460 Volt / 3 phase / 60 Hz 60 HP 1750 RPM motor, 458 impeller, 1 x 50 Ft. length of SUBCAB 4G25+S(2x0,5) submersible cable, FLS leakage detector, volute is prepared for Flush Valve	\$ 68,338.75	\$ 136,677.50
1	START UP CHARGE FLYGT 1-TP MODELS: 3000,7000,8000	\$ 1,720.40	\$ 1,720.40

Accessories

Qty	Description	Unit Price	Extended Price
2	CONNECTION,DISCH 5½X6" CI	\$ 1,820.00	\$ 3,640.00
4	KIT,HARDWARE 3/8IN SS (2X)	\$ 93.15	\$ 372.60
2	HARDWARE,DISC CONN ASSY 304SS+ 302SS ALT.	\$ 701.50	\$ 1,403.00
2	SLEEVE,NBR	\$ 34.50	\$ 69.00
2	BRACKET,GUIDE BAR U. 3" 316SS	\$ 470.35	\$ 940.70
2	HOOK,SAFETY ASSEMBLY SS	\$ 201.25	\$ 402.50
2	SLING,CHAIN UNIT POLY ROPE 10M	\$ 292.10	\$ 584.20
1	GRIP EYE UNIT	\$ 198.95	\$ 198.95
1	HOLDER,CABLE HEAVY DUTY 316SS	\$ 238.05	\$ 238.05
2	MINI-CASII/FUS 120/24VAC,24VDC	\$ 719.00	\$ 1,438.00
2	SOCKET,11-PIN BACK MOUNTING	\$ 118.00	\$ 236.00

Total Price	\$ 147,920.90
Sales Tax	\$11,463.87
Freight Charge	\$ 5,664.00

Total Price	\$ 165,048.77
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NOTES:



- Current lead time for pumps is an estimated 12-14 weeks
- This quote is for everything above and nothing else
- 3" Stainless guide bar to be provided by others, recommended guide bar specs attached
- Does not include any additional factory performance testing or any additional epoxy coatings that may or may not be required
- Does not include any extended warranty or preventative maintenance agreement

Terms & Conditions

This order is subject to the Standard Terms and Conditions of Sale – Xylem Americas effective on the date the order is accepted which terms are available at <http://www.xyleminc.com/en-us/Pages/terms-conditions-of-sale.aspx> and incorporated herein by reference and made a part of the agreement between the parties.

Purchase Orders: Please make purchase orders out to: Xylem Water Solutions USA, Inc.

Freight Terms: 3 DAP - Delivered At Place 08 - Jobsite (per Incoterms 2020)
See Freight Payment (Delivery Terms) below.

Taxes: State, local and other applicable taxes are not included in this quotation.

Back Charges: Buyer shall not make purchases nor shall Buyer incur any labor that would result in a back charge to Seller without prior written consent of an authorized employee of Seller.

Shortages: Xylem will not be responsible for apparent shipment shortages or damages incurred in shipment that are not reported within two weeks from delivery to the jobsite. Damages should be noted on the receiving slip and the truck driver advised of the damages. Please contact our office as soon as possible to report damages or shortages so that replacement items can be shipped and the appropriate claims made.

Terms & Conditions: Attached please find our Standard Terms & Conditions of Sale that apply to this order.

Taxes: State, local and other applicable taxes are not included in this quotation.

Time of delivery: Delivery lead times are [FILL IN # OF WEEKS HERE] weeks after receipt of submittal approval and order acceptance.

Terms of delivery: PP/Add Order Position

Terms of Payment: 100% Net 30 days following shipment date. Xylem's payment shall not be dependent upon Purchaser being paid by any third party unless Owner denies payment due to reasons solely attributable to items related to the equipment being provided by FLYGT.

Schedule: Please consult your local Flygt Branch Office to get fabrication and delivery lead times.

Changes: This Quote is based on the current design criteria provided to Xylem Water Solutions USA, Inc. Revisions may result in price changes.

Exclusions: This Quote includes only the items listed specified above.



Validity: Please note that this pricing is valid for 30 days and is contingent upon final approval of submittals and release for fabrication within 90 days of PO date.

We thank you for your interest in Flygt equipment from Xylem Water Solutions USA, Inc. and look forward to being of service to you in the near future.

Sincerely,

A handwritten signature in black ink, appearing to read 'Adrian Gutierrez', with a stylized flourish at the end.

Adrian Gutierrez
Sales Representative
Phone: 508-274-4643

adrian.gutierrez@xylem.com



Customer Acceptance

This order is subject to the Standard Terms and Conditions of Sale – Xylem Americas effective on the date the order is accepted which terms are available at <http://www.xyleminc.com/en-us/Pages/terms-conditions-of-sale.aspx> and incorporated herein by reference and made a part of the agreement between the parties.

A signed copy of this Quote is acceptable as a binding contract.

Purchase Orders: Please make purchase orders out to: Xylem Water Solutions USA, Inc.

Quote #: 2022-FFB-0359
Customer Name: CITY OF ROSEVILLE
Job Name: PS 26 improvements
Total Amount: \$ 165,048.77
(including taxes &
freight)

Signature: _____

Name: _____
(PLEASE PRINT)

Company/Utility: _____

PO: _____

Address: _____

Date: _____

Phone: _____

Email: _____

Fax: _____



Introducing the Xylem Preventative Maintenance Agreement

Don't forget to protect your new assets

Thank you for considering Xylem for your pumping equipment needs. We appreciate the significance of your purchase decision and want to ensure you get the most out of your investment. The most cost-effective way to do this is to sign-up for a preventative maintenance agreement (PMA) that we tailor to your specific requirements and budget. A Xylem PMA offers a proven method to extend your equipment life, prevent expensive repairs and minimize unplanned failures. It's also ensures you remain in compliance with environmental, health and other government regulations – critical to maximizing operation uptime.

Our Flygt Gold PMA Includes:

- One scheduled preventative maintenance service visit with multi-point inspection, 12 months after purchase and discounted access to Xylem's rental fleet
- An additional 12-month warranty when purchased with your new or replacement Flygt pump(s)
- The option to renew annually or on a multi-year basis following the first service visit
- Priority service on repairs and field service calls

** Flat-Rate Pricing is available for new and replacement Flygt models 3069, 3085, 3102, 3127, 3153, 3171, 3202, 3301 & 3315 starting at \$500 per pump.*

Multi-year PMA packages are available as well.
Contact your Xylem Sales Representative today for more information.

Visit our [PMA site](#) for more info

xylem
Let's Solve Water



WARRANTY

Xylem Water Solutions USA, Inc.

For the period defined, Xylem Water Solutions USA, Inc. offers a commercial warranty to the original End Purchaser against defects in workmanship and material on Flygt Products. Warranty covers Flygt parts and labor as outlined in **ADDENDUM – A**.

COVERAGE:

Xylem Water Solutions USA, Inc. will pay the cost of parts and labor during the warranty period, provided that the Flygt product, with cable attached, is returned prepaid to a Xylem Water Solutions USA, Inc. Authorized Service Facility for Flygt Product repairs. Coverage for Flygt parts and labor will be provided for the period shown in **ADDENDUM - A**. The warranty period will begin from date of shipment or date of a valid Start-up (For permanently installed pumps only). In cases where the Start-up date is used as the beginning of the warranty on a permanently installed Flygt pump, a Start-up Report completed by an approved service technician from a Xylem Water Solutions USA, Inc. Authorized Service Facility for Flygt products must be received by the Xylem Water Solutions USA, Inc. Area Service Manager for Flygt Products within thirty (30) days of the initial onset of the unit placed into service. If not received, the beginning of the warranty coverage will default to the Flygt product ship date. A Start-up for a permanently installed Flygt pump must occur within one (1) year from the date of shipment from a Xylem Water Solutions USA, Inc. authorized facility for Flygt Products or warranty will automatically default to ship date as start of warranty. (See **STORAGE** section) When using the start-up date as the beginning of the warranty, a copy of the Start-up Report will be required to support any Warranty Claims. Warranty on Flygt Dewatering pumps will begin with ship date only. No other date on Flygt Dewatering pumps will be considered.

Xylem Water Solutions USA, Inc.'s sole obligation under this Warranty for Flygt Products shall be to replace, repair or grant credit for Flygt Products upon Xylem Water Solutions USA, Inc.'s exclusive determination that the Flygt Product does not conform to the above warranty. In the event that the Flygt product is replaced, warranty on the replacement product will be equal to the balance remaining on the original product or ninety (90) days, which ever is greater.

MISUSE:

This Warranty shall not apply to any Flygt product or part of Flygt product which (i) has been subjected to misuse, misapplication, accident, alteration, neglect, or physical damage (ii) has been installed, operated, used and/or maintained in a manner which is in an application that is contrary to Xylem Water Solutions USA, Inc.'s printed instructions as it pertains to installation, operation and maintenance of Flygt Products, including but without limitation to (iii) operation of equipment without being connected to monitoring devices supplied with specific products for protection; or (iv) damaged due to a defective power supply, improper electrical protection, faulty installation or repair, ordinary wear and tear, corrosion or chemical attack, an act of God, an act of war or by an act of terrorism; or (v) has been damaged resulting from the use of accessory equipment not sold by Xylem Water Solutions USA, Inc. or not approved by Xylem Water Solutions USA, Inc. in connection with Flygt products.

WEAR PARTS:

This warranty does not cover costs for standard and/or scheduled maintenance performed, nor does it cover Flygt parts that, by virtue of their operation, require replacement through normal wear (aka: Wear Parts), unless a defect in material or workmanship can be determined by Xylem Water Solutions USA, Inc.. Wear Parts are defined as Cutters, Cutting Plates, Impellers, Agitators, Diffusers, Wear Rings (Stationary or Rotating), Volutes (when used in an abrasive environment), oil, grease, cooling fluids and/or any items deemed necessary to perform and meet the requirements of normal maintenance on all Flygt equipment.



WARRANTY

Xylem Water Solutions USA, Inc.

DISCLAIMERS:

(i) Xylem Water Solutions USA, Inc.'s warranties are null and void when Flygt Products are exported outside of the United States of America without the knowledge and written consent of Xylem Water Solutions USA, Inc.; (ii) Xylem Water Solutions USA, Inc. makes no independent warranty or representation with respect to parts or products manufactured by others and provided by Xylem Water Solutions USA, Inc. (however, Xylem Water Solutions USA, Inc. will extend to the Purchaser any warranty received from Xylem Water Solutions USA, Inc.'s supplier for such parts or products).

LIMITATIONS:

XYLEM WATER SOLUTIONS USA, INC. NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON OR COMPANY TO ASSUME FOR XYLEM WATER SOLUTIONS USA, INC., ANY OTHER OBLIGATION IN CONNECTION WITH THE SALE OF ITS FLYGT EQUIPMENT. ANY ENLARGEMENT OR MODIFICATION OF THIS WARRANTY BY A FLYGT PRODUCT DISTRIBUTOR, OR OTHER SELLING AGENT SHALL BECOME THE EXCLUSIVE RESPONSIBILITY OF SUCH ENTITY.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, CONDITIONS OR TERMS OF WHATEVER NATURE RELATING TO FLYGT PRODUCT(S), INCLUDING AND WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED. PURCHASER'S EXCLUSIVE REMEDY AND XYLEM WATER SOLUTIONS USA, INC.'S AGGREGATE LIABILITY FOR BREACH OF ANY OF THE FOREGOING WARRANTIES IS LIMITED TO REPAIRING OR REPLACING FLYGT PRODUCTS AND SHALL IN ALL CASES BE LIMITED TO THE AMOUNT PAID BY THE PURCHASER HEREUNDER. IN NO EVENT IS XYLEM WATER SOLUTIONS USA, INC. LIABLE FOR ANY OTHER FORM OF DAMAGES, WHETHER DIRECT, INDIRECT, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFIT, LOSS OF ANTICIPATED SAVINGS OR REVENUE, LOSS OF INCOME, LOSS OF BUSINESS, LOSS OF PRODUCTION, LOSS OF OPPORTUNITY OR LOSS OF REPUTATION.

XYLEM WATER SOLUTIONS USA, INC. WILL NOT BE HELD RESPONSIBLE FOR TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR'S FEES, OR ANY EXPENSES ASSOCIATED WITH A FLYGT PRODUCT REPAIR SHOP NOT AUTHORIZED BY XYLEM WATER SOLUTIONS USA, INC. U.S.A., INC. REIMBURSEMENT COSTS FOR CRANES AND/OR ANY SPECIAL EQUIPMENT USED IN CONJUNCTION FOR THE REMOVAL AND/OR REINSTALLATION OF ANY FLYGT EQUIPMENT IS NOT COVERED UNDER THIS WARRANTY.

ANY UNAUTHORIZED ALTERATIONS TO SUPPLIED FLYGT EQUIPMENT USED WITHOUT XYLEM WATER SOLUTIONS USA, INC. SUPPLIED FLYGT BRAND CABLE OR CONTROLS WILL NOT BE COVERED UNDER THIS WARRANTY, UNLESS IT CAN BE PROVEN SUCH ANCILLARY EQUIPMENT IS SUITABLE FOR THE PURPOSE AND EQUAL TO XYLEM WATER SOLUTIONS USA, INC. SUPPLIED FLYGT BRAND CABLES OR CONTROLS THAT WOULD ORIGINALLY HAVE BEEN SUPPLIED WITH THE TYPE OF EQUIPMENT IN USE.

REQUIREMENTS:

A copy of Electrical System Schematics of the Control used (including a Control's Bill of Material) could be required to support a Warranty Claim when a non Flygt Brand Control is used. In addition, a written record, hereby known as "the log", will be associated with each unit serial number and must be maintained by the organization having product maintenance responsibility. The log must record each preventative maintenance activity and any repair activity during the life of the warranty or verification that a Xylem Water Solutions USA, Inc. authorized Service Contract for Flygt Products is in force and must be available for review and/or auditing. Failure to meet these conditions could render this warrant null and void. Such logs could be required to determine warranty coverage.



WARRANTY

Xylem Water Solutions USA, Inc.

STORAGE:

Should a delay occur between ship date and the date of start-up, maintenance as outlined in Xylem Water Solutions USA, Inc.'s Care & Maintenance Manual for Flygt Products must be performed by the "CONTRACTOR" and/or "OWNER" during any such period of storage. Documentation providing proof and outlining what maintenance was performed must be provided to Xylem Water Solutions USA, Inc. or its Flygt Products representative within thirty (30) days of said maintenance, or the Xylem Water Solutions USA, Inc. warranty for Flygt Products could be considered void.

CONTROLS:

Warranty coverage for permanently installed controls will start for the end purchaser on the date of shipment. This warranty does not apply to controls that have been damaged due to a defective and/or improper input power supply, improper electrical protection, accidental damage, improper or unauthorized installation and/or repair, unauthorized alteration, negligence, environmental corrosion or chemical attack, improper maintenance or storage of control, any act of God, an act of war, an act of terrorism or damage resulting from the use of accessory equipment not approved by Xylem Water Solutions USA, Inc.. Further, this warranty does not apply in the event an adjustment is found to correct the alleged defect.

Solid state devices will be covered for a period of one (1) year except in the Flygt Standard Control Panel (FSCP) where the solid state devices will be covered for the full warranty period of the control panel. Electrical control panels containing controllers, PLC's, drives, soft starts, and other computerized equipment will require Transient Voltage Surge Suppression (TVSS) protection in order to satisfy the requirements of this warranty. The protection equipment associated with the control must be kept in working condition during the life of the warranty. Auxiliary equipment supplied with the control (air-conditioners etc.) is limited by the respective original equipment manufacturer's warranty offered. Consumable items such as: light bulbs, fuses, and relays are covered under normal operating conditions. Electrical surges experienced during startups and/or during normal operating use of the control panel will cause the consumable items not to be covered under this warranty policy. Components not supplied by Xylem Water Solutions USA, Inc. will not covered by this warranty.

TOP (The Optimum Pump Station)

Xylem Water Solutions USA, Inc. will warrant the Flygt TOP pre-engineered fiberglass pump station components against defects in material and workmanship for a period of one (1) year from date of start-up or eighteen (18) months from date of shipment and is valid only to the original owner of the station. Warranty shall cover the cost of labor and materials required to correct any warrantable defect, excluding any removal and reinstallation costs, FOB Xylem Water Solutions USA, Inc.'s authorized warranty service location for Flygt's TOP.

Flygt Products contained within a TOP pre-engineered fiberglass pump station will carry the standard Xylem Water Solutions USA, Inc. warranty for Flygt products and/or accessories installed in the TOP pre-engineered fiberglass pump station.

All Flygt Product restrictions and/or limitations as outlined and described within the context of this warranty are germane to all sections of this Xylem Water Solutions USA, Inc. Warranty document.

Xylem Water Solutions USA, Inc.
National Quality Assurance - US Corporate

WARRANTY

Xylem Water Solutions USA, Inc.

ADDENDUM – WARRANTY COVERAGE BY PRODUCT

PRODUCT	PRODUCT SERIES AND CONFIGURATION	Months	Months	Months	Months	Months
		1 - 12	13 - 18	19 - 36	37 - 39	40 - 60
Axial Flow/ Mixed Flow/ Centrifugal Pumps & Mixers	3000 Series (CP, NP, DP, CT, NT, CZ, NZ, LL) 4000 Series (SR, PP) 7000 Series (PL)	100%		50%		25%
Flygt Standard Control Panels (FSCP)	Standard Control Panels (FSCP – permanently installed)	100% (From Ship Date)				
ETO Electrical Control Panels	Engineered to Order, Xylem Manufactured Control Panels (permanently installed) - 3 Years	100% - 1 YR	LIMITED - 2 - YR			
Abrasion/Corrosion Resistant & Chopper/ Grinder Pumps	3000 Series (MP, MF, MH, FP, FS, FT, HP, HS) 5000 Series (HP, HS) 8000.280 Series (DP, DZ, DT, DS, DF)	100%				
Dewatering Pumps	2000 Series (BS, KS) 3000 Series (CS, NS, DS) 8000.280 Series (DS, DF)	100% (From Ship Date)				
TOPS	Fiberglass Pump Station	100% (From Ship Date)				
Accessories	Permanent / Portable	100% (From Ship Date)				
Hydro ejectors/ Aerators	HE, JA	100%				
Portable Pump Controls TOPS Control Panels	Control Boxes (Nolta, MSHA etc.) TOPS control panels (permanently installed)	100% (From Ship Date)				
Small Pumps	3045, 3057, SX	100% (From Ship Date)				
Parts - *	All new Flygt parts (mechanical & electrical)	100% (From Ship Date)				

* - Parts that fail where used in a repair are warranted for one (1) year from the date of the repair for the failed part only – no labor; This Includes Flygt pump controllers, Flygt supervision equipment, Flygt submersible level transducers, etc.

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SECTION 01 71 13

MOBILIZATION

PART 1 - GENERAL

1.1 GENERAL

- A. Mobilization shall include the obtaining of all bonds, insurance, and licenses; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; all as required for the proper performance and completion of the work.
- B. Mobilization shall include but not be limited to the following principal items:
 - 1. Moving on to the site of all CONTRACTOR's equipment.
 - 2. Installing temporary construction power, wiring, and lighting facilities.
 - 3. Developing construction water supply.
 - 4. Furnishing the work access plan as specified in Section 01 51 03, Temporary Construction Facilities and Utilities.
 - 5. Providing all on-site CONTRACTOR communication facilities, including telephones, and radio pagers and any radio communications facilities required for the CONTRACTOR to coordinate their forces.
 - 6. Providing on-site sanitary facilities and potable water facilities as specified in Section 01 51 03, Temporary Construction Facilities and Utilities.
 - 7. Arranging for and erection of the CONTRACTOR's work and storage yard, including site security.
 - 8. Posting all EPA and OSHA required notices and establishment of safety programs.
 - 9. Post all required labor and EEOE notices.
 - 10. Have the CONTRACTOR's superintendent at the job site full time.
 - 11. Submittal and CITY acceptance of the Construction Schedule.
 - 12. Establishing site security, lighting, fencing, and signing.
 - 13. Obtaining all bonds, insurance and licenses.
 - 14. Providing an organization chart of the project and for the CONTRACTOR's firm. The project chart shall include the name, title and responsibilities of each position which is involved in the work.
 - 15. Other mobilization items approved by the ENGINEER required to support the complete work (e.g., Health and Safety Plans for Hazardous Waste).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Mobilization

Pump Station 26 Improvement Project

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01 71 13-2
Mobilization

Pump Station 26 Improvement Project

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SECTION 01 74 03

CLEANING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This Section covers the work necessary for cleaning during construction and final cleaning on completion of the Work.

1.2 GENERAL

- A. At all times maintain areas covered by the Contract and public properties free from accumulations of waste, debris, and rubbish caused by construction operations.
- B. Pollution Control:
 - 1. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 2. Do not burn or bury rubbish and waste materials on project site.
 - 3. Volatile wastes shall be properly stored in covered metal containers and removed daily.
 - 4. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 5. Do not dispose of wastes into streams or waterways.
- C. Construction materials such as concrete forms and scaffolding shall be neatly stacked by the CONTRACTOR when not in use. The CONTRACTOR shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.
- D. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- E. Use cleaning materials only on surfaces recommended by cleaning material manufacturers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

- A. During execution of Work, clean site and public properties and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

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- C. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. Empty containers within one day after they are full.
- D. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed and semi-exposed surfaces.
- E. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.
- F. Vacuum clean all interior spaces, including inside cabinets. Broom clean paved surfaces, rake clean other surfaces of grounds.
- G. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- I. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.

3.2 FINAL CLEANING

- A. Refer to the requirements of the Contract Documents in addition to the requirements of this Section.
- B. See Section 01 77 03, Operational Completion and Project Closeout, for additional requirements.
- C. At the completion of Work on all Contracts and immediately prior to final inspection, cleaning of the entire Project will be accomplished according to the following provisions:
 - 1. The CONTRACTOR shall thoroughly clean, sweep, wash, and polish all work and equipment, including finishes. The cleaning shall leave the structures and site in a complete and finished condition to the satisfaction of the ENGINEER.
 - 2. Should the CONTRACTOR not remove rubbish or debris or not clean the building and site as specified above, the CITY reserves the right to have the cleaning done at the expense of the CONTRACTOR.
 - 3. Employ professional cleaners for final cleaning.
 - 4. In preparation for substantial completion of occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
 - 5. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
 - 6. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
 - 7. Broom clean paved surfaces; rake clean other surfaces of grounds.
 - 8. Replace air-handling filters if units were operated during construction.
 - 9. Clean ducts, blowers, and coils, if air-handling units were operated without filters during construction.
 - 10. Clean luminaires in accordance with manufacturer's recommendations. Clean all light fixtures.

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11. Remove from the CITY's property all temporary structures and all materials, equipment, and appurtenances not required as a part of, or appurtenant to, the completed work. See Section 01 51 03 - Temporary Construction Facilities and Utilities.

+ + END OF SECTION + +

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Cleaning

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SECTION 01 75 06

TESTING, TRAINING, AND STARTUP

PART 1 - GENERAL

1.1 GENERAL

- A. Scope:
 - 1. This Section covers general equipment and system testing and startup requirements, services of the manufacturer's representatives and special coordinating services required of the CONTRACTOR that shall apply during construction and training of the CITY's personnel for facilities operation.
 - 2. Specific testing and tracking procedures and requirements found in the Technical Specifications shall also apply.
- B. The CONTRACTOR shall inform all Subcontractors and manufacturers of the requirements herein and include the required services in their costs for the work specified in these Contract Documents. Where a minimum amount of time is stated in the Technical Specifications for manufacturers' services, any additional time required to perform the specified services shall be provided at no additional cost to the CITY.
- C. Scheduling:
 - 1. Equipment testing and startup are requisite to satisfactory completion of the Contract and, therefore, shall be completed within the contract time.
 - 2. All equipment testing and plant startup activities shall be realistically allowed for and shown on the CONTRACTOR's Construction Schedule, in accordance with Section 01 32 13, Progress Schedule.
 - 3. All equipment testing and plant startup activities shall be scheduled in conformance with the restrictions specified in Section 01 14 03, Special Project Constraints.
- D. Equipment testing shall be satisfactorily completed prior to commencing plant startup associated with the particular equipment item or equipment package. The equipment shall not be considered ready for testing until the following conditions are satisfied:
 - 1. Manufacturer's certification of equipment installation has been accepted by the ENGINEER.
 - 2. Electrical and/or instrumentation Subcontractor certification of motor control logic has been accepted by the ENGINEER.
 - 3. Related Technical Submittals, O&M Manual and Final Shop Drawings have been accepted by the ENGINEER.
 - 4. Operator training services have been furnished by the CONTRACTOR (operational testing only).
 - 5. Testing procedures have been submitted in writing and accepted by the ENGINEER in accordance with Section 01 33 03, Submittal Procedures. All testing procedures and results shall be submitted in writing.
- E. The requirements of plant startup specified herein shall also apply to the startup of individual treatment plant processes and facilities.
- F. Startup Plan:

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Testing, Training and Startup

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1. Not less than 3 months prior to initial equipment or system startup, the CONTRACTOR shall submit to the ENGINEER for review, a detailed Facilities Startup Plan for the associated items of equipment and/or systems.
2. The Startup Plan shall include:
 - a. A detailed sub-network of the CONTRACTOR's Construction Progress Schedule including the following activities:
 - 1) Manufacturer's Services;
 - 2) Installation Certifications;
 - 3) Operator Training;
 - 4) O&M Manual;
 - 5) Functional Testing;
 - 6) Performance Testing;
 - 7) Operational Testing;
 - 8) All other activities necessary to affect a coordinated and successful Testing, Training and Startup.
 - b. Written testing plan with proposed data logs for each item of equipment to be tested.
 - c. A discussion of any coordination required with the CITY's staff and/or any system or equipment outage requirements.
 - d. The Plan shall be updated and/or revised as necessary prior to subsequent Construction Progress Meetings.
 - e. Testing shall not be scheduled earlier than 30 days after approval of the Plan.

1.2 SERVICES DURING CONSTRUCTION

A. General:

1. Manufacturer's Representative:

- a. The CONTRACTOR shall provide the services of competent and experienced technical representatives of the manufacturers of all equipment and systems furnished under the contract, for as many days as may be necessary for assembly, installation, testing assistance and operator training.
- b. Manufacturer's field representatives shall observe, instruct, guide, and direct CONTRACTOR's erection or installation procedures, or perform an installation check, as required.
- c. In each case, the CONTRACTOR shall arrange to have the manufacturer's representative revisit the job site as often as necessary until operator training is complete and testing and startup problems have been resolved to the satisfaction of the ENGINEER.
- d. This requirement applies to manufacturers of all equipment furnished (excluding manually operated valves smaller than 24 inches in size, and any other items of equipment specifically exempted by the ENGINEER in writing), whether or not specifically set forth in the Technical Specifications.
- e. The CONTRACTOR shall maintain a service record on each item of equipment and shall deliver these service records to the ENGINEER prior to acceptance of operational testing.

B. Fulfillment of Specified Minimum Services:

1. The CONTRACTOR shall obtain prior written approval from the ENGINEER for providing manufacturers' services.
2. All requests to the ENGINEER for prior approval shall (1) be in writing, (2) be submitted not less than 10 calendar days prior to the providing of the subject

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Testing, Training and Startup

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- services, (3) state the service to be provided, and (4) state the reason(s) why the timing of the service is appropriate.
3. Request made to the ENGINEER less than 10 calendar days prior to the manufacturers' services may not receive consideration and response prior to the times the services are provided.
 4. Visits of manufacturers and their representatives to the jobsite or training classroom without prior approval as provided herein may not act to fulfill the specified minimum man-day requirements.
- C. Certificate of Proper Installation:
1. Equipment requiring factory tests shall not be delivered to the jobsite until the CONTRACTOR submits acceptable certified test results to the ENGINEER.
 2. Equipment shall not be considered ready for functional testing until after the following certifications have been submitted and accepted by the ENGINEER.
 - a. Manufacturer Representatives:
 - 1) The CONTRACTOR shall require that each manufacturer's representative furnish to the ENGINEER a written and signed report addressed to the CITY certifying that the equipment has been properly installed, adjusted, lubricated, is in accurate alignment, is free from any undue stress imposed by connecting piping or anchor bolts, has been operated satisfactorily under full-load conditions and is ready for full-time operation.
 - 2) For pumps, compressors, blowers, engines, motors, and other rotating or reciprocating equipment, the report shall certify that the equipment operates within the manufacturer's allowable limits for vibration.
 - 3) The report shall also certify that all controls, protective devices, instrumentation, and control panels furnished as part of the manufacturer's equipment package are properly installed and calibrated; and that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.
 - 4) The CONTRACTOR shall also sign said certification.
 - 5) The CONTRACTOR shall submit "Manufacturer's Certification of Proper Installation" on the CITY form.
 - b. Electrical and Instrumentation Subcontractor:
 - 1) The CONTRACTOR shall require that the electrical and/or instrumentation Subcontractor shall furnish a written and signed report to the ENGINEER certifying that the motor control logic for the equipment item that resides in motor control centers, control panels, control boards, microprocessors, distributed processing units, computers, and the like furnished by the electrical and/or instrumentation Subcontractor has been properly tested and calibrated.
 - 2) The report shall certify that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.
 - 3) The CONTRACTOR shall also sign said certification.

1.3 STARTUP AND TESTING

- A. General:
1. The CONTRACTOR shall provide the effective coordination of all parties necessary for the successful project startup.

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2. The ENGINEER shall not be responsible to instruct the CONTRACTOR in the startup of the project, however, the ENGINEER will be available prior to and during startup to provide operational and technical support to the CONTRACTOR.
 3. The CONTRACTOR shall furnish all labor, consumables (power, water, chemicals, air, etc.) tools, equipment, instruments, and services required and incidental to completing all functional, performance and operational testing of installed equipment.
 4. The CONTRACTOR shall submit for favorable review the proposed test procedures to the ENGINEER for review at least 30 days prior to testing.
 5. After favorable review of the test procedures, the CONTRACTOR shall give the ENGINEER written notice confirming the date of testing at least five working days before the time the equipment is scheduled to be tested.
 6. All testing shall be witnessed by the ENGINEER to be considered valid.
 7. Test Reports:
 - a. CONTRACTOR shall submit written detailed results of all functional, performance and operational testing.
 - b. Upon successful completion of Operational testing all equipment installation, testing and maintenance records shall be submitted to the ENGINEER.
 - c. Said records shall be bound separately for each piece of equipment or system and shall be collected by type of record.
 8. For factory tests, written test results shall be submitted to the ENGINEER at least 10 days prior to shipment.
- B. Functional testing:
1. All items of mechanical and electrical equipment shall be functionally tested by the CONTRACTOR after installation for proper operation.
 2. A minimum of ten (10) days prior to the start of functional testing, the CONTRACTOR shall submit interconnection diagrams for the equipment and for the alarms, controls and instruments associated with the equipment. This requirement shall not relieve the CONTRACTOR of meeting any requirements in the technical specifications for earlier submittal of the interconnection diagrams.
 3. Minimum Test Requirements
 - a. The functional test of each piece of mechanical equipment shall continue for not less than eight (8) continuous hours without interruption.
 - b. The functional test shall include checking for proper rotation, alignment, speed, flows, pressure, vibration, sound level, etc. Initial equipment and system adjustment and calibrations shall be performed in the presence of and with the assistance of the manufacturer's representative.
 - c. The functional test shall include a demonstration of the proper performance of all alarms, local and remote controls, instrumentation, equipment functions, and all other electrical, mechanical, and piping systems.
 - d. All parts shall operate satisfactorily in all respects, under continuous full load, and in accordance with the specified requirements, for the full duration of the eight-hour test period.
 - e. If any part of a unit shows evidence of unsatisfactory or improper operation during the eight-hour test period, correction or repairs shall be made and the full eight-hour test operation, as specified herein, shall be repeated after all parts operate satisfactorily.
- C. Performance testing:
1. Where performance testing is required by the Technical Specifications, the testing shall be supervised by the manufacturer's representative. These services shall

continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by the ENGINEER for operational testing.

2. Performance testing shall take place after functional testing is successfully completed in accordance with Article 1.3 B.
3. Performance testing shall demonstrate that the equipment meets all performance requirements specified.

D. Startup/operational testing:

1. Upon successful completion of operator training and the functional, performance and leakage testing, the CONTRACTOR shall startup the facilities and test the equipment operation and performance by conducting a seven (7) day, continuous operational test of the completed facilities as an operational process unit to demonstrate to the ENGINEER's satisfaction that all equipment and systems required by these specifications will operate in the manner in which they are intended to perform.
2. The CITY will provide CONTRACTOR-trained operating personnel for the duration of the operational test. Said operation shall be conducted and under the supervision and direction of the CONTRACTOR and/or manufacturer's representative.
3. Operational Defects:
 - a. All defects in materials or workmanship which appear during the operational test shall be immediately corrected by the CONTRACTOR.
 - b. In the event of a malfunction or deficiency that results in shutdown or partial operation of a system or process unit or results in performance that is less than that specified, the startup duration shall be repeated for that corresponding system or process unit and any other affected equipment so its proper operation and performance as required by the Contract Documents is demonstrated for a minimum of seven (7) continuous and trouble free days.
4. If the operational test is interrupted through no fault of the CONTRACTOR, the test may resume at the earliest mutually agreeable time.
5. No unit process or part thereof shall be placed in service until it has successfully completed operational testing.
6. During plant startup, the CONTRACTOR shall provide the appropriate construction trades and the services of authorized Manufacturer's representatives for operational testing and as necessary, to correct faulty equipment operation.
7. After completion of all startup/operational testing, the CONTRACTOR shall repaint, hose, scrub, clean up and otherwise return the work to a "like new" condition, prior to CITY acceptance.

1.4 TRAINING OF CITY PERSONNEL

A. General:

1. Operation and maintenance training of CITY's personnel shall be provided for mechanical, electrical, instrumentation and control equipment as listed in this Section or elsewhere in the Specifications.
2. For the purposes of this requirement, operations training is considered to be separate from maintenance training. Instructions are to be tailored to the needs of each group.
3. These training services shall be conducted by the manufacturer's representative and shall ensure measurable and observable means that CITY's personnel are qualified to perform equipment task requirements, including essential knowledge, skills, and abilities.

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4. Training shall be conducted by competent representatives who are certified by the manufacturer to be thoroughly familiar with the subject matter as well as instructional methods.
 5. Training materials shall be submitted to the CITY (see Paragraph 1.4 C below) for review. Acceptance of training materials is required prior to start of training.
 6. All training shall be completed prior to beginning operational testing.
 7. The CITY shall have the right to videotape any or all training sessions, or may designate separate sessions or portions thereof for the sole purpose of videotaping.
- B. Training coordinator:
1. The CONTRACTOR shall designate and provide one or more persons to be responsible for coordinating and expediting training duties.
 2. The person or persons so designated shall be present at all training coordination meetings with the CITY.
- C. Training schedule:
1. The CONTRACTOR's coordinator shall coordinate the training periods with CITY's personnel and manufacturer's representatives, and shall submit a training schedule and the training materials for each piece of equipment or system for which training is to be provided.
 2. The training schedule shall be submitted not less than 21 calendar days prior to the time that the associated training is to be provided and shall be based on the then current Plan of Operation.
 3. Equipment and/or systems shall be deemed suitable for use in training upon satisfactory completion of functional testing.
 4. All training with regards to a unit process or part thereof shall be completed prior to the start of operational testing.
 5. As a minimum, training shall be provided on the following equipment and systems:
 - a. Pumps
 - b. Electrical Systems
 - c. Instrumentation and Controls
 - d. Generator
 6. The CONTRACTOR shall provide distinct and separate training sessions for both operations and maintenance personnel, meeting the following criteria:
 - a. Maintenance Training:
 - 1) Maintenance training shall be provided for all items in 1.4.C.5 above.
 - 2) Maintenance training shall be scheduled on at least one day shift, Monday through Thursday.
 - 3) Training shall emphasize theory of operations, troubleshooting, and preventative maintenance and repair procedures.
 - 4) The discussion shall encompass issues relating to instrumentation, electrical, and mechanical systems.
 - b. Operations training:
 - 1) Operations training shall be provided for each piece of equipment listed in Paragraph 1.4.C.5 above.
 - 2) Operations and/or Maintenance training shall be scheduled on three consecutive day shifts, Tuesday through Thursday.
 - c. Training session schedules shall be approved by the ENGINEER.
 - d. Training shall emphasize theory of operations, startup instructions, emergency and normal shutdown instructions, lockout procedures, troubleshooting, preventative maintenance, and alarm and control logic.

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7. The CONTRACTOR shall confirm each training period a minimum of three working days prior to the schedule time.
8. If a manufacturer's representative fails to conduct a scheduled training class, the CONTRACTOR hereby agrees to compensate the CITY for labor costs, including overhead, for all CITY personnel in attendance for the entire scheduled training period.
9. If the CONTRACTOR or the manufacturer's representative fails to provide training that qualifies the CITY personnel to perform equipment task requirements, the CONTRACTOR hereby agrees to provide remedial training to ensure CITY personnel proficiency at no additional cost to the CITY.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 RECORD KEEPING

- A. The CONTRACTOR shall maintain as a minimum, the following records:
 1. Equipment manufacturer's shop drawings.
 2. Daily logs indicating all equipment testing and startup activities.
 3. Log and time sheets of all manufacturer's representatives performing services on the jobsite.
 4. Updated equipment testing and startup schedules.
 5. Records of system cleaning.
 6. Hydrostatic and pressure test records.
 7. Equipment alignment and vibration measurements and corrective actions.
 8. Equipment lubrication records.
 9. Insulation resistance measurements.
 10. Electrical phase, voltage, and amperage measurements.
 11. Electrical breaker inspection, test, and adjustment records.
 12. Logs of abnormal circuits and lifted wires.
 13. Testing and validation of all central and alarm functions.
 14. Data sheets of all testing and calibration of instrumentation devices and control loops including documentation of set points.
 15. Equipment and system release logs (from construction to startup).
 16. Daily work reports.

3.2 GENERAL PROCEDURES

- A. The general work procedures listed below outline the work to be performed by the CONTRACTOR. Additional procedures applicable to specific equipment items are specified elsewhere.
- B. Technical assistance and support:
 1. Obtain the assistance of the appropriate construction trades and the manufacturer or vendor, as required for technical assistance during equipment installation, testing, and startup by the CONTRACTOR and for training of the CITY's Operation and Maintenance personnel.
 2. Furnish names and telephone numbers of manufacturer's and vendor's current technical service representatives for use by the ENGINEER.

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- C. Instructions:
1. Maintain an adequate manufacturer's instruction file so that the information will be readily available during equipment testing and startup.
 2. Prior to equipment testing, finalize, and transmit to the ENGINEER the applicable technical manuals as required under Section 01 33 03, Submittal Procedures of the Contract Specifications.
- D. Removal of rust preventives:
1. Prior to equipment testing, remove all rust preventives and oils used to protect the equipment during the construction period whenever these protective materials will be detrimental to operation or equipment maintenance.
- E. Lubricants:
1. At least 60 days prior to startup, provide a list of the manufacturer's recommended lubricants for use in the plant. All equipment lubrication shall be listed with the lubricant types and quantities recommended and approved by the equipment manufacturers.
 2. Provide the necessary lubricants for startup and the initial 60 days of operation.
 3. Flush systems and install the initial charge of all lubricants. Dispose of flushing oil in accordance with applicable regulations.
 4. The CONTRACTOR shall lubricate the equipment in accordance with the manufacturer's recommendations until the equipment is accepted by the CITY.
 5. Maintain a lubrication record for each item of equipment. The CONTRACTOR shall submit the lubrication records to the ENGINEER prior to equipment testing.
- F. Packing and seals:
1. Install, adjust, and replace packing, mechanical seals, and accessories, as necessary, during the equipment testing and startup period.
 2. Adjust seal water and flushing water flow rates in accordance with the equipment manufacturer's recommendations.
- G. Removal of temporary bracing:
1. Prior to equipment testing, remove all temporary supports, bracing, or other foreign objects that were installed in vessels, transformers, rotating machinery, or other equipment to prevent damage during shipping, storage, and erection, and repair any damage sustained.
- H. Rotation, alignment, and vibration:
1. Prior to equipment testing, check rotating machinery for correct direction of rotation and for freedom of moving parts before connecting the driver.
 2. Prior to equipment testing, perform the cold alignment and hot alignment to the manufacturer's tolerances.
 3. Prior to equipment testing, test equipment vibration and correct any vibration in excess of the manufacturer's recommendation.
- I. Tie-ins at the contract limits:
1. Provide proper notification, preparation, and coordination for safe tie-ins and minimal interference with the pump station operation.
 2. Obtain approval and make the necessary tie-ins at the unit limits as required by the Contract Documents and as approved by the ENGINEER.
 3. Prior to startup, remove the temporary blind flanges, plugs, bulkheads, seals, etc.

- J. Leak and pressure tests:
 - 1. Provide the ENGINEER with 3-day advance notification in writing of the schedule for non-operating field leak tests or field pressure tests on piping and field fabricated equipment, unless otherwise directed by the ENGINEER.
 - 2. Provide the water, air and any special media required for the test purposes.
 - 3. Prior to startup, conduct all leak and pressure tests in accordance with applicable codes, regulations, and the Contract Documents, and as approved by the ENGINEER. The CONTRACTOR is advised that the tests shall be witnessed by the ENGINEER, to be considered valid.
 - 4. Maintain a record of the leak and pressure test data and work completed.
 - 5. Dispose of the test media in a manner that is acceptable to and approved by the CITY and applicable regulatory agencies.
 - 6. Isolate in-line equipment as necessary for protection against test pressure.
- K. Pressure/vacuum safety relief devices:
 - 1. Prior to equipment testing, test and adjust all safety devices as recommended by the equipment manufacturer.
 - 2. Prior to plant startup, provide the ENGINEER with a list of all field or factory equipment settings.
- L. Flushing and chemical/mechanical cleaning:
 - 1. Prior to equipment operation, conduct all flushing, blowing, and chemical/mechanical cleaning operations without using the permanently installed equipment.
 - 2. Provide any special media needed for flushing and/or cleaning purposes.
 - 3. Dispose of all media in a manner that is acceptable to and approved by the CITY and the applicable regulatory agencies.
 - 4. All systems shall be free of trash and construction debris before initiating startup.
 - 5. Maintain a record of the work completed.
- M. Screens, strainers, and blind flanges:
 - 1. Provide and install temporary strainers, screens, and blind flanges as necessary to protect the equipment and to test the equipment and pipelines.
 - 2. Prior to startup, remove all of the temporary blinds and temporary appurtenances.
 - 3. Clean the screens and strainers as required during startup.
 - 4. At the end of startup, clean all of the permanently installed screens and strainers.
- N. Purging/inerting:
 - 1. Prior to startup, purge and/or passivate the facilities as specified.
 - 2. Install purge/inerting connections in accordance with the manufacturer's recommendations.
 - 3. Provide purge or inerting materials and conduct the necessary operations as recommended by the equipment manufacturer.
- O. Drying out:
 - 1. Prior to startup, dry out the facilities as specified or recommended by the equipment manufacturer to prevent contamination of catalysts, operating materials, and/or product.
 - 2. Dry out systems, protective coatings, refractories, and linings as specified or recommended by the equipment manufacturers.

3.3 SPECIFIC PROCEDURES

- A. In addition to the work responsibilities described in Subsection 3.2, the procedures outlined below further define the work responsibilities of the CONTRACTOR for specific systems and items of equipment.
- B. Mechanical equipment:
1. Level baseplates and soleplates and grout under all load bearing surfaces.
 2. Install suitable supports and flexible connections to alleviate any piping stresses that may be imposed on pumps, compressors, and drivers.
 3. In accordance with the manufacturer's recommendations, chemically clean lube oil, seal oil, and cooling systems. Dispose of waste and cleaning media in a manner that is acceptable to and approved by the CITY and applicable regulatory agencies.
 4. In accordance with the manufacturer's recommendations, charge the lube oil, seal oil, and cooling systems with flushing media and circulate for cleaning purposes. Dispose of any flushing media in a manner that is acceptable to and approved by the CITY and applicable regulatory agencies.
 5. Charge the lube oil systems, seal oil systems, and cooling systems with the amount and type of operating oil or coolant recommended by the manufacturer.
 6. Operate the equipment and check for excessive vibration, abnormal operating noises, overheating and lubricant leakage, etc., and test any safety shutdown/alarm devices for proper operation, and make any operating tests required by the ENGINEER. The adjustments required for proper operation shall be made prior to operational testing.
 7. Utilize manufacturer's representative for technical assistance during installation and startup.
 8. Prior to startup, all sidewalks, gratings, handrails, safety chains, safety shields, etc., shall be installed.
 9. Prior to startup, demonstrate to the ENGINEER's satisfaction that all chemical solution pipelines are connected to the intended pump(s) and application points, and that the pipes, appurtenances contained therein and diffusers will operate at the intended flow rates.
 10. Prior to startup, the applicable safety equipment, emergency shower and eyewash units, fire extinguishers, fire suppression equipment, self-contained breathing apparatus, toxic and/or combustible gas detectors (including the respective personnel warning system), protective clothing, emergency repair kits, etc., shall be installed in an acceptable manner-subject to the ENGINEER's approval, and be fully ready for operation.
 11. All safety hazards, e.g., exposed drive shafts or rotating equipment members, exposed electrical circuitry, open electrical junction boxes and panels, improperly supported piping and conduits, missing safety devices, etc., shall be corrected prior to supplier training of the CITY's personnel.
 12. The CONTRACTOR shall perform a comprehensive safety inspection and correct any safety deficiencies found before implementing plant startup.
 13. Roadways that are required for ambulance service, fire fighting access, delivery of treatment chemicals and supplies, and disposal of the treatment byproducts shall be completed prior to startup.
 14. Prior to startup, install all warning and safety signs, labels, and devices.
- C. Electrical power and lighting systems:
1. Provide the ENGINEER with 3-day advance notification in writing of the test schedule. The CONTRACTOR is advised that the tests shall be witnessed by the ENGINEER.

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2. Perform insulation resistance tests on all wiring 120 volt and larger. Do not use meggar instruments or solid-state devices.
3. Perform insulation resistance tests on all motor and transformer windings from phase to phase and phase to ground.
4. Perform grounding system tests to determine the continuity of connections and the value of resistance to ground.
5. Fill electrical gear with oil and/or other media as recommended by the equipment manufacturer.
6. Prior to energizing electrical equipment, startup, test and set switchgear and circuit breaker relays for proper coordination and operation.
7. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to perform a thermographic survey on all switchgear buses, insulators and power connections when energized and under at least 20 percent load. Significant hot spots shall be further checked by infrared pyrometer for exact temperature rise. The CONTRACTOR shall troubleshoot and correct the thermographic hot spots. Correction shall be verified by repeating the thermographic survey at no additional cost to the CITY.
8. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to inspect and test the protective relays and the 800-ampere and larger drawout breakers for proper installation, adjustment, and operation in accordance with the manufacturer recommendations.
9. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electrical Testing Association, to perform DC high potential tests on all cables that will operate at more than 2,000 volts to ground.
10. Obtain local electrical inspector's approval where required.
11. Energize all substations, with approval of the Utility Company and the ENGINEER after completion of all electrical testing.
12. Prior to startup, perform tests and adjustments on all switchgear and motor control equipment to demonstrate proper operation and conformance to the Contract Documents and manufacturer's recommended settings.
13. Prior to startup, test installation of emergency power and lighting systems for proper operation, including light intensity.
14. Prior to startup, provide the ENGINEER with a record of all test data and the work completed.
15. Vacuum clean all electrical equipment prior to startup and acceptance.

D. Piping systems:

1. Provide the ENGINEER with 3-day advance notification in writing of test schedule.
2. Hydrostatically or pneumatically test all piping as required by the codes and contract documents.
3. After successful testing of the piping, slowly drain the system and then flush the system. Orifice plates shall be installed after testing. If installed with the piping, they will be removed and replaced with spacers or pipe spools of equal length prior to the pressure test.
4. Dewater the system, remove blind flanges, and perform tightness tests, as required by the ENGINEER.
5. Insulate or paint piping, flanges, threaded joints, or field welds after the specified testing of each item has been completed unless instructed otherwise by the ENGINEER.

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Testing, Training and Startup

Pump Station 26 Improvement Project

6. Leave exposed all welded joints (longitudinal, girth, and nozzle) in underground piping that have not been shop tested until the specified testing has been completed. After final testing of these joints, cover the system.
7. Prior to substantial completion and startup, check pipe hangers, supports, guides, and pipe specialties for the removal of all shipping and erection stops and for the correctness of the cold and hot settings for the design service. Make adjustments as necessary to obtain proper installation. Provide the ENGINEER with instructions for the hot settings.
8. As necessary during equipment testing and at the end of substantial completion and startup, clean or replace the screens and filter elements as appropriate for the filter type and service.
9. Prior to startup, verify, to the extent required by the ENGINEER, that specified valve packing has been provided on valves installed in the plant.
10. Prior to startup, install all of the valve and piping system identification labels.
11. Prior to startup, check and record the position of all process system valves.
12. Prior to startup, correct support, vibration, and thermal expansion problems detected during the preliminary equipment testing.
13. Prior to the startup, retorque all hot and cold service bolting as required to ensure a permanent and proper installation.
14. Prior to startup, demonstrate to the ENGINEER's satisfaction that each piping system (e.g., chemical, sample, utility, irrigation process, etc.) functions as designed and required by the Contract Documents.

+ + END OF SECTION + +

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Testing, Training and Startup

Pump Station 26 Improvement Project

SECTION 01 77 03

OPERATIONAL COMPLETION AND PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 GENERAL

- A. Closeout is hereby defined to include general requirements near the end of the Contract Time, in preparation for Final Completion, Final Payment, normal termination of Contract, occupancy by CITY and similar actions evidencing completion of the Work.
- B. Specific requirements for individual units of Work are specified in Sections of Divisions 2 through 43.
- C. Where a conflict exists between this section and the Contract Documents, the conditions in the Contract Documents take precedence.

1.2 CERTIFICATION OF SUBSTANTIAL COMPLETION

- A. Prior to requesting the ENGINEER's inspection for certification of each phase as Substantially Complete, the CONTRACTOR shall certify in writing that each phase of the Work is Substantially Complete and shall submit a list of known items still to be completed or corrected (Contractor's punchlist) prior to Contract Completion.
- B. The following items shall be completed:
 - 1. CITY has been advised of any pending insurance changeover requirements.
 - 2. Specific warranties, maintenance agreements, final certifications and similar documents have been submitted.
 - 3. All tools, spare parts, extra stocks of materials, and similar physical items have been delivered to CITY.
 - 4. Instruction of CITY's operation/maintenance personnel and start up testing has been completed.
 - 5. Submittal and acceptance of all O&M manuals.
 - 6. Changeover of locks to CITY's cores/keys.
- C. Punchlist:
 - 1. When the CONTRACTOR considers that the Work, or a portion or phase thereof which the CITY agrees to accept separately, is Substantially Complete, the CONTRACTOR shall certify in writing that the work is Substantially Complete and shall prepare and submit to the ENGINEER a comprehensive list of items to be completed or corrected prior to Contract Completion (punchlist).
 - 2. The ENGINEER may add additional work items to the punchlist.
 - 3. Failure to include an item on the punchlist does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.
 - 4. Upon receipt of the CONTRACTOR's punchlist, the ENGINEER will make an inspection to determine whether the Work or designated portion thereof is Substantially Complete.
 - 5. If the ENGINEER's inspection discloses any item, whether or not included on the CONTRACTOR's list, that is not in accordance with the requirements of the Contract Documents, the CONTRACTOR shall, upon notification by the ENGINEER and before

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Operational Completion and Project Closeout

Pump Station 26 Improvement Project

- an issuance of the Certificate of Operational Completion is provided, complete or correct such item.
6. The CONTRACTOR shall then submit a request for another inspection by the ENGINEER.
 7. When the Work or designated portion thereof is accepted by the ENGINEER to be Substantially Complete, the ENGINEER will prepare a Certificate of Operational Completion.
 8. The date of Operational Completion shall be the date of the ENGINEER's inspection and acceptance.

1.3 FINAL CLEANUP

- A. At completion, leave project clean and ready for use.
 1. Legally dispose of waste materials, debris and rubbish off the site.
 2. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed and enclosed surfaces.
 3. Repair, patch and touch up all affected curbs, gutters, and sidewalks to match adjacent surfaces.
 4. Broom clean paved surfaces, rake clean other surfaces of grounds. Vacuum clean all interior surfaces, rake clean other surfaces of grounds.

1.4 CONTRACT AS-BUILT DRAWINGS

- A. The CONTRACTOR shall prepare and submit Contract As-Built Drawings for the CITY.
 1. The CONTRACTOR shall make a record of changes during construction on prints of the Drawings provided by the CITY for this purpose (Contract As-Built Drawings) as described in Section 01 33 03, Submittal Procedures.
 2. ENGINEER will verify on a monthly basis and provide written verification that the Contract As-Built Drawings are being developed and kept updated prior to submitting CONTRACTOR'S progress payment to the CITY.
 3. The reproducible drawings on which changed conditions are recorded shall be returned to the ENGINEER prior to Final Completion.

1.5 WARRANTIES

- A. The Contract Documents cover the CONTRACTOR's responsibility to remedy defects due to faulty workmanship and materials.
- B. Special warranties are required by various Sections of these Specifications. Assemble written warranties, label and submit to the ENGINEER.
 1. Equipment warranties shall be written in the manufacturer's standard form and shall be countersigned by the Subcontractor or supplier and the CONTRACTOR.
 2. All other warranties shall be written on the Subcontractor's or supplier's letterhead and shall be countersigned by the CONTRACTOR.

1.6 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Spare parts and maintenance materials are required by various Sections of the Specifications.
 1. Parts and materials shall be packaged so as to preclude damage in normal handling and storage.

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Operational Completion and Project Closeout

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2. Packages shall be labeled with full description of contents and project name and clearly identified as to which item of equipment they belong to. CONTRACTOR shall maintain a spare parts inventory list which shall be provided to the CITY prior to Final Completion.
3. Submit packaged parts and materials to ENGINEER.
4. Submit the value of all spare parts.

1.7 FINAL INSPECTION

- A. Prior to requesting ENGINEER's final inspection for certification of Final Completion and Final Payment, complete the following and list known exceptions (if any):
 1. Submit Final Payment request with final releases and supporting documentation not previously submitted and accepted.
 2. Submit copy of final punchlist of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by ENGINEER.
 3. Submit Consent of Surety.
 4. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Certify in writing that the work has been completed in accordance with the Contract Documents, and request ENGINEER's final inspection.
- C. Reinspection:
 1. Within seven (7) days after receipt of the CONTRACTOR's notice that the work has been completed, including punchlist items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstance, the ENGINEER will reinspect the work.
 2. Upon completion of reinspection, ENGINEER will either prepare a certificate of Final Completion or advise the CONTRACTOR of work not complete or obligations not fulfilled as required for Final Completion.
 3. If necessary, inspection procedure will be repeated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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Operational Completion and Project Closeout

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

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BID SET

SECTION 02 41 03

DEMOLITION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. "Demolish": CONTRACTOR shall remove from the site as property of CONTRACTOR. Demolition includes disconnecting, removal, loading, repairs, cleanup, transportation, unloading, disposal permits and fees, disposal, and all other items required to remove the material from the site.
- B. "Salvage": CONTRACTOR shall remove from area of Work and place in location designated by ENGINEER. Equipment is property of CITY. Salvage includes disconnecting, removal, repairs, cleanup, loading, transportation, unloading, and all other items required to remove and relocate the material.
- C. "CITY to Remove": CITY will remove from area of Work prior to CONTRACTOR commencing demolition Work for this area.
- D. "Relocate": CONTRACTOR shall relocate material shown to new locations shown on Drawings or stated herein. Relocation includes disconnecting, removal, reconnecting, attaching, repairs, and all other items required to relocate material to new location.
- E. "Abandon": CONTRACTOR shall disconnect and leave in place as specified.
- F. "Materials": Any and all items and objects that are scheduled, specified, or shown to be demolished, salvaged, removed, relocated, or abandoned.

1.2 SUBMITTALS

- A. Submittals:
 - 1. Product Information: Grout, sealants, and bonding agents to be used for patching.
- B. Informational Submittals:
 - 1. Plan and schedule phased demolition, including limits of demolition, as part of and consistent with the progress schedule specified in Section 01 32 13, PROGRESS SCHEDULE.
 - 2. Methods of demolition and equipment proposed to demolish materials.
 - 3. Copies of any authorizations and permits required to perform Work.
 - 4. Copies of Hazardous Materials Inspection Reports.
 - 5. Repair procedures for demolition of materials beyond limits shown on Drawings.

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Demolition

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PART 2 - PRODUCTS

2.1 GENERAL

- A. CONTRACTOR shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the Work shown, specified herein, and as required to complete the Project.

PART 3 - EXECUTION

3.1 GENERAL

- A. Drawings are based on available information. The Work may differ slightly from what is shown. CONTRACTOR shall be responsible for determining the work required by inspecting the site.

3.2 SAFETY REQUIREMENTS

- A. All Work shall be done in conformance with all applicable rules and regulations pertaining to safety.
- B. Hazardous Materials:
 - 1. See General Conditions.
 - 2. Existing facilities, or portions thereof, to be demolished may contain hazardous materials such as asbestos cement piping, residual chemicals in existing or abandoned piping, lead-based paint, mercury seals, or other unknown hazardous materials.

3.3 SEQUENCE

- A. Be responsible for the sequence of Work.
- B. Conform to constraints as specified in Section 01 14 03, SPECIAL PROJECT CONSTRAINTS.

3.4 COORDINATION

- A. Coordination with ENGINEER:
 - 1. Only materials specified herein, shown on the Demolition Photographs or the Drawings, or approved by ENGINEER in the field shall be demolished, salvaged, removed, relocated, or abandoned.
 - 2. Verify materials scheduled to be demolished, salvaged, removed, relocated, or abandoned with ENGINEER prior to performing Work.
 - 3. Do not remove materials without prior approval of ENGINEER.
 - 4. Provide at least 3 working days' notice to ENGINEER prior to start of Work.
 - 5. Notify ENGINEER to turn off affected services or facilities before starting Work.
 - 6. Provide temporary services during interruptions to affected services or facilities as acceptable to ENGINEER.
 - 7. ENGINEER will indicate limits of Work if not clearly shown.
- B. Coordination with Utility Owners:

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Demolition

Pump Station 26 Improvement Project

1. Notify utility owners to turn off affected services or facilities before starting Work.
2. Provide not less than 72 hours notice to utility owners prior to shutdown, unless otherwise directed by utility owners.
3. Provide temporary services during interruptions to affected services or facilities as acceptable to utility owners.

3.5 LIMITS

- A. Drawings define minimum portions of materials to be demolished. Unless otherwise shown, rough cuts or breaks may be made to limits of demolition shown. If rough cuts or breaks are made exceeding limits shown, CONTRACTOR shall repair the cuts or breaks back to the dimensions shown on Drawings at CONTRACTOR's expense.
- B. If limits are not clear on the Drawings or Demolition Photographs, limits shall be as directed by ENGINEER.
- C. All areas not within the limits of demolition Work shown on the Drawings, or as specified herein, shall be left undisturbed, unless necessary for demolition of materials.

3.6 DEMOLITION

- A. General:
 1. Inspect condition of materials to be demolished prior to bidding to assess potential for salvage value.
 2. Remove all materials associated with existing equipment that is to be demolished.
 3. Materials within limits of demolition will become the property of CONTRACTOR.
 4. All materials from the demolition process shall be removed safely from the project site as soon as possible. They shall be disposed of in accordance with applicable federal, state, and city regulations. CONTRACTOR is responsible for determining these regulations and shall bear all costs associated with disposal of the materials.
- B. Pavement and Curbs:
 1. Provide saw cut at all concrete and pavement surfaces and curb removal limits and where neat connection lines are required.
 2. Surfaces exposed by demolition activities shall be repaired and finished to provide a uniform, smooth, level transition between adjacent surfaces.
- C. Concrete, CMU, and Reinforcing:
 1. In areas where concrete or CMU portions are to be removed from a structure, the edge of removal shall be cut with a concrete saw to leave a perpendicular edge or by core-drilling where a circular hole is required.
 2. Damaged concrete shall be removed to solid concrete. Damaged concrete shall include concrete that is soft, spalled, cracked, or otherwise damaged as determined by ENGINEER.
 3. Depth of removal shall be as determined by ENGINEER unless otherwise shown or specified.
 4. Reinforcing shall be cut and removed unless otherwise shown or instructed by ENGINEER.
 5. Spalled edges may be required to be re-sawn at the discretion of the ENGINEER.
 6. Protect adjacent structures and equipment from damage during Work.
 7. Exposed surfaces following demolition activities shall be repaired and finished to provide a uniform, smooth, and level transition between adjacent surfaces.

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Demolition

Pump Station 26 Improvement Project

8. Remove and repair designated cracked and damaged concrete areas shown in accordance with this section and Section 03 30 03, CAST-IN-PLACE CONCRETE.
- D. Concrete Embedded Items:
1. Except for core drills, demolish anchor bolts, reinforcing steel, conduit, and other materials that are concrete embedded to a minimum of 1 inch below final finished surface. For core drills, coat rebar exposed by core drilling with System No. 304 in accordance with Section 09 91 03, PAINTING.
 2. Plug empty pipes and conduits with fireproof sealant to maintain fire ratings for floors or walls.
 3. Patching:
 - a. Demolish damaged concrete. Damaged concrete shall be removed to solid concrete. Damaged concrete shall include concrete that is soft, spalled, cracked, or otherwise damaged as determined by ENGINEER.
 - b. Coat with approved bonding agent.
 - c. Patch with nonshrink, nonmetallic grout.
- E. Piping:
1. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.
 2. Gravity Services: Install concrete plugs, 5-foot minimum length.
- F. Utilities:
1. Excavate utility lines serving structures to be demolished.
 2. Demolish electrical, sanitary, and storm drainage lines serving structures to be demolished.
 3. Support or relocate utility lines exposed by Work.
 4. For water and gas lines to be demolished or capped and terminated, provide a permanent leakproof closure. Closure type shall be as recommended by utility owner.
- G. Electrical:
1. Remove conduits and wiring from materials to be demolished back to nearest junction box.
 2. For existing circuits to remain operational, intercept existing conduit at the most convenient location, or as shown, and splice and extend conduit to new location. Install new conductors as required to accomplish intended results. New conductors shall be continuous without splices between junction boxes.
 3. For existing circuits no longer needed, demolish conductors from conduits.
 4. Demolish all surface-mounted conduit which is no longer needed.
 5. For conduit below grade or concealed within walls, cap and abandon in place.

3.7 SALVAGE

- A. Salvage materials for CITY's own use where shown.
- B. Remove materials with extreme care so as not to damage.
- C. Promptly remove materials from Work area.
- D. Store materials in location designated by ENGINEER.
- E. Clean and protect materials from dust, dirt, natural elements, and store as directed.

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Demolition

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3.8 RELOCATION

- A. ENGINEER will determine condition of materials prior to removal.
- B. Remove all materials associated with items to be relocated.
- C. Existing materials shall not be damaged during removal.
- D. Properly store and maintain materials in same condition as when removed.
- E. Clean and protect materials from dust, dirt, natural elements, and store as directed.

3.9 ABANDONMENT

- A. Structures: Break holes into or core drill floor slabs, catch basins, and other below-grade concrete structures to be abandoned in place to allow water to freely migrate through.
- B. Piping and Conduits:
 - 1. General: Piping and conduits to be abandoned shall be capped with a watertight plug at demolished end in a manner that will prevent entrance of soil, groundwater, or moisture.
 - 2. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.
 - 3. Gravity Services: Install concrete plugs, 5-foot minimum length.

3.10 REPAIR AND REPLACEMENT

- A. Any damaged materials scheduled to be salvaged or relocated shall be repaired by the CONTRACTOR to the satisfaction of ENGINEER or replaced at the CONTRACTOR's expense.
- B. Any damage to areas not within the limits of demolition Work shown on the Demolition Photographs, Drawings, or as specified herein shall be repaired or replaced to original precontract conditions at the CONTRACTOR's sole expense.

3.11 DISPOSAL

- A. Dispose of materials offsite in licensed landfills and in accordance with all local, state, and federal regulations. CONTRACTOR is responsible for obtaining any and all necessary permits for disposal.

+ + END OF SECTION + +

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Demolition

Pump Station 26 Improvement Project

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City of Roseville
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SECTION 03 21 03
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Fabrication and placement of reinforcement including bars, ties and supports, and welded wire fabric for concrete, encasements and fireproofing.

1.2 SUBMITTALS

- A. Shop Drawings:
1. Manufacturer's specifications and installation instructions for all materials and reinforcement accessories.
 2. Drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315, Parts A and B. For walls, show elevations to a minimum scale of 1/4-inch to 1-foot. For slabs, show top and bottom reinforcing on separate plan views. Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement, unless otherwise noted. Keep splices to a minimum. Avoid splices in regions of maximum tension stresses whenever possible.
- B. Certificates: Submit one (1) copy of steel producer's certificates of mill analysis, tensile and bend tests for reinforcing steel.

1.3 QUALITY ASSURANCE

- A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
1. American Concrete Institute (ACI):
 - a. ACI 315, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
 - b. ACI 318, Building Code Requirements for Reinforced Concrete.
 2. Concrete Reinforcing Steel Institute:
 - a. Manual of Standard Practice, includes ASTM standards referred to herein.
- B. Allowable Placing Tolerances: Comply with ACI 318, Chapter 7 - Details of Reinforcement.

1.4 DELIVERY, HANDLING, AND STORAGE

- A. Deliver concrete reinforcement materials to the site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

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Concrete Reinforcing

Pump Station 26 Improvement Project

- B. Store concrete reinforcement material at the site to prevent damage and accumulation of dirt or excessive rust. Store on heavy wood blocking so that no part of it will come in contact with the ground.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60 for all non-welded bars. ASTM A706, Grade 60 for welded bars.
- B. Smooth Steel Dowels: ASTM A36.
 - 1. Epoxy coated conforming to ASTM A775 or ASTM A934.
- C. Mechanical Couplers: Reinforcement bars may be spliced with a mechanical connection. Provide a full mechanical connection which shall develop in tension or compression, as required, at least 125% of specified yield strength (f_y) of the bar in accordance with ACI 318 Section 12.14.3.2. The locations of the connections are subject to the approval of the ENGINEER.
 - 1. Dayton Superior Bar Lock S/CA Series.
 - 2. Or approved equal
- D. Threaded Splicing Systems: Dowel Bar Splicer System shall comply with ICC Report #4028. The completed splice shall exceed 160% of the specified yield strength (f_y) of the bar.
 - 1. Dayton Superior DB/DI parallel threaded couplers.
 - 2. Or approved equal
- E. Steel Wire: ASTM A82.
- F. Welded Wire Fabric: ASTM A185. Furnish in flat sheets, not rolls.
- G. Column Spirals: Hot-rolled rods for spirals, ASTM A615.
- H. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
 - 1. Use wire bar type supports complying with CRSI recommendations, except as specified below. Do not use wood, brick, or other unacceptable materials.
 - 2. For slabs on grade, use 5000 psi concrete blocks.
 - 3. At all formed surfaces, provide supports complying with CRSI "Manual of Standard Practice" as follows: Plastic protected or stainless steel legs.
 - 4. For all PVC lined concrete surfaces, provide supports complying with CRSI "Manual of Standard Practice" as follows: Either plastic or metal plastic protected legs.

2.2 FABRICATION

- A. General: Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI, "Manual of Standard Practice". In case of

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Concrete Reinforcing

Pump Station 26 Improvement Project

fabricating errors, do not re-bend or straighten reinforcement in a manner that will injure or weaken the material.

- B. Unacceptable Materials: Reinforcement with any of the following defects will not be permitted in the Work:
 - 1. Bar lengths, bends, and other dimensions exceeding specified fabrication tolerances.
 - 2. Bends or kinks not shown on approved Shop Drawings.
 - 3. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine substrate and conditions under which concrete reinforcement is to be placed with installer, and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

- A. Comply with the applicable recommendations of specified codes and standards, and CRSI, Manual of Standard Practice, for details and methods of reinforcement placement and supports.
- B. Clean reinforcement to remove loose rust and mill scale, oil, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Position, support, and secure reinforcement against displacement during formwork construction or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
 - 1. Place reinforcement to obtain the minimum concrete cover as shown. Arrange, space, and securely tie bars and bar supports together with 16-gauge wire to hold reinforcement accurately in position during concrete placement operations. Slab and wall bars shall be tied at every intersection around the periphery of the slab or wall and not less than every 48 inches in the field at walls and 60 inches in the field at slabs.
 - 2. Bar supports shall be placed no further than 4 feet apart in each direction. Supports must be completely concealed in the concrete and shall not discolor or otherwise mar the surface of the concrete.
 - 3. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
 - 4. Do not secure reinforcing steel to forms with wire, nails or other ferrous metal. Do not permit metal supports subject to corrosion to touch or be within the required clearance to formed or exposed concrete surfaces.
- D. Install welded wire fabric in as long lengths as practical. Lap adjoining pieces at least one full mesh and lace splices with wire. Do not make end laps midway between supporting beams or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps.

- E. Provide sufficient numbers of supports of strength required to carry reinforcement. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment or similar construction loads.
- F. Splices: Provide reinforcement lap splices by placing bars in contact, and tying tightly with wire. Comply with requirements shown for minimum lap of spliced bars.
- G. Mechanical Couplers in Lieu of Lap Splicing:
 - 1. Provide mechanical butt splices in accordance with the recommendation of the manufacturer of the mechanical splicing device. Butt splices shall develop 125 percent of the specified minimum yield tensile strength of the spliced bars or of the smaller bar in transition splices. Flame dry bars before butt splicing. Provide adequate jigs and clamps or other devices to support, align, and hold the longitudinal centerline of the bars to be butt spliced in a straight line.
- H. Reinforcement Around Openings: Place an equivalent area of steel around the pipe or opening and extend on each side sufficiently to develop bond in each bar. See the Details on Drawings for bar extension length each side of opening. Where welded wire fabric is used, provide extra reinforcing using fabric or deformed bars.
- I. Field Bending: Field bending of reinforcing steel bars is not permitted when rebending will later be required to straighten bars. Rebending of bars at the same place where strain hardening has taken place due to the original bend will damage the bar. Consult with the ENGINEER prior to any pour if the CONTRACTOR foresees a need to work out a solution to prevent field bending.

3.3 INSPECTION OF REINFORCEMENT

- A. Do not place concrete until the reinforcing steel is inspected and permission for placing concrete is granted by ENGINEER. All concrete placed in violation of this provision will be rejected.

++ END OF SECTION ++

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Concrete Reinforcing

Pump Station 26 Improvement Project

SECTION 03 30 03
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Place, finish, cure, strip, and repair concrete.

1.2 REFERENCES

- A. American Concrete Institute (ACI)
1. ACI 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
 2. ACI 214, Recommended Practice for Evaluation of Strength Test Results of Concrete.
 3. ACI 301, Specifications for Structural Concrete for Buildings, (includes ASTM Standards referred to herein).
 4. ACI 304, Guide for Measuring, Mixing, Transporting and Placing Concrete.
 5. ACI 305, Hot Weather Concreting.
 6. ACI 306, Cold Weather Concreting.
 7. ACI 309, Guide for Consolidation of Concrete.
 8. ACI 311, Guide for Concrete Inspection.
 9. ACI 318, Building Code Requirements for Reinforced Concrete.
 10. ACI 347, Guide to Formwork for Concrete
 11. ACI 350, Environmental Engineering Concrete Structures.

1.3 SYSTEM DESCRIPTION

- A. Class A Concrete shall be steel reinforced and includes:
1. Foundations.
 2. Walls.
 3. Slabs.
 4. Beams.
 5. Girders.
 6. Columns.
 7. Equipment bases.
 8. Pipe supports.
- B. Class B Concrete shall be placed without forms or with simple forms, with little or no reinforcing, and includes:
1. Concrete fill.
 2. Curbs and gutters.
 3. Sidewalks.
 4. Thrust blocks.
 5. Encasements.

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Cast-in-Place Concrete

Pump Station 26 Improvement Project

1.4 SUBMITTALS

- A. Samples: Submit samples of materials as specified and as otherwise may be requested by ENGINEER, including names, sources and descriptions.
- B. Product Data: Submit for approval the following:
 - 1. Manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
 - 2. List of concrete materials and concrete mix designs proposed for use. Include the results of all tests performed to qualify the materials and to establish the mix designs.
- C. Laboratory Test Reports: Submit copies of laboratory test reports for materials and mix design tests
- D. Delivery Tickets: Furnish to ENGINEER copies of all weighmaster certificate delivery tickets for each load of concrete delivered to the site. Provide items of information as specified in ASTM C94, Section 16. Delivery tickets shall be signed by a Certified Weighmaster.

1.5 QUALITY ASSURANCE

- A. Tests for Concrete Materials: Submit written reports to ENGINEER, for each material sampled and tested, prior to the start of Work. Provide the Project identification name and number, date of report, name of CONTRACTOR, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.
- B. If the concrete mix designs specified herein have not been used previously by the ready-mix supplier, mix proportions and concrete strength curves for regular cylinder tests shall be established by an approved ready-mix supplier or an independent testing laboratory based on the relationship of 7, 14 and 28 day strengths versus slump values of 2, 4 and 6 inches, all conforming to these Specifications. A laboratory, independent of the ready-mix supplier, shall be required to prepare and test all concrete cylinders. The costs for preparation of mix designs, not previously used by the ready-mix supplier, and testing of concrete and materials shall be borne by CONTRACTOR.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cement:
 - 1. Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P (MS).
 - 2. Do not use cement which has deteriorated because of improper storage or handling.
- B. Aggregates: ASTM C33 and as herein specified.

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1. Do not use aggregates containing soluble salts, substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
 2. Fine Aggregate: Provide clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances.
 3. Coarse Aggregate: Provide clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Coarse Aggregate Size: Size to be ASTM C33, Nos. 57 or 67, except that No. 467 may be used for footings, foundation mats and walls 16 inches or greater in thickness.
- C. Water: Clean, free from injurious amounts of oils, acids, alkalis, organic materials or other substances that may be deleterious to concrete or steel.

2.2 CONCRETE ADMIXTURES

- A. Provide admixtures produced by established reputable manufacturers, and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by ENGINEER.
- B. Air-Entraining Admixtures: ASTM C260.
1. Product and Manufacturer: Provide one of the following:
 - a. SIK AER, as manufactured by Sika Corporation.
 - b. MasterAir AE 200, as manufactured by BASF.
 - c. Daravair, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.
- C. High-Range Water-Reducing Admixture ("Superplasticizer"): ASTM C494, Type F/G.
1. Superplasticizer shall be used in all Class A Concrete. Do not use high range water-reducing admixture containing more chloride ions than are contained in municipal drinking water. Add only at the job site to concrete in compliance with the manufacturer's printed instruction.
 2. Product and Manufacturer: Provide one of the following:
 - a. Sikament 320, as manufactured by Sika Corporation.
 - b. MasterGlenium, as manufactured by BASF.
 - c. Daracem-100, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.
- D. Water-Reducing Admixture: ASTM C 494, Type A.
1. A water-reducing, aqueous solution of a modification of the salt of polyhydroxylated organic acids. Do not use admixture containing any lignin, nitrates or chlorides added during manufacture.
 2. Product and Manufacturer: Provide one of the following:
 - a. Eucon WR-75, as manufactured by The Euclid Chemical Company.
 - b. MasterPozzoloth, as manufactured by BASF.
 - c. WRDA series, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.

- E. Pozzolanic Admixtures:
1. Pozzolanic admixtures shall not be used in structures with concrete in contact with potable water, but may be used in other concrete.
 2. Provide Mineral admixtures, when used, meeting the requirements of ASTM C618 Class F.
 3. A substitution by weight, of the portland cement by pozzolan, so that the total tricalcium aluminate content of the resulting cement plus pozzolan is not greater than 8%, will be considered. However, the pozzolan shall not exceed 20% by weight of the cement plus pozzolan.
- F. Set-Control Admixtures: ASTM C494, as follows:
1. Type B, Retarding.
 2. Type C, Accelerating.
 3. Type D, Water-reducing and Retarding.
 4. Type E, Water-reducing and Accelerating.
 5. Type F, Water-reducing, high range admixtures.
 6. Type G, Water-reducing, high range, and retarding admixtures.
- G. Color Pigments:
1. Color pigments for colored concrete must be of iron oxides complying with ASTM C979.
- H. Calcium Chloride: Do not use calcium chloride in concrete, unless otherwise authorized in writing by ENGINEER. Do not use admixtures containing calcium chloride where concrete is placed against galvanized steel.

2.3 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes of concrete. Mixes subject to the following limitations:
1. Class A Concrete
 - a. Specified 28-day Compressive Strength: 4,000 psi minimum.
 - b. Air content: 5% $\pm$ 1%. For concrete placed at least 2 feet below the adjacent grade, an air-entraining admixture is not required unless otherwise specified.
 - c. Slump, before addition of superplasticizer: 3½ inches $\pm$ ½ inches
 - d. Slump, after addition of superplasticizer: 8-inch maximum

Coarse Aggregate Size	Cementitious Content-Pounds Per Cubic Yard	Water-Cement Ratio by Weight
¾"	625 min, 800 max	0.375
1"	600 min, 800 max	0.385
1 ½"	590 min, 800 max	0.400

- e. Use superplasticizer in all Class A Concrete. Use water reducers in combination with superplasticizers as required for mixing.
2. Class B Concrete
 - a. Specified 28-day Compressive Strength: 2,500 psi.
 - b. Maximum Water-Cement Ratio by Weight: 0.49.
 - c. Slump: 3-inch Minimum, 5-inch Maximum.

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- B. Use an independent testing facility acceptable to ENGINEER for preparing and reporting proposed mix designs.
- C. Admixtures:
 - 1. Use air-entraining admixture in all concrete, except interior slabs subject to abrasion, unless otherwise shown or specified. Add air-entraining admixture at the manufacturer's prescribed rate to result in concrete at the point of placement having air content within the prescribed limits.
 - 2. Use amounts of admixtures as recommended by the manufacturer for climatic conditions prevailing at the time of placing. Adjust quantities and types of admixtures as required to maintain quality control.
- D. Colored Concrete:
 - 1. The dosage of colored pigments for colored concrete must not exceed 10 percent by weight of cementitious materials in the concrete mix design.
 - 2. When test panels are specified, cementitious materials and aggregates from the same sources used in the authorized test panel must be used for the colored concrete in the completed work.

2.4 EPOXY BONDING AGENT

- A. For use in all dry-packed holes, concrete repair and for unplanned cold-joints.
- B. Provide an epoxy-resin bonding agent, two component, polysulfide type.
- C. Product and Manufacturer: Provide one of the following:
 - 1. Sikadur 32, Hi-Mod LPL, as manufactured by Sika Corporation.
 - 2. Eucopoxy LPL, as manufactured by the Euclid Chemical Company.
 - 3. Or approved equal.

2.5 CONCRETE CURING MATERIALS

- A. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 10 ounces per square yard and complying with AASHTO M182, Class 3.
- B. Moisture Retaining Cover: One of the following, complying with ASTM C171.
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. White burlap-polyethylene sheet.
- C. Curing Compound: ASTM C309 Type 1-D (water retention requirements):
 - 1. Product and Manufacturer: Provide one of the following:
 - a. Super Aqua Cure VOX, as manufactured by The Euclid Chemical Company.
 - b. Sealtight 1100, as manufactured by W.R. Meadows, Incorporated.
 - c. Or approved equal.
- D. Concrete Densifier and Chemical Hardener (Surface Applied)
 - 1. Product and Manufacturer: Provide one of the following:
 - a. LS, as manufactured by Consolideck.
 - b. Liqui-Hard, as manufactured by W. R. Meadows.

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- c. Duro-Nox LS, as manufactured by Nox-Crete.
- d. Or approved equal.

2.6 EMBEDDED ITEMS

- A. Provide and install items such as plates, angles, inserts, bolts and similar items not specified elsewhere under this Section. Carbon steel embedded items shall be hot dip galvanized after fabrication.
- B. Abrasive Stair Nosings
 - 1. Provide single-component stair nosing
 - 2. 3-inch width
 - 3. Aluminum Extrusion, with provisions for anchoring into concrete
 - 4. Extruded with multiple channels, dovetail shaped, filled with aluminum oxide grit set in epoxy resin
 - 5. Designed for installation before concrete sets, at the front edge of the stair
 - 6. Provide continuous stair nosings, width of stairway less 3 inches on each side. No splices in stair nosings.
 - 7. Manufacturers/Models:
 - a. Balco; Model R-315P
 - b. Babcock Davis; Model BSTTB
 - c. Or Equal

PART 3 - EXECUTION

3.1 CONCRETE MIXING

- A. Provide concrete produced by the ready-mixed process.
- B. Comply with the requirements of ASTM C 94, and as herein specified. Proposed changes in mixing procedures, other than herein specified, must be accepted by ENGINEER before implementation.
 - 1. Plant equipment and facilities: Conform to National Ready- Mix Concrete Association "Plant and Delivery Equipment Specification."
 - 2. Mix concrete in revolving type truck mixers that are in good condition and which produce thoroughly mixed concrete of the specified consistency and strength.
 - 3. Do not exceed the proper capacity of the mixer.
 - 4. Mix concrete for a minimum of two minutes after arrival at the job site, or as recommended by the mixer manufacturer.
 - 5. Mix concrete during transit only as recommended by the mixer manufacturer.
 - 6. Mix at proper speed until concrete is discharged.
 - 7. Maintain adequate facilities at the job site for continuous delivery of concrete at the required rates.
 - 8. Provide access to the mixing plant for ENGINEER at all times.

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3.2 TRANSPORTING CONCRETE

- A. Transport and place concrete not more than 90 minutes after water has been added to the dry ingredients or before 250 revolutions of the drum or blades, whichever occurs first.
- B. If an admixture is used to retard the set time and the concrete temperature does not exceed 85 degrees F, the travel and placing time may be extended to 120 minutes or 300 revolutions of the drum or blades, whichever occurs first.
- C. Take care to avoid spilling and separation of the mixture during transportation.
- D. Do not place concrete in which the ingredients have been separated.
- E. Do not retemper partially set concrete.
- F. Use suitable and approved equipment for transporting concrete from mixer to forms.

3.3 CONCRETE PLACEMENT

- A. General: Place concrete continuously so that no concrete will be placed on concrete, which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as specified in Section 03 15 16, Concrete Joints. Deposit concrete as nearly as practical in its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure that will cause segregation.
 - 1. Screed concrete that is to receive other construction to the proper level to avoid excessive skimming or grouting.
 - 2. Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the job site and dispose of it in an acceptable location.
 - 3. Do not place concrete until all forms, bracing, reinforcement, and embedded items are in final and secure position.
 - 4. Do not place in cold weather, unless adequate precautions are taken against frost action.
 - 5. Do not place footings, piers or pile caps on frozen soil.
 - 6. Unless otherwise approved, place concrete only when ENGINEER is present.
 - 7. Allow a minimum of 3 days of curing before placing new concrete against a slab or wall already in place.
- B. Concrete Conveying:
 - 1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods that will prevent segregation and loss of concrete mix materials.
 - 2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, ice and other deleterious materials.

3. Pumping concrete is permitted, however do not use aluminum pipe for conveying.
- C. Placing Concrete into Forms:
1. Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place concrete at such a rate that concrete that is being integrated with fresh concrete is still plastic.
 2. Do not permit concrete to free fall within the form from a distance exceeding 8 feet, except as noted in Section 03 11 03, Concrete Formwork. Use "elephant trunks" or "wall pipes" to prevent free fall and excessive splashing on forms and reinforcement.
 3. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
 4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the applicable recommended practices of ACI 309. Vibration of forms and reinforcing will not be permitted.
 5. Vibrators shall have a frequency of at least 8,000 vpm, with amplitude required to consolidate the concrete in the section being placed. At least one stand-by vibrator in operable condition shall be at the placement site prior to initiating placement of the concrete.
 6. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.
 7. The forms shall contain sufficient windows or be limited in height to allow visual observation of the concrete and the vibrator operators shall be required to see the concrete being consolidated to ensure good quality workmanship or the CONTRACTOR shall have a person who is actually observing the vibration of the concrete at all times and advising the vibrator operators of any changes needed to assure complete consolidation.
 8. Do not place concrete in beam and slab forms until the concrete previously placed in columns and walls is no longer plastic.
 9. Force concrete under pipes, sleeves, openings and inserts from one side until visible from the other side to prevent voids.
- D. Placing Concrete Slabs and Footings:
1. Deposit and consolidate concrete in a continuous operation, within the limits of construction joints, until the placing of a panel or section is completed.
 2. Consolidate concrete during placing operations using mechanical vibrating equipment, so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 3. Consolidate concrete placed in beams and girders of supported slabs, and against bulkheads of slabs on ground, as specified for formed concrete structures.
 4. Bring surfaces to the correct level. Smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the surfaces prior to beginning finishing operations.

E. Bonding for Next Concrete Pour: Per Section 03 15 16, Concrete Joints.

F. Quality of Concrete Work:

1. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.
2. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight.
3. Cut out and properly replace to the extent ordered by ENGINEER, or repair to the satisfaction of ENGINEER, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Thin patches or plastering will not be acceptable.
4. Repair all leaks through concrete, and cracks, holes or other defective concrete in areas of potential leakage and make watertight.
5. Repair, remove, and replace defective concrete as ordered by ENGINEER at no additional cost to CITY.

G. Cold Weather Placing:

1. Protect all concrete Work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.
2. When the air temperature has fallen to or may be expected to fall below 40°F, provide adequate means to maintain the temperature, in the area where concrete is being placed, at between 50°F and 70°F for at least seven days after placing. Provide temporary housings or coverings including tarpaulins or plastic film. Maintain the heat and protection, if necessary, to ensure that the ambient temperature does not fall more than 30°F in the 24 hours following the seven-day period. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.
3. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 55°F and not more than 85°F at point of placement.
4. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel, and adjacent concrete surfaces are entirely free of frost and ice before placing concrete.
5. When temperatures are expected to be below 32°F the night before the concrete is placed, then all reinforcing steel, forms and the ground shall be preheated, for a minimum of 12 hours, under a minimum temperature of 50°F.
6. Do not use salt and other materials containing antifreeze agents or chemical accelerators, or set-control admixtures, unless approved by ENGINEER, in mix designs.
7. Weather predictions made by the nearest NOAA station, and corrected for the local elevation and environmental conditions, may be used to determine whether cold weather protection shall be required. Thermometers will be used by ENGINEER and these readings shall determine whether cold weather protection shall be required and whether cold weather protection is adequate.

H. Hot Weather Placing:

1. When hot weather conditions exist as any combination of high air temperature, low relative humidity and wind velocity that would seriously impair the quality and

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strength of concrete, place concrete as recommended by ACI 305 and as herein specified.

2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 85°F. No concrete shall be placed if its temperature exceeds 90°F. Mixing water may be chilled, or chopped ice may be used, or liquid nitrogen may be added. Ice, when introduced into the mixer shall be in such form that it will be completely melted and dispersed throughout the mix at the completion of the mixing time. The addition of ice shall not increase the specified water to cement ratio.
3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
4. Thoroughly wet forms before placing concrete. Forms shall be free of standing water when concrete is placed.
5. Do not use set-control admixtures, unless approved by ENGINEER in mix designs.
6. Fog spray shall be used during finishing operations whenever necessary to avoid surface plastic shrinkage cracking. Fog spray shall also be used after finishing and before the specified curing is commenced to avoid surface plastic shrinkage cracking.
7. Obtain ENGINEER'S approval of other methods and materials proposed for use.

I. Removal of Forms:

1. The CONTRACTOR shall be responsible for all damage resulting from improper and premature removal of forms. Satisfy all applicable OSHA requirements with regard to safety of personnel and property.
2. Forms and shoring for elevated structural slabs or beams shall remain in place in accordance with ACI 318, Chapter 6, and until the concrete has reached a compressive strength equal to the specified 28-day compressive strength as determined by test cylinders unless noted otherwise in Section 03 11 03, Concrete Formwork. Removal of all supports prior to obtaining adequate field cured cylinder results and reshoring shall not be permitted.

J. Backfill Against Walls:

1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, the backfill shall be placed simultaneously on both sides to prevent differential pressures.
2. Since the walls of some structures are laterally restrained or supported by suspended slabs and/or slabs on grade and are not designed as cantilever retaining walls, the CONTRACTOR shall submit a schedule of wall shoring, bracing, and backfilling that is coordinated with the concrete curing, test cylinder reports and the design assumptions and obtain a review from the ENGINEER prior to proceeding.

K. Patching:

1. Patching of concrete shall provide an acceptable and structurally sound surface finish uniform in appearance or the CONTRACTOR shall upgrade the finish by other means at no additional cost.
2. Tie Holes: All tie holes, except where sealant is indicated, shall be filled with dry pack nonshrink grout. White cement shall be added as needed so the color of grout after curing matches the color of adjacent concrete. Tie holes shall be thoroughly sandblasted or roughened. Flush the patch area with water and allow to dry. Coat the surface of the existing concrete with an approved bonding agent prior to filling with

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nonshrink grout. Complete the repair in the time duration specified by the bonding agent manufacturer. The grout shall be rammed into place in thin layers and leveled to the plane of the surrounding concrete. Cure in accordance with the manufacturer's recommendations.

3. Defective Areas: Remove all defective concrete such as honeycombed areas and rock pockets out to sound concrete. Small shallow holes caused by air entrapment at the surface of the forms shall not be considered defects unless the amount is so great as to be considered not the standard of the industry and due primarily of poor workmanship. If chipping is required, the edges shall be perpendicular to the surface. Feather edges shall not be permitted. The defective area shall be filled with a nonshrink, nonmetallic, grout. Use an approved bonding agent on horizontal patches prior to placing nonmetallic, non shrink grout. Since some bonding agents may not be compatible for some vertical surface patching techniques, demonstrate all methods for repair of vertical surfaces using the actual materials, methods, and curing procedures required by the manufactures of the materials on the project site. The CONTRACTOR shall consult with representatives of the bonding agent manufacturer and the nonshrink grout manufacturer, and these representatives shall be onsite and assist in the demonstration.
4. Blockouts at Pipes or Other Penetrations: Conform to details shown or submit proposed blockouts for review. Use nonshrink, nonmetallic grout.

3.4 FINISH OF FORMED SURFACES

A. Rough Form Finish:

1. Standard rough form finish is with concrete surface having the texture imparted by the form material, with tie holes and defective areas repaired and patched with mortar of 1 part cement to 1½ parts sand & all fins and other projections exceeding ¼ inches in height rubbed down or chipped off.
2. Use rough form finish for the following:
 - a. Exterior vertical surfaces up to 1 foot below grade.
 - b. Interior exposed vertical surfaces of liquid containers up to 1 foot below liquid level.
 - c. Interior and exterior exposed beams and undersides of slabs.
 - d. Other areas shown.

B. Smooth Form Finish:

1. Produce smooth form finish (Class A, as defined by ACI-347) by selecting form materials that will impart a smooth, hard, uniform texture. Arrange panels in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas as above with all fins or other projections completely removed and smoothed.
2. Use smooth form finish for surfaces that are to be covered with a coating material. The material may be applied directly to the concrete or may be a covering bonded to the concrete such as waterproofing, damp proofing, painting or other similar system.

C. Smooth Rubbed Finish:

1. Provide smooth, rubbed finish to concrete surfaces which have received smooth form finish as follows:
 - a. Rubbing of concrete surfaces not later than the day after form removal.

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- b. Moistening of concrete surfaces and rubbing with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
 - 2. Except where surfaces have been previously covered as specified above, use smooth rubbed finish for the following:
 - a. Interior exposed walls and other vertical surfaces.
 - b. Exterior exposed walls and other vertical surfaces down to 1 foot below grade.
 - c. Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
 - d. Interior exposed vertical surfaces of liquid containers down to 1 foot below liquid level.
 - e. Other areas shown.
- D. Sack Rubbed Finish:
- 1. Before applying the sack-rubbed finish, fill all tie rod holes and large cavities and remove or correct all fins and irregularities as specified in the Smooth Rubbed Finish.
 - 2. Produce a sack rubbed finish by rubbing the concrete surface with a clean rubber float or wad of burlap and mortar. Use mortar made of premixed sacking mortar or one part portland cement and 1.5 parts, by volume, clean sand passing a No. 16 sieve, mixed with sufficient water to provide a consistency equal to that of a thick cream. Use the same type and brand cement as used in the concrete or colored premixed sacking mortar. The mortar finish color shall match the surrounding concrete. If necessary, blend white cement into the mortar to match the surrounding concrete surface.
 - 3. Thoroughly wet the surface of the concrete and then perform sack rubbing while the surface is damp but not wet. Thoroughly rub the mortar over the area with a rubber float or wad of burlap, filling all pits. While the mortar is still plastic in the pits, rub the surface with the rubber float or burlap using a dry mix of the above proportions, removing all excess plastic material and placing enough dry material in the pits to stiffen and solidify the mortar, then finish the mortar fillings flush with the surface. At the end of the rubbing, no mortar or material shall remain on the surface other than that within the pits.
 - 4. Ensure the completed surface is free of surface voids and blemishes, and is uniform in appearance and texture, except for the difference in texture between the filled voids and the remainder of the surface.
 - 5. A thorough wash-down with stiff bristle brushes shall follow the final bagging or stoning operation. No extraneous materials shall remain on the surface of the wall. The wall shall be sprayed with a fine fog spray periodically to maintain a continually damp condition for at least 3 days after the application.
 - 6. Use a sack rubbed finish for the following areas or as indicated in the Drawings:
 - a. Interior exposed walls and other vertical surfaces.
 - b. Exterior exposed walls and other vertical surfaces down to 1 foot below grade.
 - c. Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
 - d. Or other areas shown.
- E. Related Unformed Surfaces:
- 1. At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a texture matching the adjacent formed surfaces. Continue the final surface treatment of formed surfaces uniformly across the adjacent unformed surfaces, unless otherwise shown.

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3.5 MONOLITHIC SLAB FINISHES

A. Float Finish:

1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently. Check and level the surface plane to a tolerance not exceeding $\frac{1}{4}$ inch in 10 feet when tested with a 10-foot straightedge. Cut down high spots and fill all low spots. Uniformly slope surface to drains as shown. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.
2. Use float finish for the following:
 - a. Interior horizontal surfaces of liquid containers, except those to receive grout topping.
 - b. Exterior below grade horizontal surfaces.
 - c. Surfaces to receive additional finishes, except as shown or specified.

B. Trowel Finish:

1. After floating, begin the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.
2. Consolidate the concrete surface by the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding $\frac{1}{8}$ inch in 10 feet when tested with a 10-foot straight edge. Grind smooth surface defects that would telegraph through applied floor covering system.
3. Use trowel finish for the following:
 - a. Interior exposed slabs, unless otherwise shown or specified.
 - b. Slabs to receive resilient floor finishes.

C. Non-Slip Broom Finish:

1. Immediately after trowel finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use fiber-bristle broom, unless otherwise directed. Coordinate the required final finish with ENGINEER before application.
2. Use Non-Slip Broom Finish for the following:
 - a. Exterior exposed horizontal surfaces subject to light foot traffic.
 - b. Interior and exterior concrete steps and ramps.
 - c. Horizontal surfaces which will receive a grout topping or a concrete equipment base slab.

3.6 CONCRETE CURING AND PROTECTION

A. General:

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperature and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.
2. Start initial curing after placing and finishing concrete as soon as free moisture and bleed water sheen has disappeared from the concrete surface. Keep concrete continuously moist during initial curing.

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3. Begin final curing procedures immediately following initial curing and before the concrete has dried. The total curing duration shall not be less than ten (10) days. For concrete sections over 30-inch thick, continue curing for an additional seven (7) days, minimum. Avoid rapid drying at the end of the final curing period.
- B. Use one of the following methods as approved by ENGINEER:
1. Walls:
 - a. Method 1: Leave concrete forms in place and keep entire surfaces of forms and exposed concrete surfaces wet for the entire curing duration. If forms are loosened and the contact between the concrete surface and forms is broken then the entire wall shall be wet cured.
 - b. Method 2: Continuously sprinkle or fog with water 100 percent of the exposed surfaces for the curing duration immediately after removal of forms.
 - c. Method 3: When approved by ENGINEER and as noted below, apply curing compound immediately after removal of forms.
 2. Slab and Curbs:
 - a. Method 1: Protect surface by water ponding for the entire curing duration.
 - b. Method 2: Cover concrete surfaces and exposed edges with the specified absorptive cover, thoroughly saturating the cover with water, and keeping the absorptive cover continuously wet with sprinklers or porous hoses during the curing duration. Lap adjacent absorptive cover sections 3-inches minimum.
 - c. Method 3: Cover the concrete surfaces and exposed edges with the specified moisture-retaining cover during the curing duration. Seal edges and seams with waterproof tape, adhesive or sand berm. Water must be introduced between the moisture-retaining cover and the concrete surface whenever moist drops cannot be detected on the concrete side of the cover or the concrete surface is noticeably dry.
 - d. Method 4: Cover all exposed surfaces with 1-inch minimum layer of wet sand, earth, or sawdust and keep continuously wet for the curing duration.
 - e. Method 5: Continuously sprinkle or fog exposed surfaces for the curing duration.
 - f. Method 6: When approved by ENGINEER and as noted below, apply liquid curing compound immediately after final finishing when surface will no longer be damaged by traffic necessary to apply curing compound.
- C. Liquid curing compound:
1. Apply the specified curing compound to concrete surfaces when permitted by ENGINEER. Slabs to receive terrazzo floors, concrete/grout topping or ceramic tile, concrete of water bearing structures, and concrete that will receive coatings shall not be cured with liquid curing compound. The compounds shall be applied by power spray equipment in accordance with the manufacturer's directions. Recoat areas, which are subjected to heavy rainfall within 3 hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period. Remove curing compound from exposed surfaces at the end of the curing duration. For concrete surfaces, which will be in contact with potable water, the manufacturer shall certify that the curing compound used is NSF 61 approved.
- D. Temperature of Concrete During Curing:
1. When the nighttime low temperature may drop to 40°F or below, maintain the concrete temperature between 50°F and 70°F continuously throughout the curing period, by heating, covering, insulation or housing as required.

2. When the daytime high temperature may rise to 90°F or above, maintain the concrete temperature at a minimum and reduce temperature variations by providing moist curing continuously for the concrete curing period.
 3. During either of the conditions specified above, the minimum curing time shall be 10 days (240 hours), after which coverings, housings, and insulation shall remain on the work for an additional 3 days, to allow gradual temperature equalization with the atmosphere.
- E. Protection from Mechanical Injury: During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations.

3.7 FIELD QUALITY CONTROL

- A. The CONTRACTOR will employ a testing laboratory to perform field quality control testing. ENGINEER will direct the number of tests and cylinders required. Furnish all necessary assistance required by ENGINEER.
- B. Quality Control Testing During Construction:
1. Perform sampling and testing for field quality control during the placement of concrete, as follows:
 - a. Sampling Fresh Concrete: ASTM C172.
 - b. Slump: ASTM C143; one test for each concrete load at point of discharge; and one for each set of compressive strength test specimens.
 - c. Air Content: ASTM C231; one for the first concrete load, and one for every two concrete loads thereafter, or when required by an indication of change. Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.
 - d. Compressive Strength Tests: ASTM C39; one set of 4 standard compression cylinders for each 100 cubic yards or fraction thereof, of each mix design placed in any one day; 1 specimen tested at 7 days, and 2 specimens tested at 28 days, 1 held. Cast, store and cure specimens as specified in ASTM C31.
 - 1) Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.
 - 2) Concrete that does not meet the strength requirements is subject to rejection and removal from the Work, or to other such corrective measures as directed by ENGINEER, at the expense of CONTRACTOR.
 - e. Concrete Temperature: Test each time a slump test is made.
 2. Where questionable field conditions may exist during placing concrete or immediately thereafter, strength tests of specimens cured under field conditions will be required by ENGINEER to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded at the same time and from the same samples as the laboratory cured specimens.
 - a. Provide improved means and procedures for protecting concrete when the 28-day compressive strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders.
 - b. When laboratory-cured cylinder strengths are appreciably higher than the minimum required compressive strength, field-cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.

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3. The testing laboratory shall submit certified copies of test results directly to ENGINEER and CONTRACTOR after tests are made.
- C. Evaluation of Quality Control Tests:
1. Do not use concrete delivered to the final point of placement that has slump or temperature outside the specified values, nor that which is older than specified in section 3.2.
 2. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of three consecutive compressive strength tests results equal or exceed the 28 day design compressive strength of the type or class of concrete; and, no individual strength test falls below the required compressive strength by more than 500 psi.
 3. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to replacement, reconstruction or to other action approved by ENGINEER.
- D. Testing Concrete Structure for Strength:
1. When there is evidence that the strength of the in-place concrete does not meet specification requirements, provide the services of a concrete testing service to take cores drilled from hardened concrete for compressive strength determination at no additional expense to CITY. Provide tests complying with ASTM C42 and the following:
 - a. Take at least three (3) representative cores from each member or suspect area at locations directed by ENGINEER.
 - b. Strength of concrete for each series of cores will be considered satisfactory if their average compressive strength is at least 85% and no single core is less than 75% of the 28 day required compressive strength.
 - c. Report test results, in writing, to ENGINEER on the same day that tests are made. Include in test reports the Project identification name and number, date, name of CONTRACTOR, name of concrete testing service, location of test core in the structure, type or class of concrete represented by core sample, nominal maximum size aggregate, design compressive strength, compression breaking strength and type of break (corrected for length-diameter ratio), direction of applied load to core with respect to horizontal plane of the concrete as placed, and the moisture condition of the core at time of testing.
 2. Fill core holes solid with non-shrink, high strength grout, and finish to match adjacent concrete surfaces.
- E. Water Leakage Tests for All Water-Holding Structures:
1. All water-holding structures shall be subjected to leakage tests after the concrete has been cured and obtained its design strength, and before backfill, brick facing, or other work which will cover the concrete surfaces of the walls is begun. Water leakage tests shall be conducted by the CONTRACTOR as follows:
 - a. All water-holding structures shall be filled with water to the maximum liquid level shown on the Drawings prior to leak testing at a rate less than 4 ft/hr. After these structures have been kept full for 3-days, it will be assumed for the purpose of the test that the absorption of moisture by the concrete in the basin is complete. All valves and gates to the structure shall then be closed and the change in water surface measured over a 48-hour period. The vertical distance to the water surface shall be measured to within 1/16-inch from a fixed point on the

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containment structure above the water surface. Measurements shall be recorded at 24-hour intervals.

- b. During the test period, all exposed portions of the structure shall be examined for dampness or leaks and all visible leaks or damp spots shall be marked; such leaks or damp spots shall be later patched or corrected in a manner acceptable to the ENGINEER prior to additional leakage testing. If the drop in water surface in the 48-hour period exceeds 0.05% of the normal volume of liquid contained in the water-holding structure, after accounting for evaporation, precipitation and temperature in open basins, or if damp spots or any seepage is present on the walls or other areas exposed to view where moisture can be picked up on a dry hand, the leakage shall be considered excessive and the leakage test will be considered to have failed. A floating, restrained, partially filled, calibrated, open container for evaporation and precipitation measurement should be positioned in open containment structures, and the water level in the container recorded. Determination of evaporation by a shallow pan-type measuring device is discouraged as the heating of the bottom of a shallow pan can cause accelerated evaporation of water when compared with that taking place from a deep containment structure.
 - 1) Wet areas on top of wall footings shall not be considered cause of a qualitative failure of the leakage test unless the water can be observed to be flowing.
- c. If the leakage is excessive, and if damp spots and observed seepage is present on exposed surfaces, the water-holding structure shall be drained, all leaks and damp spots previously marked shall be patched, and the necessary repairs made, and the basin shall be retested. The CONTRACTOR's method of repair shall be subject to the requirements of these specifications and submitted for review and approval by the ENGINEER.
- d. The water-holding structure shall then be refilled and again tested for leakage and this testing and repair process shall be repeated as many times as necessary until the leakage test passes. This process shall be continued until the drop in water surface in specified test period with the basin full is less than the quantity specified above and all damp spots and seepage disappears when the structures are full of water. All repairs of faulty workmanship and materials, and additional tests, shall be made by the CONTRACTOR in an acceptable manner, at no additional cost to the CITY. Both the correction for excessive leakage and the removal of the damp or wet spots on exposed surfaces shall be required to pass the leakage test.
- e. The purpose of this test is to determine the integrity of the finished concrete and to show that the exposed wall surfaces are visually acceptable. Therefore, all other equipment, e.g., stop gates, sluice gates, etc. or temporary bulkheads, should be made watertight prior to the test.
- f. As an alternative to having watertight bulkheads, gates or valves, the CONTRACTOR shall accurately measure the leakage through gates, valves, and bulkheads with methods acceptable to the ENGINEER.
- g. An assumed leakage through gates and valves based on the manufacturer's recommendations is not acceptable.

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3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for the passage of work by other contractors, unless otherwise shown or directed, after the work of other contractors is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide all other miscellaneous concrete filling shown or required to complete the Work.
- B. Curbs:
 - 1. Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
 - 2. Exterior curbs shall have rubbed finish for vertical surfaces and a broomed finish for top surfaces.
- C. Equipment Bases:
 - 1. Unless specifically shown otherwise, provide concrete bases for all pumps and other equipment. Construct bases to the dimensions shown, or as required to meet manufacturers requirements and drawing elevations. Where no specific elevations are shown, bases shall be 6-inches thick and extend 3-inches outside the metal equipment base or supports. Bases to have smooth trowel finish, unless a special finish such as terrazzo, ceramic tile or heavy duty concrete topping is required. In those cases, provide appropriate concrete finish.
 - 2. Include all concrete equipment base work not specifically included under other Sections.
 - 3. In general, place bases up to 1-inch below the metal base. Properly shim equipment to grade and fill 1-inch void with non-shrink grout as specified in Section 03 60 03, Grout.
- D. Installation of embedded items
 - 1. Install all embedded items prior to concrete placement, or, if necessary, as soon after concrete placement as possible, before concrete is set.
 - 2. Use temporary support and bracing to keep embedded items in place while concrete cures.
 - 3. Protect all embedded items from damage during concrete installation.

3.9 CONCRETE REPAIRS

- A. Repair of Formed surfaces:
 - 1. Repair exposed-to-view formed concrete surfaces that contain defects which adversely affect the appearance of the finish. Surface defects that require repair include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolts; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.
 - 2. Repair concealed formed concrete surfaces that may contain defects that adversely affect the durability of the concrete. Surface defects that require repair include cracks in excess of 0.01-inch wide, cracks of any width and other surface deficiencies which penetrate to the reinforcement or completely through non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls except minor breakage at corner.

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3. Repair structural cracks and cracks in water-holding structures.
- B. Method of Repair of Formed Surfaces:
1. Repair and patch defective areas with cement mortar immediately after removal of forms and as directed by ENGINEER.
 2. Cut out honeycomb, rock pockets, voids over ½-inch diameter, and holes left by tie rods and bolts, down to solid concrete but, in no case, to a depth of less than 1-inch. Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water, and brush-coat the area to be patched with the specified bonding agent.
 - a. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, the patching mortar color will match the color of the surrounding concrete. CONTRACTOR shall impart texture to repaired surfaces to match texture of existing adjacent surfaces. Provide test areas at inconspicuous locations to verify mixture, texture and color match before proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.
 3. Cracks which require repair shall be pressure grouted, epoxy injected, using one of the following in accordance with Section 03 01 06, Crack Repair by Epoxy Injection. Apply in accordance with the manufacturer's directions and recommendations.
 - a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation Company.
 - b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
 - c. Or approved equal.
 4. Fill holes extending through concrete by means of a plunger-type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure completely filling.
 5. Sandblast exposed-to-view surfaces that require removal of stains, grout accumulations, sealing compounds, and other substances marring the surfaces. Use sand finer than No. 30 and air pressure from 15 to 25 psi.
- C. Repair of Unformed Surfaces:
1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
 2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.
 3. Repair finish of unformed surfaces that contain defects which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01-inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
 4. Repair structural cracks and cracks in water-holding structures.
- D. Methods of Repair of Unformed Surfaces:
1. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.

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2. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Apply in accordance with the manufacturer's directions and recommendations. Use one of the following:
 - a. Euco Poly-Patch, as manufactured by The Euclid Chemical Company.
 - b. Sikatop 122, as manufactured by Sika Corporation.
 - c. Or approved equal.
 3. Repair defective areas, except random cracks and single holes not exceeding 2-inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least $\frac{3}{4}$ -inch clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with the specified bonding agent. Place patching concrete before grout takes its initial set. Mix patching concrete of the same materials and proportions to provide concrete of the same type or class as the original adjacent concrete. Place, compact and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
 4. Repair isolated random cracks, as approved by ENGINEER, and single holes not over 2-inch diameter, by the dry-pack method. Groove the top of cracks, and cut out holes to sound concrete and clean of dust, dirt and loose particles. Dampen all cleaned concrete surfaces and brush with the specified bonding agent. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of 1 part portland cement to 2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.
 5. Cracks which extend through the full member section, or any cracks determined by ENGINEER to require pressure grouting repair, shall be pressure grouted, epoxy injected, using one of the following in accordance with Section 03 01 06, Crack Repair By Epoxy Injection. Apply in accordance with the manufacturer's directions and recommendations.
 - a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation.
 - b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
 - c. Or approved equal.
 6. Assure that surface is acceptable for flooring material to be installed in accordance with manufacturer's recommendations.
- E. Other Methods of Repair:
1. Repair methods not specified above may be used if approved by ENGINEER.

++ END OF SECTION ++

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SECTION 03 60 03

GROUT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes epoxy, non-metallic, non-shrink, and ordinary Portland cement-sand grouts.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C33, Standard Specification for Concrete Aggregates.
 - 2. ASTM C150, Standard Specification for Portland Cement.
 - 3. ASTM C595, Standard Specification for Blended Hydraulic Cements.
 - 4. ASTM C1107, Standard Specification for Packaged Dry, Hydraulic-Cement Grout.

1.3 SYSTEM DESCRIPTION

- A. Furnish ordinary cement-sand grout for the following:
 - 1. Foundation grout.
 - 2. Construction joint grout.
 - 3. As shown in the Drawings.
- B. Furnish non-shrink, non-metallic grout for the following:
 - 1. Equipment bases, 25 hp or less.
 - 2. Base plates.
 - 3. Guardrail and railings.
 - 4. Through-bolt and form tie openings.
 - 5. As shown in the Drawings.
- C. Furnish epoxy grout for the following:
 - 1. Equipment bases, 26 hp or more and/or sole plates with vibration, thermal movement, etc.
 - 2. Blockouts for gate guides.
 - 3. Retrofit waterstop installation.
 - 4. As shown in the Drawings.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's specifications and installation instructions for all proprietary materials.
 - 2. Proposed method for keeping existing concrete surfaces wet prior to placing grout.
 - 3. Forming method for fluid grout placements.
 - 4. Curing method for grout.
- B. Laboratory Test Reports and Certificates:

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1. For proprietary materials, submit copies of reports on quality control tests.
2. Submit certification that materials meet specification requirements for nonproprietary materials.
3. For ordinary cement-sand grout, copies of grout mix design and laboratory strength test reports.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of Materials: Deliver grout materials from manufacturers in unopened containers and bearing intact manufacturer's labels.
- B. Storage of Materials: Store grout materials in a dry shelter and protected from moisture.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. High-Strength Epoxy Grout.
 1. Use 100% solids, prepackaged, solvent-free, moisture insensitive, high-strength epoxy grout.
 2. Product and Manufacturer: Provide one of the following:
 - a. E³-HP, as manufactured by The Euclid Chemical Company.
 - b. Sikadur 42 Grout Pak, as manufactured by Sika Corporation.
 - c. Five Star HP Epoxy Grout by Five Star Products, Incorporated.
 - d. Or approved equal.
- B. Non-shrink, Non-metallic Grout:
 1. Prepackaged non-staining cementitious grout which shall meet the minimum requirements of ASTM C1107 and requiring only the addition of water at the jobsite.
 2. Product and Manufacturer: Provide one of the following:
 - a. NS, as manufactured by The Euclid Chemical Company.
 - b. Five Star Grout, as manufactured by Five Star Products, Incorporated.
 - c. Sika Grout 212, as manufactured by Sika Corporation.
 - d. Or approved equal.
- C. Ordinary Cement-Sand Grout: Prepare design mix for ordinary cement grout.
 1. Cement: Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P.
 2. Aggregates: ASTM C33 and as herein specified.
 - a. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
 - b. Fine Aggregate: Clean, sharp, natural sand, free from loam, clay, lumps or other deleterious substances.
 - 1) Dune sand, bank run sand and manufactured sand are not acceptable.
 - c. Coarse Aggregate: Coarse aggregate not permitted.
 3. Admixtures: Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless

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otherwise authorized in writing by ENGINEER. Refer to Section 03 30 03, Cast-In-Place Concrete, for additional admixture requirements.

4. Proportioning and Design of Mixes: Mixes are subject to the following limitations:
 - a. Specified 28-day Compressive Strength: 4,000 psi.
 - b. Minimum amount of water necessary for the mixture to flow under its own weight.
 - c. Fine Aggregate meeting ASTM C33.
 - d. Air Content Percentage: $\pm 1.5\%$.
 - e. Minimum Cement Content in Pounds per Cubic Yard: 658.
 - f. Slump at point of placement: 5 inch ± 1 inch.
5. Proportion mix by either laboratory trial batch or field experience methods, using materials to be employed on the Project for grout required. Comply with ACI 211.1 and provide a complete report, from an independent testing laboratory, to ENGINEER, at least 30 days prior to start of Work. Do not begin grout production until ENGINEER has approved mix.
6. Laboratory Trial Batches: When laboratory trial batches are used to select grout proportions, prepare test specimens, and conduct strength tests as specified in ACI 301, Chapter 3 - Proportioning.
7. Field Experience Method: When field experience methods are used to select grout proportions, establish proportions as specified in ACI 301, Chapter 4.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the substrate and conditions under which grout is to be placed with installer and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

- A. General:
 1. Mix, place and cure grout as shown and in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications, do not proceed until ENGINEER provides clarification.
 2. Manufacturers of proprietary products shall make available upon 72 hours notification the services of a qualified, full time employee to aid in assuring proper use of the product under job conditions. The cost of this service, if any, shall be borne by CONTRACTOR.
 3. When placing grout conform to temperature and weather limitations in Section 03 30 03, Cast-In-Place Concrete.
- B. Through-bolt and form-tie holes: Fill space with dry pack dense grout hammered in with steel tool and hammer. Coordinate dry pack dense grout application with bonding agent in Section 03 15 16, Concrete Joints.
- C. Columns, Beams and Equipment Bases: Prepare concrete surface by sandblasting, chipping, or by mechanical means to remove any soft material prior to setting base plates and machinery. After shimming columns, beams and equipment indicated to be

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grouted on the plans to proper grade, securely tighten anchor bolts. Properly form around the base plates allowing sufficient room around the edges for placing the grout. Adequate depth between the bottom of the base plate and the top of concrete base must be provided to assure that the void is completely filled with grout.

- D. Guardrails and Railings: After posts and rails have been properly inserted into holes or sleeves, fill the annular space between posts and cast-in-place sleeves and/or below base plates with non-shrink grout. Bevel grout at juncture with post so that moisture flows away from posts.
- E. Construction Joints: Ordinary cement-sand grout may be used in place of mortar over the contact surface of the old concrete at the interface of horizontal construction joints as outlined in Section 03 15 16, Concrete Joints, and Section 03 30 03, Cast-In-Place Concrete, of these Specifications.
- F. Curing: Cure all grout in accordance with manufacturer's written instructions. Wet cure ordinary cement-sand grout and non-shrink non-metallic grout for a minimum of three (3) days unless directed otherwise by the ENGINEER.

++ END OF SECTION ++

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City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 05 05 06

ANCHORS, INSERTS, AND DOWELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes all post-installed anchors and inserts required to anchor parts of the Work to supporting concrete or masonry construction, and plaster. This Section also includes adhesives for anchoring reinforcing dowels into existing concrete.

1.2 REFERENCES

- A. American Society for Testing and Materials
 - 1. ASTM A36, Standard Specification for Carbon Structural Steel.
 - 2. ASTM A320, Standard Specification for Alloy-Steel and Stainless Steel Bolting for Low-Temperature Service.
 - 3. ASTM D746, Standard Test Method for Brittleness of Temperature of Plastics and Elastomers by Impact
 - 4. ASTM D1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique
 - 5. ASTM D1525, Standard Test Method for Vicat Softening Temperature of Plastics
- B. 2018 International Building Code (IBC)
- C. American Concrete Institute (ACI)
 - 1. ACI 355.2, Qualification of Post-Installed Mechanical Anchors in Concrete
 - 2. ACI 355.4, Qualification of Post-installed Adhesive Anchors in Concrete

1.3 SYSTEM DESCRIPTION

- A. Provide the size, type, and length of anchor shown on the drawings or, if not shown, as specified in the detailed sections of these specifications.
- B. When the size, length or load carrying capacity of an anchor bolt, expansion anchor, toggle bolt, or concrete insert is not shown or specified, provide the size, length and capacity required to carry the design load times a minimum safety factor of 4.
- C. For equipment anchors, if the design load is not specified by the manufacturer, provide anchors of diameter no less than the diameter of the hole minus 3/16 inch. When the design load is not specified by the manufacturer, provide structural calculations.

1.4 SUBMITTALS

- A. Product Data: Submit for approval copies of material certification, manufacturer's specifications, load tables, dimension diagrams and installation instructions for the devices.

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- B. Installer's Qualifications: When installing adhesive anchors subject to sustained tension loading or when specifically noted in the Drawings, submit for approval copies of the installer's qualifications certified by the ACI/CRSI Adhesive Anchor Installer Certification program.

1.5 QUALITY ASSURANCE

- A. Post-installed concrete anchors shall be ICC approved for seismic applications in cracked concrete and prequalified in accordance with ACI 355.2 or ACI 355.4.

PART 2 - PRODUCTS

2.1 ANCHOR BOLTS

- A. Non-submerged Use in areas of wet use, washdown areas, or areas outside heated buildings:
1. Stainless steel Type 316, unless otherwise shown.
 2. Diameter, Length and Bend Dimensions: As required by equipment or machinery manufacturer. Unless otherwise required, provide 3/4-inch minimum diameter by 12-inches long and other geometry as shown.
 3. Furnish A320 nuts and washers of same material for each bolt, unless otherwise shown.
 4. Provide sleeves as required or as shown for location adjustment.
- B. Submerged Use:
1. Submerged use is defined as any connection 1 foot 6 inches below the normal water surface elevation in a water holding basin.
 2. As specified for nonsubmerged use, for equipment, machinery or other connections except as follows:
 - a. Coating of anchor bolt threads is not required.
 - b. Where threads are covered with fusion bonded coating, provide nut of proper size to fit and provide connection of equal strength to embedded bolt.
- C. For anchoring fabricated metalwork, structural steel, or other components where connections will be protected or dry:
1. Galvanized Steel, 36 ksi, minimum.
 2. Minimum Size: 3/4-inch diameter by 12-inch long, unless otherwise shown.
 3. At base plates with grout pads, furnish two nuts and two washers per bolt of same material as bolt, unless otherwise shown.

2.2 ANCHOR BOLT SLEEVE

- A. High Density Polyethylene Plastic:
1. Single unit construction with deformed sidewalls such that the concrete and grout lock in place.
 2. The top of the sleeve shall be self-threading to provide adjustment of the threaded anchor bolt projection.
 3. Material requirements shall conform to the following:
 - a. Plastic: High density polyethylene.

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- b. Density: 0.956, ASTM D1505.
- c. Vicant Softening Point: 256°F, ASTM D1525
- d. Brittleness Temperature: -180°F, ASTM D746

- B. Fabricated Steel Sleeve:
 - 1. Material: A36 steel.
 - 2. Dimensions, welding, and sizes as shown.

2.3 STAINLESS STEEL FASTENERS LUBRICANT (ANTISEIZING)

- A. Provide for stainless steel nuts and machined bolts, anchor bolts, concrete anchors, and all other threaded fasteners.
- B. Lubricant shall contain substantial amounts of molybdenum disulfide, graphite, mica, talc, or copper as manufactured by:
 - 1. Loc Tite Co., Permatex.
 - 2. Or equal

2.4 CONCRETE INSERTS

- A. For vertical support of grating or floor plate, provide cast-in metal fabrications as shown.
- B. Except as permitted below, or as otherwise shown, provide malleable iron inserts for hanging piping and conduit from concrete ceilings and soffits. Comply with Federal Specification WW-H-171-E (Type 18). Provide those recommended by the manufacturer for the required loading.
- C. Obtain inserts in sufficient time so as not to delay concrete or masonry work.
- D. Product and Manufacturer: Provide inserts of one of the following:
 - 1. Figure 282, as manufactured by Anvil/Grinnell.
 - 2. Sharktooth Insert, as manufactured by Hohmann and Barnard, Incorporated.
 - 3. Or equal.

2.5 ADHESIVE (EPOXY) ANCHORS AND DOWELS

- A. Provide adhesive anchors where specifically shown and where adhesive anchors are allowed. Unless otherwise shown, adhesive anchors are allowed for anchoring:
 - 1. Supports for pipe, conduit, and electrical boxes, devices, and panels, on floors and walls
 - 2. Handrails, guardrails, sunshades, stairs,
 - 3. Fixtures and equipment on floors and walls, and
 - 4. Single pipes and conduits <2 inch in diameter to ceilings and soffits.
- B. Adhesive shall be epoxy resin. Vinylester resin anchors are NOT allowed.
- C. Product and Manufacturer: Provide one of the following:
 - 1. Installation to Concrete:
 - a. HIT-HY 200 as manufactured by Hilti, Inc.

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- b. SET-3G as manufactured by Simpson Strong-Tie, Inc.
 - c. Or approved equal meeting ACI 355.4.
- 2. Installation to solid-grouted Masonry:
 - a. HIT-HY 270 as manufactured by Hilti, Inc.
 - b. SET as manufactured by Simpson Strong-Tie, Inc.
 - c. Or approved equal.

2.6 EXPANSION ANCHORS

- A. Provide expansion anchors only where specifically shown and where expansion anchors are allowed. Unless otherwise shown, and except as noted below, expansion anchors are allowed for anchoring:
 - 1. Supports for pipe, conduit, and electrical boxes, devices, and panels, to floors and walls.
 - 2. Handrails, guardrails, and sunshades.
 - 3. Fixtures and equipment which have no moving parts, to floors and walls.
- B. Expansion anchors are NOT allowed in any submerged or chemical containment areas.
- C. Leveling nuts shall not be used with expansion anchors. If leveling nuts are required, provide adhesive anchors, unless otherwise shown.
- D. Wedge anchors: Provide one of the following:
 - 1. Installation to Concrete:
 - a. Hilti Kwik Bolt TZ by Hilti, Inc.
 - b. Strong-Bolt 2 by Simpson Strong-Tie, Inc.
 - c. Or approved equal meeting ACI 355.2.
 - 2. Installation to solid-grouted Masonry:
 - a. Hilti Kwik Bolt-3 by Hilti, Inc.
 - b. Wedge-All by Simpson Strong-Tie, Inc.
 - c. Or approved equal.
- E. Drop-in anchors, only where specific shown on the drawings: Provide one of the following:
 - 1. HDI by Hilti, Inc.
 - 2. Drop-In by Simpson Strong-Tie, Inc.
 - 3. Or equal.

2.7 SCREW ANCHORS

- A. Provide screw anchors only where specifically shown. Provide ICC approved screw anchors suited for seismic and cracked concrete applications.
- B. Installation to Concrete or Masonry:
 - 1. KH-EZ by Hilti, Inc.
 - 2. Titen HD by Simpson Strong-Tie, Inc.
 - 3. Or approved equal.

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2.8 TOGGLE BOLTS

- A. Provide toggle bolts only where specifically shown, to fasten single pipes and conduits <1 inch and equipment weighing less than 50 lbs (4-bolts required) to hollow walls.
- B. Provide spring-wing toggle bolts, with two-piece wings, carbon steel bolts with zinc coating in accordance with Federal Specification FF-S-325.
- C. Product and Manufacturer: Provide toggle bolts of one of the following:
 - 1. The Rawlplug Company, Incorporated.
 - 2. Haydon Bolts, Incorporated.
 - 3. Or equal.

2.9 OTHERS

- A. Powder actuated fasteners and other types of anchors not specified herein shall not be used, unless approved by ENGINEER.

2.10 ACCESSORIES

- A. Provide Belleville washers, or approved equal, at anchorage connections used to transfer anchorage loads at sheet metal equipment housings.

PART 3 - EXECUTION

3.1 INSTALLATION OF ANCHORS

- A. Obtain anchor bolts in sufficient time so as not to delay concrete or masonry work.
- B. Adhesives shall be stored and installed at the service temperature ranges recommended by the manufacturer.
- C. Locate and accurately set the anchor bolts using templates or other devices as necessary.
- D. Protect threads and shank from damage during installation of equipment and structural steel.
- E. Post-installed anchors are NOT acceptable substitutes for cast-in-place anchor bolts.
- F. Assure that embedded items are protected from damage and are not filled in with concrete.
- G. Unless otherwise shown, the minimum diameter of anchor bolts for structural steel is $\frac{3}{4}$ inch, and for other applications, $\frac{3}{8}$ inch.
- H. Unless otherwise shown, provide the following minimum embedment, where "d" is the nominal anchor diameter:
 - 1. Cast-in-place anchors: 12d.

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2. Adhesive anchors: 12d.
 3. Expansion anchors: 8d.
-
- I. Unless otherwise shown, provide a minimum edge distance equal to six times the bolt diameter for adhesive anchors, eight times the bolt diameter for expansion anchors and a bolt spacing equal to twelve times the bolt diameter.
 - J. Concrete shall have a minimum age of 21 days at the time of post-installed anchor installation.
 1. Concrete temperature at the time of adhesive anchor installation shall be at least 50°F.
 - K. Existing reinforcing bars in the concrete structure may conflict with specific anchor locations. Unless noted on the Drawings that the bars can be cut, the CONTRACTOR shall review the existing structural drawings and shall undertake to locate the position of the reinforcing bars at the locations of the concrete anchors by ferroskan, ground penetrating rebar (GPR), x-ray, chipping or other means.
 - L. Drilling equipment used and installation of post-installed anchors shall be in accordance with the manufacturer's printed instructions.
 - M. For the adhesive and expansion anchors, CONTRACTOR shall comply with the manufacturer's printed installation instructions on the drilled hole diameter and depth.
 - N. CONTRACTOR shall properly clean out the hole utilizing a wire brush and compressed air in accordance with the manufacturer's printed installation instructions to remove all loose material from the hole, prior to installing adhesive or expansion anchors. Drilled and cleaned anchor holes shall be protected from contamination until the anchor is installed. A drilled anchor hole shall be re-cleaned assuming the hole was just drilled, if in the opinion of ENGINEER or Inspector that the hole has become contaminated after initial cleaning.
 - O. Unless otherwise indicated by the manufacturer, adhesive shall be dispensed through a tube or cartridge extension, beginning at the maximum depth of the hole and withdrawn as adhesive is injected, followed by insertion and rotating the anchor to the specified depth. Where necessary, spaces around anchors at the surface shall be sealed at horizontal to vertically overhead locations to prevent loss of the adhesive during curing.
 - P. Anchors to be installed in the adhesive shall be clean, oil-free, and free of loose rust, paint, or other coatings.
 - Q. Installed anchors shall be securely fixed in-place to prevent displacement. Unless shown otherwise on the Drawings, anchors shall be installed perpendicular to the concrete surface.
 - R. Reinforcing adhesive dowel bars or all-threaded adhesive bars shall not be bent after being adhesively embedded in hardened, sound concrete.

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- S. In lieu of the use of stacked standard washers, if threads of an anchor bolt protrude beyond the attachment, the installers shall use a fabricated filler plate of equal or greater size of the washer. Hole on the filler plate shall be 1/16 inch (or 2 to 3 mm) greater than the bolt size. Coat as appropriate in accordance with the material and installation location requirements.

3.2 FIELD QUALITY CONTROL

- A. Anchors shall be installed by qualified personnel in accordance with the manufacturer's printed installation instructions. Installation of adhesive anchors shall be performed by personnel trained to install adhesive anchors.
- B. Installation of adhesive anchors horizontally or upwardly inclined to support sustained tension loads shall be performed by personnel certified by the ACI/CRSI Adhesive Anchor Installer Certification program.
- C. CONTRACTOR shall employ a special inspector to perform field inspection services in accordance with Chapter 17 of the IBC for all post-installed anchors.
 - 1. The special inspector must be periodically on the jobsite during post-installed anchor installation.
 - 2. Adhesive anchors installed to resist sustained tension loads shall be continuously inspected during installation by an inspector specially approved for that purpose by the building official.
- D. CONTRACTOR shall employ a testing laboratory to perform field quality testing of installed adhesive anchors. A minimum of 10% of randomly selected adhesive anchors and reinforcing dowel bars greater than 3/8 inch diameter are to be tension tested to the least of 50 percent of expected adhesive ultimate bond strength or 80 percent of steel yield strength of the anchor rod. Maintain the proof load at the required load level for a minimum of 10 seconds.
 - 1. Tension testing shall be performed in accordance with ASTM E488.
 - 2. The independent testing laboratory shall submit an anchorage testing plan for approval to ensure the testing requirements are fulfilled.
 - 3. If failure of more than 5 percent of the tested anchors or reinforcing dowel bars occurs, CONTRACTOR will be required to pay for the costs involved in testing the remaining 90%.
 - a. Concrete cracking in the vicinity of the anchor after loading shall be considered a failure.
- E. CONTRACTOR shall correct improper workmanship, remove and replace, or correct as instructed by the ENGINEER, all anchors or bars found unacceptable or deficient, at no additional cost to the OWNER.
- F. The independent testing and inspection agency shall complete a report on each area. The report should summarize the observations made by the inspector and be submitted to ENGINEER.
- G. Provide access for the testing agency to places where Work is being produced so that required inspection and testing can be accomplished.

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++ END OF SECTION ++

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SECTION 07 92 03

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Surface preparation and installation instructions. Indicate where each product is proposed to be used. Provide sealant certified to NSF/ANSI Standard 61 where sealant is in direct contact with potable water.
- B. Samples: Material proposed for use showing color range available.
- C. Quality Control Submittals:
 - 1. Applicator Qualification: Documentation showing minimum of 5 years' experience installing sealants in projects of similar scope.
 - 2. Certificates of Compliance: Proposed materials meet Specification requirements.

1.2 ENVIRONMENTAL REQUIREMENTS

- A. Ambient Temperature: Between 40 and 80 degrees F (4 and 27 degrees C) when sealant is applied. Consult manufacturer when sealant cannot be applied within these temperature ranges.

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

- A. Sealant Characteristics:
 - 1. Uniform, homogeneous.
 - 2. Free from lumps, skins, and coarse particles when mixed.
 - 3. Nonstaining, nonbleeding.
 - 4. Hardness of 15 minimum and 50 maximum, measured by ASTM C661 method.
 - 5. Immersible may be substituted for nonimmersible.
- B. Sealant Color: To match adjacent surfaces or as selected by ENGINEER.
- C. One-Part Polyurethane, Immersible:
 - 1. Polyurethane base, single-component, moisture curing; ASTM C920, Type S, Grade NS or P, Class 25.
 - 2. Capable of being continuously immersed in water.
 - 3. Designed to be used where the maximum depth of sealant will not exceed 1/2 inch.
 - 4. Provide sealant certified to NSF/ANSI Standard 61 where sealant is in direct contact with potable water.
 - 5. Manufacturers and Products for Nonsag:
 - a. Sika Construction: Sikaflex-1a.
 - b. Tremco: Vulkem 116.

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- c. Or approved equal.
- 6. Manufacturers and Products for Self-Leveling:
 - a. Sika Construction: Sikaflex-1C SL.
 - b. Tremco: Vulkem 45 SSL.
 - c. Or approved equal.
- D. Two-Part Polyurethane, Immersible:
 - 1. Polyurethane elastomeric, two-part, self leveling (or gun grade), non-staining, which cures at ambient temperature and conforms to ASTM C920.
 - 2. Designed to be used where the maximum depth of sealant will exceed 1/2 inch or where chemical curing is required.
 - 3. Manufacturers and Products:
 - a. Sika Construction: Sikaflex-2C.
 - b. Tremco: Dymeric 240FC.
 - c. Or approved equal.
- E. Waterproof Expandable Sealant
 - 1. One-component, polyurethane foam that expands and cures slowly to a semi-rigid, closed cell foam upon reaction with moisture, such as ambient humidity
 - 2. Manufacturers and Products:
 - a. Sika Chemical Corp.; Boom
 - b. Or approved equal

2.2 BACKUP MATERIAL

- A. Nongassing, extruded, closed-cell round polyethylene foam rod, compatible with sealant used, and as recommended by sealant manufacturer.
- B. Size: As shown or as recommended by sealant material manufacturer. Provide for joints greater than 1/2-inch deep. Backup material should be sized to maintain 2:1 width to depth ratio to the greatest extent possible.
- C. Manufacturers and Products:
 - 1. Dow Corning; Ethafoam SB.
 - 2. Sonneborn; Sonofoam.
 - 3. Or approved equal.

2.3 ANCILLARY MATERIALS

- A. Bond Breaker: Pressure sensitive tape as recommended by sealant manufacturer to suit application. Provide bond breaker tape in the bottom of joints to prevent 3-sided joint sealant adhesion when backup material is not used.
- B. Joint Cleaner: Noncorrosive and nonstaining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Primer: Nonstaining type recommended by sealant manufacturer to suit application

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PART 3 - EXECUTION

3.1 GENERAL

- A. Use of more than one material for the same joint is not allowed unless approved by the sealant manufacturer.
- B. Install joint sealants in accordance with ASTM C1193.
- C. Horizontal and Sloping Joints of 1 Percent Maximum Slope: Use self-leveling (Grade P) joint sealant.
- D. Steeper Sloped Joints, Vertical Joints, and Overhead Joints: Use nonsag (Grade NS) joint sealant.

3.2 PREPARATION

- A. Verify that joint dimensions, and physical and environmental conditions, are acceptable to receive sealant.
- B. Surfaces to be sealed shall be clean, dry, sound, and free of dust, loose mortar, oil, and other foreign materials.
 - 1. Mask adjacent surfaces where necessary to maintain neat edge.
 - 2. Starting of work will be construed as acceptance of subsurfaces.
 - 3. Apply primer to dry surfaces as recommended by sealant manufacturer.
- C. Verify that joint shaping materials and release tapes are compatible with sealant.
- D. Examine joint dimensions and size materials to achieve required width/depth ratios.
- E. Carefully follow manufacturer's instructions for mixing multi-component products.

3.3 INSTALLATION

- A. Use joint filler to achieve required joint depths, to allow sealants to perform intended function.
 - 1. Install backup material as recommended by sealant manufacturer.
 - 2. Where possible, provide full length sections without splices; minimize number of splices.
 - 3. Tape sealant may be used as joint filler if approved by sealant manufacturer.
- B. Use bond breaker where recommended by sealant manufacturer and in the bottom of joints to prevent 3-sided joint sealant adhesion.
- C. Seal joints around window, door and louver frames, expansion joints, and elsewhere as indicated.
- D. Joint Sealant Materials: Follow manufacturer's recommendation and instructions, filling joint completely from back to top, without voids.

- E. Joints: Tool slightly concave after sealant is installed.
 - 1. When tooling white or light color sealant, use a water wet tool.
 - 2. Finish joints free of air pockets, foreign embedded matter, ridges, and sags.
- F. Tape Sealant: Compress to 50 percent of expanded thickness and install in accordance with manufacturer's instructions.

3.4 CLEANING

- A. Clean surfaces next to the sealed joints of smears or other soiling resultant of sealing application.
- B. Replace damaged surfaces resulting from joint sealing or cleaning activities.

++ END OF SECTION ++

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Joint Sealants

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SECTION 09 91 03

PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: Provide and install coatings on all exposed surfaces as indicated herein, in other Specification Sections, and on the Drawings.

1.2 QUALITY ASSURANCE

- A. Experience: Both Coatings Manufacturer and Coatings Installer shall have a minimum 5 years' experience in production and application, respectively, of specified products. Coatings Installer shall be approved and endorsed, in writing, by Coatings Manufacturer.
- B. Regulations: Meet federal, state, and local requirements which apply to the work, including, but not limited to those regulations limiting the emission of volatile organic compounds.
- C. Coatings Manufacturer Recommendations: Coatings Installer shall follow all recommendations of the Coatings Manufacturer regarding storage, handling, surface preparation, application of coatings, recoat times, environmental conditions during storage, preparation and application of coatings, and all other Coatings Manufacturer recommendations.
- D. Warranty: Both Coatings Manufacturer and Coatings Installer shall provide a 1-year complete replacement warranty for all coatings. Manufacturer shall provide 5-year warranty for long-term performance of coatings in addition to 1-year warranty.

1.3 SUBMITTALS

- A. Shop Drawings, Coatings Manufacturer shall submit for approval the following:
 - 1. Copies of Manufacturer's technical information and application instructions for each material proposed for use. Specify exactly which product is being proposed for each coating type (as specified below). This may be accomplished through a reference table along with information on the various products, or by a separate, tabbed section with information on products being submitted for each system in a separate tab of a binder. Submittal of general Manufacturer's literature without detailing which product is proposed for each paint system will be unacceptable.
 - 2. Copies of Manufacturer's complete color charts for each coating system.
 - 3. Letter from the Coatings Manufacturer approving and endorsing Coatings Installer.
 - 4. Letter from Coatings Manufacturer stating that volatile organic compounds (VOCs) meet all Federal, State and Local requirements.
 - 5. Furnish copies of the final, approved submittal to the Coatings Installer so that it is clear which product is to be used for which each system.
- B. Reference Samples:

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1. Provide reference samples of paint colors and textures as required by the ENGINEER. Reference samples will show the color and texture of the final paint to be applied and shall be approved by the ENGINEER prior to painting. Reference samples should be applied to similar substrates to the final surfaces to be painted. If ENGINEER chooses to forego reference samples, CONTRACTOR must receive the allowance to forego reference samples before painting begins or all painted surfaces will be re-painted at the ENGINEER's discretion and at no additional cost to the CITY.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Protection: Protect all pre-coated items from coating damage during shipping.
- B. Store products in accordance with Manufacturer's directions.
- C. Store products in a neat, orderly fashion. Protect products from damage. Protect storage area from damage from stored products.

PART 2 - PRODUCTS

2.1 PRODUCT AND MANUFACTURER:

- A. Provide coating types as listed in the following table. The systems referenced in the table are those provided by TNE MEC and Sherwin-Williams. If manufacturers other than TNE MEC or Sherwin Williams are desired, the CONTRACTOR shall submit equivalent paint systems.

COATING TYPE	DESCRIPTION	Sherwin Williams Series	TNE MEC SERIES
Clear Polyamine Epoxy	Clear Polyamine Epoxy, high solids, moisture resistant, designed as a one-coat wood sealer.	GP3477	Series 201, Epoxoprime
Acrylic Filler	Waterborne Cementitious Acrylic designed for application on porous surfaces such as rough-faced concrete masonry units	CementPlex 875	Series 130, Envirofill
Interior Acrylic Latex	Single component, finish as required	ProMar 200	N/A
Industrial Acrylic	Single component, high density acrylic finish for interior, exterior surfaces	Pro Industrial High Performance Acrylic	Series 1029
Interior Latex Primer/ Sealer	Waterborne vinyl acrylic primer/sealer for interior gypsum wallboard/plaster. Capable of providing uniform seal and suitable for use with specified finish coats.	ProMar 200 Primer	Series 115
Exterior Acrylic Latex Primer/Sealer	Capable of providing uniform seal and suitable for use with specified finish coats.	Extreme Bond Latex Primer	Series 1028

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Polyamine Epoxy Sealer	Waterborne Polyamine Epoxy, penetrating, flexible and low-odor primer designed for sealing porous substrates.	Multi-Purpose Acrylic Primer	Series 151, Elasto-Grip FC
Acrylate	Modified Waterborne Acrylate designed for application on porous surfaces such as rough-faced concrete masonry units or wood surfaces. Flexible and breathable, moisture and UV resistant. Matte Finish	Loxon XP	Series 156, Enviro-crete
Polyamidoamine Epoxy	Polyamidoamine Epoxy designed for use on steel or other ferrous metals not in contact with potable water but submerged or immersed in wastewater or non-potable water.		Series N69, V69 or L69 (type per local VOC regulations), Hi-Build Epoxoline II
	Polyamidoamine Epoxy designed for use on steel or other ferrous metals in contact with potable water.	Macropoxy 5500	Series N140, L140 or V140 (type per local VOC regulations), Pota-Pox Plus
Polyurethane	Aliphatic Acrylic Polyurethane designed for exterior weathering, abrasion and corrosion resistance	HS Polyurethane 250 or Waterbased Acrolon	Series 1095, Endura-Shield
Silane Water Repellent Sealant	Silane/Siloxane penetrating water repellent blend designed for application on above-grade concrete, stucco, block, masonry and stone surfaces	Loxon 7% Siloxane	Series 636, Dur A Pell 20
Wood Sealer / Stain	Single component, 250 g/l wood stain in clear or standard colors	Minwax 250	
Wood Varnish Finish	Single component polyurethane varnish	Minwax	

- B. All coatings used shall comply with Federal, State and local VOC limits based on application location.

2.2 COLOR

- A. Color Pigments: Pure, nonfading, lead-free applicable types to suit the substrates and service indicated.
- B. Provide colors as described in the drawings or specifications, or as selected by ENGINEER from standard color palette. For piping system colors, reference pipe schedule.

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- C. Where existing colors are to be matched or satisfactory color is not available from standard color palette, provide custom-mixed colors.
- D. Provide samples of each color on the substrate to be coated for approval by the ENGINEER prior to beginning coating application.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Coatings Installer shall prepare all surfaces to be painted in strict accordance with Coatings Manufacturer's recommendations.
- B. Coatings Manufacturer representative shall observe Coatings Installer's methods of preparing surfaces and approve of the work prior to Coatings Installer beginning coating installation. If, after a period of time, Coatings Manufacturer is satisfied with Coatings Installers methods, Coatings Manufacturer can allow Coatings Installer to proceed without inspection following surface preparation. Coatings Manufacturer and installer will still both be held equally accountable for any coatings failure.

3.2 PROTECTION

- A. Protect all adjacent surfaces from overspray, dripping or other transfer of coatings not intended for those surfaces. Use masking, tape, drop cloths, plastic and other protective materials as appropriate.
 - 1. Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, stainless steel surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted.
 - 2. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors, fan housings, etc. to prevent coatings from falling inside.
 - 3. Correct all damages by cleaning, repairing or replacing, and repainting, as acceptable to ENGINEER.
- B. Completely remove all masking, tape, drop cloths, plastic and other protective materials within 48 hours of completion of application of finish coat. Take special care to remove masking and plastic which cover tank vent openings, HVAC registers, vents, motor vents, and other areas where airflow is critical to proper operation.

3.3 APPLICATION

- A. Paint all exposed surfaces not specifically excluded in 3.3.C, below. Provide and install Coatings in accordance with the following Table, unless otherwise specified in other Sections:

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B.

COATING SYSTEM NO.	SURFACE TO BE COATED	PRIMER COATING	NO OF PRIMER COATS	PRIME COAT THICKNESS (EACH COAT)	FINISH COATING	NO OF FINISH COATS	FINISH COAT THICKNESS (EACH COAT)
100	Concrete Masonry Units (Interior)	Acrylic Filler	1	70 SF/Gal Application Rate	Acrylate	2	135 SF/Gal Application Rate
101	Concrete Masonry Units (Exterior)	Silane Waterproofing Sealant	1	250 SF / Gal Application Rate	None		
102	Concrete Roof Slab (Exterior)	Silane Waterproofing Sealant	1	250 SF/Gal Application Rate	None		
200	Wood (Interior and Exterior)	Polyamine Epoxy	1	250 SF/Gal Application Rate	Acrylate	2	135 SF/Gal Application Rate
201	Wood (Interior, where noted)	Wood Sealer	1	250 SF/Gal Application Rate	Wood Finish	1	350 SF/Gal Application Rate
202	Gypsum Board (Interior)	Interior Latex Primer/Sealer	1	350 SF/Gal Application Rate	Interior Acrylic Latex (Semigloss)	2	400 SF/Gal Application Rate
300	Exposed Ferrous Pipe Systems and Exposed Steel Items	Polyamidoamine Epoxy	2	4-6 MDFT	Polyurethane	2	2-3 MDFT
301	Exposed, Non-metallic Pipe Systems	Exterior Latex Primer/Sealer	1	3-5 MDFT	Industrial Acrylic (Semigloss)	2	3-5 MDFT
302	Immersed Ferrous Pipe Systems and Steel Items	Polyamidoamine Epoxy*	1	6-10 MDFT	Polyamidoamine Epoxy*	1	6-10 MDFT
303	Immersed Non-metallic Pipe Systems	Latex Primer/Sealer*	1	4-6 MDFT	Industrial Acrylic (Semigloss)*	1	4-6 MDFT
304	Buried Ferrous and Steel Items	Polyamidoamine Epoxy	1	8-10 MDFT	Polyamidoamine Epoxy	1	8-10 MDFT

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COATING SYSTEM NO.	SURFACE TO BE COATED	PRIMER COATING	NO OF PRIMER COATS	PRIME COAT THICKNESS (EACH COAT)	FINISH COATING	NO OF FINISH COATS	FINISH COAT THICKNESS (EACH COAT)
305	Aluminum Surfaces in Contact with Concrete	Polyamidoamine Epoxy	1	4-6 MDFT	None		
	Pumps	Touch up factory applied coatings, per Pump Specifications					

* Where in contact with potable water, coating shall be NSF-61 certified.

C. Items Delivered with Factory Applied Primer:

1. For items delivered with a factory applied primer and requiring painting under this Section, the factory applied primer may be used in lieu of field applied primer only under the following conditions:
 - a. The ENGINEER approves the use of the factory applied primer in lieu of field applied primer.
 - b. The factory applied primer is certified by the Coatings Manufacturer as compatible with the field applied finish coat.
 - c. The Coatings Manufacturer's recommended recoat time for the factory applied primer has not been exceeded.
2. If all of the above conditions are not met, the Coatings Installer shall re-prepare all surfaces to be painted in strict accordance with Coatings Manufacturer's recommendations and primer applied, in accordance with this Section.

D. Table Definitions:

1. SF/Gal: Square foot of coverage per gallon of coating used.
2. MDFT: mil dry film thickness
3. mil: 1/1000 of an inch paint thickness
4. Ferrous Pipe: Includes Ductile Iron, Cast Iron, Steel, and Galvanized Steel piping
5. Steel Items: Includes steel and galvanized steel items such as structural steel, doors, window frames, overhead coiling doors, bollard posts, steel gates, steel fences, and all other steel and galvanized steel items.
6. Non-Metallic Pipe: Polyvinyl Chloride, Chlorinated Polyvinyl Chloride, Fiberglass Reinforced Plastic, High Density Polyethylene
7. Exposed: Located above grade, exposed to the atmosphere not submerged. Includes surfaces inside and outside of buildings.
8. Submerged: In an area which normally is under water or other liquid or is intermittently under water or other liquid.
9. Buried: Located below grade, surrounded by backfill.

E. Surfaces Not Requiring Painting:

1. Unless otherwise stated or shown below or in other sections, the following areas or items will not require painting or coating:
 - a. Concrete surfaces.
 - b. Reinforcing steel.
 - c. Copper, bronze, brass, Monel, aluminum, chromium plate, and stainless-steel surfaces, except where:
 - 1) Required for electrical insulation between dissimilar metals.

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- 2) Aluminum and stainless steel are embedded in concrete or masonry, or aluminum is in contact with concrete or masonry.
- 3) Color coding of equipment and piping is required.
- d. Existing piping, fittings and pipe supports.
- e. Pipe unions or portions of piping systems where painting would make disassembly difficult or impossible.
- f. Prefinished electrical, mechanical, and architectural items such as motor control centers, switchboards, switchgear, panelboards, transformers, disconnect switches, HVAC equipment enclosures, ductwork, acoustical tile, cabinets, louvers, and wall panels.
- g. Electrical conduits.
- h. Cathodic protection anodes.
- i. Insulated piping and insulated piping with jacket will require prime coat only.
- j. Fiberglass reinforced plastic (FRP) surfaces with an integral ultra-violet resistant colored gel coat do not require painting, provided the color is as selected.
- k. Glass, plexiglass or other transparent or translucent material intended to allow passage of light.
- l. Civil/site materials such as asphalt, gravel, rock, chain-link fence, and plantings.

3.4 RECOAT TIMES

- A. Coatings Installer shall observe all requirements of the Coatings Manufacturer regarding recoat times.

3.5 PAINT LOG

- A. Coatings Installer shall keep a paint log
 - 1. Specific details of the contents and format paint log shall be determined by the Coatings Installer and approved by the ENGINEER.
 - 2. At a minimum, paint log shall record, on a daily basis for any day when coating work is performed:
 - a. Weather conditions, including 3-day forecast
 - b. Which surfaces were prepared for coating
 - c. Approval of surface preparation by the Coatings Manufacturer representative
 - d. Which surfaces or systems were coated that day
 - e. Who the installer was (specific names of persons on crew)
 - f. Which coating type was used
 - g. Which coat was installed
 - h. What the application rate or MDFT was (as approved by ENGINEER)
 - 3. Paint log shall be kept on-site. Paint log shall be signed on a daily basis, for any day when coating work is performed, by the supervisor of the coatings installer field crew and by the ENGINEER.
 - 4. Any painted surface which was not recorded in the paint log shall be stripped, re-prepared, and recoated at the ENGINEER's discretion.

3.6 WARRANTY INSPECTION

- A. Warranty inspection shall be conducted during the eleventh month following completion of the Work. All defective Work shall be repaired by the CONTRACTOR in accordance with

this Specification and to the satisfaction of the ENGINEER and at the CONTRACTOR'S expense.

- B. Any location where paint has peeled, bubbled, or cracked and any location where rusting is evident shall be considered to be a failure of the system. The CONTRACTOR shall make repair at all points where failures are observed by removing the deteriorated paint, cleaning the surface, and recoating or repainting with the same system. If the area of failure exceeds 25 percent of the total coated or painted surface, the entire coating or paint system may be required to be removed and repainted in accordance with this specification as determined by the ENGINEER.
- C. All costs for CONTRACTOR'S inspection, Manufacturer's inspection and all costs for repair shall be borne by the CONTRACTOR.

++ END OF SECTION ++

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D. Standards: Where referenced in these specifications or on the drawings, the publications and standards of the following organizations apply:

- | | |
|-------------|---|
| 1. AEIC | Association of Edison Illuminating Companies |
| 2. ANSI | American National Standards Institute |
| 3. ASTM | American Society of Testing and Materials |
| 4. ICEA | Insulated Cable Engineers Association |
| 5. IEEE | Institute of Electrical and Electronics Engineers |
| 6. NEMA 250 | Enclosure for Electrical Equipment (1000 Volts Maximum) |
| 7. NFPA | National Fire Protection Association |
| 8. NETA | International Electrical Testing Association |

E. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.04 SUBMITTALS

A. General

1. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures.
2. Custom-prepare Shop Drawings.
3. Drawings or data indicating "optional" or "as required" equipment will not be accepted.
4. Cross out options not proposed or delete from the Shop Drawings.

B. Shop Drawings

1. Shop drawings shall include the following:
 - a. Complete material lists stating manufacturer and brand name of each item or class of material.
 - b. Shop Drawings for grounding WORK not specifically indicated
 - c. Front, side, rear elevations, and top views with dimensional data
 - d. Location of conduit entrances and access plates
 - e. Component data
 - f. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers
 - g. Method of anchoring, seismic requirements, weight
 - h. Types of materials and finish
 - i. Nameplates
 - j. Temperature limitations, as applicable
 - k. Voltage requirement, phase, and current, as applicable
 - l. Front and rear access requirements
 - m. Test reports
 - n. Grounding requirements

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C. Catalog Cuts

1. Submit catalog cuts or photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material.
2. Stamp the catalog data sheets in order to indicate the Project name, applicable Specifications Section and Paragraph, model number, and options.

D. Materials and Equipment Schedules

1. Within 30 Days of the commencement date in the Notice to Proceed, deliver to the ENGINEER a complete list of materials, equipment, apparatus, and fixtures that are proposed for use.
2. Include in the list the type, size, name of manufacturers, catalog number, and such other information as required to identify the item.

E. Include with each submittal a copy of this specification section, with addenda updates included, and all referenced and applicable sections included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the CONTRACTOR, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The ENGINEER shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the CONTRACTOR with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

1.05 FACILITY OPERATION AND MAINTENANCE MANUALS

A. General

1. Submit complete operation and maintenance manual in accordance with the requirements of Section 01 33 03.13 – O&M Manual Review Checklist.

1.06 As-Built Drawings

1. Prepare as-built drawings, including but not limited to showing invert and top elevations and routing of duct banks and exact location of concealed below-grade electrical installations, and color coding of each individual control conductor.
2. Maintain AS-BUILT drawings and update in conjunction with CONSTRUCTION progress of installation. AS-BUILT drawings shall be a full-sized set of drawings marked to reflect deviations, modifications and changes.
3. Furnish the drawings to the ENGINEER in accordance with the requirements of Section 01 33 03 – Submittal Procedures.

1.07 IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. Identification

1. Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal, state, OSHA, and NEC requirements.

B. Local Disconnect Switches

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1. Legibly mark each local disconnect switch for motors and equipment in order to indicate its purpose, unless the purpose is indicated by the location and arrangement.

C. Warning Signs

1. 600 Volts Nominal, or Less

- a. Mark entrances to rooms and other guarded locations that contain live parts with conspicuous signs prohibiting unqualified persons from entering.
2. Mark indoor electrical installations that are open to unqualified persons and contain metal-enclosed switchgear, unit substations, transformers, and other similar associated equipment over 600 volts nominal, with appropriate caution signs.

D. Isolating Switches

1. Provide isolating switches not interlocked with an approved circuit-interrupting device with a sign warning against opening them under load.

1.08 PERMANENT PUBLIC UTILITIES REQUIREMENTS

A. Contact the serving utility and verify compliance with requirements before construction.

B. Coordinate schedules and payments for WORK by utilities.

1. The CONTRACTOR to coordinate and schedule pre-construction utility coordination meeting with utility service representative with thirty (30) days of CONTRACT.

C. Where conduits and conductors in the WORK are indicated to be larger, heavier schedule, or have greater protective coating than utility requirements, provide the larger size, heavier schedule, or greater protection.

D. Provide electrical service as indicated and as required by the serving utility.

E. Verify and provide service conduits, fittings, transformer pad, grounding devices, and service wires not provided by the serving utility.

F. Verify with the utility the exact location of each service point and type of service, and pay charges levied by the serving utilities as part of the WORK.

1.09 PERMITS AND INSPECTION

A. Obtain permits and pay inspection fees according to the General Conditions.

1.10 AREA DESIGNATIONS

A. General

1. Designations for raceway system enclosures shall comply with the requirements of Section 26 05 33– Electrical Raceway Systems.
2. Designations for electrical WORK specifically indicated in other Sections shall comply with the requirements of those Sections unless indicated otherwise.
3. Designations for other electrical WORK not included in the above Paragraphs shall be as follows:

AREA	NEMA ENCLOSURE CLASSIFICATION					
	1	3R	7	9	12	Notes

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Inside Wet Well			X			
Near Wet well						NEMA 4X
Outside Building		X				
Inside Building					X	

4. Designations for electrical WORK not included in the above Paragraphs shall be NEMA 4X.

5. Installations in hazardous locations shall conform strictly to the requirements of the indicated Class, Group, and Division.

B. Material Requirements

1. Provide sealing fittings in chlorine and hydrofluosilicic (HFS) acid areas.
2. Construct NEMA 4X enclosures of Type 316 stainless steel, except in chlorine and HFS areas where non-metallic enclosures shall be provided.
3. Do not coat NEMA 4X enclosures.
4. Construct NEMA 7 enclosures of cast aluminum where used with aluminum conduit, and of cast iron when used with galvanized steel conduit.
5. Do not coat NEMA 7 and 9 enclosures.
6. Construct NEMA 1, 3R, and 12 enclosures of steel, and prime and coat with ANSI 61 light grey paint.

1.11 TESTS

- A. The CONTRACTOR shall be responsible for factory and field tests indicated in Division 26, as required by the ENGINEER, and as required by other authorities having jurisdiction.
- B. Furnish necessary testing equipment.
- C. Pay the costs of the tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of a faulty installation.
- D. Reporting
 1. Where test reporting is indicated, submit proof-of-design test reports for mass-produced equipment with the Shop Drawings.
 2. Submit factory performance test reports for custom-manufactured equipment for approval prior to shipment.
 3. Submit field test reports for review prior to Substantial Completion.
- E. Remove and replace equipment or material that fails a test, or, if the ENGINEER approves, repair and retested for compliance.
- F. Corrections to equipment or materials with a factory warranty shall be as recommended by the manufacturer and shall be performed in a manner that does not void the warranty.

1.12 DEMOLITION AND RELATED WORK

- A. General
 1. Perform electrical demolition WORK as indicated.

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2. The demolition WORK may also be indicated on non-electrical Drawings.
 3. Coordinate with all trades regarding electrical de-energization, disconnection, and removal, and the overall sequence of construction.
- B. Electrical Requirements for Removed Equipment
1. Remove dedicated wiring and exposed conduits back to the source.
 2. Abandon in place wiring that shares conduits with other equipment wiring, except power wiring.
 3. Remove power wiring from the power source to the initial pull box, junction box or manhole remote from the panel, and abandon in place the remaining wiring.
 4. Encased Conduits
 - a. Abandon in place wiring routed through encased conduits.
 - b. Cut encased conduits flush to the floor and grout flush with the floor. Remove exposed conduit to the first fitting/coupling before encasement. Remove the fitting/coupling and replace with a 5-thread conduit cap.
 5. Remove remote-mounted starters, disconnect switches, circuit breakers, sensors, and transmitters.
- C. Where new lighting and receptacles are installed, remove old lighting, receptacles, switches, wiring, and conduits.
- D. Junction Boxes
1. Wiring and conduits indicated to be extended shall be terminated in a new junction box with terminal strips.
 2. Provide a junction box with a NEMA rating in accordance with the area in which it is located, and sized as required.
 3. Properly identify wires and terminals before disconnection.
- E. Removed materials and equipment not indicated as "RETURN TO OWNER", upon removal, shall be the CONTRACTOR'S responsibility to dispose of off- Site.
- F. Remove and relocate material and equipment indicated to be relocated or reused, and reinstall to be protected from damage.
- G. Place materials indicated to be returned to the OWNER in boxes, with the contents clearly marked, and store at a location determined by the ENGINEER.
- H. Identification
1. Where motor control centers and panelboards are indicated to have components, assemblies, or circuits removed and reconnected, provide the affected MCC compartments with new engraved nameplates worded as indicated and matching the existing, or modify the panelboard schedule to indicate the revised circuits.
 2. Pencil or magic marker markings directly on the MCC or panelboard breaker will not be accepted.

1.13 CONSTRUCTION SEQUENCING

A. General

1. Continuance of facility operation during upgrades is critical, the CONTRACTOR shall coordinate the WORK to be provided in, on, or adjacent to existing equipment.
2. Submit a written sequencing request, including the sequence and duration of activities to be performed during plant shutdown. Schedule of WORK, shall be subject to OWNER and Engineer approval, to minimize required shutdown time.
3. Switching, safety tagging, and lock-out, as required for plant shutdown or to isolate existing equipment, shall be performed by the CONTRACTOR under the direction of OWNER.

B. Modifications

1. Perform modifications or alterations to existing electrical facilities as required to successfully install and integrate the proposed electrical equipment as indicated.
2. Perform modifications to existing equipment, panels, and cabinets in a professional manner.
3. Repair coatings to match existing.
4. The costs for modifications to existing electrical facilities that are required for a complete and operating system shall be included as part of the WORK.

C. Existing Utilities

1. Exercise extreme caution when digging trenches to not damage existing underground utilities.
2. The cost of repairs of damages caused during construction shall be included as a part of the WORK.

D. Field Verifications

1. Visit the Site before submitting a Bid to become better acquainted with the WORK of this Contract.
2. The lack of knowledge will not be accepted as justification for extra compensation to perform the WORK.
3. The CONTRACTOR shall be responsible for identifying available existing circuit breakers in lighting panels for the intended use as required.
4. The CONTRACTOR shall be responsible for field verifying the available space in substation switchboards to integrate new power circuit breakers.
5. The cost for the above verifications shall be included as part of the WORK.

E. Installation of Temporary Equipment

1. To facilitate the continuous operation of existing equipment, provide the temporary equipment as indicated.
2. Submit installation and connection details for review and acceptance by the ENGINEER.
3. Costs associated with these temporary installations shall be included as part of the WORK.
4. Temporary wiring and equipment shall remain the property of the CONTRACTOR unless indicated otherwise.

PART 2 - MATERIALS

2.01 GENERAL

- A. Provide equipment and materials that are new and are the products of experienced and reputable manufacturers in the industry.

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- B. Provide equipment and materials listed by UL and bearing the UL label, where UL requirements apply.
- C. Furnish equipment and material products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.
- D. Temperature Ratings of Equipment Terminations
 - 1. Provide terminations and lugs rated for use with 75-degree C conductors.
 - 2. Wire sizes in the Contract Documents are based on NEC ampacity tables using the 75-degree C ratings.
 - 3. Provide equipment and materials suitable for storage, installation and operation in an ambient of 0°C to 50°C up to an elevation of 3,300 feet above sea level, except where more stringent conditions are stated in individual equipment specifications.
- E. Furnish factory finished electrical equipment, wireways and panels with manufacturer's standard primer and enamel topcoats, unless stated otherwise in the individual equipment specifications.
 - 1. Provide 1 pint of the equipment manufacturer's touch-up paint per 500 square feet of painted surface for repair of damaged enamel topcoats.

2.02 ELECTRICAL IDENTIFICATION

A. Nameplates

- 1. Fabricate nameplates from white-letter, black-face laminated plastic engraving stock, such as **Formica Type ES-1** or equal.
- 2. Securely fasten each nameplate, using fasteners constructed of brass, cadmium-plated steel, or stainless steel, and screwed into inserts or tapped holes as required.
- 3. Provide engraved characters of the block style, with no characters smaller than 1/8-inch top to bottom.
- 4. Provide nameplates for field mounted devices and instruments, such as pressure switches, limit switches, flow meters, etc. Identify the name of the device and its unique identifier:

Examples:	Pressure Switch	Limit Switch
	PS-1	LS-1

- 5. Where it is impractical to attach laminated nameplates to field devices, provide 19-gauge, 2-inch square brass tags with 1/4-inch black filled engraving. Provide Seton Standard Brass Valve tags or equivalent. Attach tags with No. 16 brass jack chain.

B. Conductor and Equipment Identification

- 1. Provide heat shrink sleeve markers, Brady Permasleeve or approved equal.

2.03 PROTECTIVE MATTING

- A. Provide full-width, high-voltage switchboard matting in front of indoor switchgear, service equipment, panelboards and motor control centers.
- B. For 600-volt equipment, provide matting that is 1/4-inch-thick and 36-inches wide.
- C. Matting Manufacturer, or Equal
 - 1. W.H.Salisbury and Company; Mats, Inc.; Rhino

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PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide materials and provisions required for a complete and operable system, even if not required explicitly by the Contract Documents.
- B. Typical provisions include terminal lugs not furnished with vendor-supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor-furnished equipment to connect with other equipment indicated in the Contract Documents.
- C. The Drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and shall be used as closely as possible.
- D. Exact locations shall be determined by the CONTRACTOR in the field, based on the physical size and arrangement of equipment, finished elevations, and other obstructions.
- E. Conduits
 - 1. Where conduit development drawings or "home runs" are indicated, route the conduits in accordance with those requirements.
 - 2. Provide exposed or encased routings as indicated, except conceal conduit in finished areas unless indicated otherwise.
 - 3. Size conduits encased in a slab for conduit OD not to exceed 1/3 of the slab thickness, and lay out and space as to not impede concrete flow.
- F. Placement
 - 1. Install conduit and equipment as to avoid obstructions, to preserve headroom, and to keep openings and passageways clear.
 - 2. Locate luminaires, switches, convenience outlets, and similar items within finished rooms as indicated.
 - 3. Where exact locations are not indicated, such locations will be determined by the ENGINEER.
 - 4. If equipment is installed without instruction and must be moved, the cost of moving shall be included as part of the WORK.
 - 5. Adjust luminaire locations in order to avoid obstructions and to minimize shadows.
- G. Circuits
 - 1. Wherever conduits and wiring for lighting and receptacles are not indicated, it shall be the CONTRACTOR'S responsibility to provide lighting and receptacle-related conduits and wiring as required, based on the actual installed fixture layout and the circuit designations as indicated.
 - 2. Provide No. 12 AWG minimum wiring, and 3/4-inch minimum conduits (exposed) and one-inch minimum conduits (encased).
 - 3. Where circuits are combined in the same raceway, de-rate conductor ampacities in accordance with NEC requirements.
- H. Workmanship
 - 1. Install materials and equipment in strict accordance with the printed recommendations of the manufacturer, and using workers skilled in the WORK.

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2. Coordinate installation in the field with other trades in order to avoid interferences.
- I. Protection of Equipment and Materials
 1. Fully protect materials and equipment against damage from any cause.
 2. Cover materials and equipment, both in storage and during construction, in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint.
 3. Keep moving parts clean and dry.
 4. Replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections, as part of the WORK.
- J. Provide incoming utility power equipment in conformance with the utility's requirements.
- K. Provide starters shall be in accordance with the requirements of Section 26 29 13 – Solid State Reduced Voltage Starting, and with Section 26 05 15 – Industrial Control Panels for starters not in MCC'S.

3.02 CORE DRILLING

- A. Perform core drilling as required for the installation of raceways through concrete walls and floors.
- B. Base the locations of floor penetrations, as may be required, on field conditions.
- C. Verify exact core drilling locations based on equipment actually furnished as well as exact field placement.
- D. To the extent possible, identify the existence and locations of encased raceways and other piping in existing walls and floors with the OWNER prior to any core drilling activities.
- E. Repair damage to encased conduits, wiring, and piping as part of the WORK.

3.03 CONCRETE HOUSEKEEPING PADS

- A. Provide concrete housekeeping pads for indoor floor-standing electrical equipment.
- B. Extend housekeeping pads for equipment, including future units, 3-1/2 inches above the surrounding finished floor or grade, and 2 inches larger in both dimensions than the equipment, unless otherwise indicated.
- C. Provide concrete housekeeping curbs for conduit stub-ups in indoor locations that are not concealed by equipment enclosures.
- D. Extend housekeeping curbs to 3-1/2 inches above the finished floor or grade.

3.04 EQUIPMENT IDENTIFICATION

- A. Provide nameplates for panelboards, control and instrumentation panels, starters, switches, and pushbutton stations.
- B. In addition to nameplates, equip control devices with standard collar-type legend plates.
- C. Identify control devices within enclosures as indicated and similar to the subparagraph above.
- D. Provide suitable inscribed finish plates for toggle switches that control loads out of sight of switches and for multi-switch locations of more than 2 switches.
- E. Use equipment names and tag numbers, where indicated, on nameplates.
- F. Provide typewritten circuit directories for panelboards, that accurately reflect the outlets connected to each circuit.

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G. Terminal Blocks

1. Label termination points on terminal blocks by identifiers on the blocks.
2. Provide identifiers that have been preprinted by the terminal manufacturer or custom-printed.
3. Hand-lettered markers will not be accepted.

H. Provide arc-flash labels for all distribution equipment, stand-alone disconnects, starters, and VFDs. Fill in all values as required by NFPA 70E, and as calculated as part of the Protective Device Study. Verify that all settings as prescribed by the approved Protective Device Study have been implemented in the field.

3.05 CLEANING

- A. Before final acceptance, thoroughly clean the electrical WORK of cement, plaster, and other materials.
- B. Remove temporary tags, markings, stickers, and the like.
- C. Remove oil and grease spots with a non-flammable cleaning solvent by carefully wiping and scraping cracks and corners.
- D. Apply touch-up paint to scratches on panels and cabinets.
- E. Vacuum clean electrical cabinets and enclosures. Do not use compressed air to clean cabinets.
- F. Clean luminaires inside and out. Replace failed lamps.
- G. Properly dispose cleaning debris and refuse off-site.

END OF SECTION

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SECTION 26 01 26
ELECTRICAL TESTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies the WORK necessary to test, commission, and demonstrate that the electrical work satisfies the criteria of these Specifications and functions as required by the Contract Documents.
- B. The WORK of this Section includes furnishing the labor, equipment, and power required to support the testing indicated in other Divisions of these Specifications. Electrical testing indicated herein and functional testing of power and controls not tested under Division 17 - Instrumentation, shall be completed before commencement of the 7 Day test of Section. This scope may require the CONTRACTOR to activate circuits, shutdown circuits, run equipment, make electrical measurements, replace blown fuses, and install temporary jumpers, etc.
- C. The requirements of Section 26 00 00 – General Electrical Work, apply to the WORK of this Section.
- D. Carry out tests indicated herein for individual items of materials and equipment in other Sections. Testing shall be done in accordance with the manufacturer's instructions, these Specifications, and applicable NETA Acceptance Testing Specifications, NEMA, ANSI, NFPA, and ASTM Standards.

1.02 RELATED WORK

- | | |
|---------------------|---|
| A. Section 01 33 03 | Submittal Procedures |
| B. Section 26 00 00 | General Electrical Work |
| C. Section 26 05 10 | Electric Motors |
| D. Section 26 05 15 | Industrial Control Panels |
| E. Section 26 05 19 | Wire and Cabling |
| F. Section 26 05 26 | Grounding |
| G. Section 26 05 33 | Electrical Raceway Systems |
| H. Section 26 05 36 | Wiring Devices |
| I. Section 26 05 43 | Underground Raceway Systems |
| J. Section 26 12 16 | Panelboards and General-Purpose Dry Type Transformers |
| K. Section 26 29 00 | Low-Voltage Motor Control Centers |
| L. Section 26 36 23 | Automatic Transfer Switch |
| M. Division 40 | Process & Instrumentation Specifications |

- 1. The CONTRACTOR'S attention is directed to the requirement for proper coordination of the WORK of this Section with the WORK of equipment Specifications, the WORK of instrumentation Sections.

1.03 REGULATORY AGENCIES AND STANDARDS

- A. Regulatory Agencies: Testing shall conform to the latest provisions of the following agencies:
 - 1. NEC (NFPA 70) National Electrical Code: 2020 Edition
- B. Standards: Where referenced in these specifications or on the drawings, the publications and standards of the following organizations apply:

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1. ANSI American National Standards Institute
 2. IEEE Institute of Electrical and Electronics Engineers
 3. IEEE 400 – 2001, Guide for Field Testing and Evaluation of the Insulation of Shielded Power Cable Systems
 4. IEEE 576 – 2000, Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
 5. NETA, International Electrical Testing Association
 6. NETA ATS, Acceptance Testing Specifications for Electrical Power Equipment and Systems.
 7. NETA MTS, Maintenance Testing Specifications for Electrical Power Equipment and Systems.
- C. The publications listed above form a part of this specification to the extent referenced.
- D. Where a date is given for reference standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of the Notice Inviting Bids shall be used.

1.04 SUBMITTALS

- A. Submit in accordance with Section [01 33 03] –Submittal Procedures.
- B. Submit complete system test procedures for review. Test procedures shall include but not be limited to:
1. Detailed procedures in sufficient detail to verify conformance with these Specifications.
 2. Incorporation of the Test Record Sheets included at the end of this Section.
 3. Detailed comprehensive testing schedule including:
 - a. Each major piece of electrical distribution equipment.
 - b. Each major electrical subsystem.
 - c. Duration of each test.
 - d. Milestone test completion date.
 - e. Ambient Conditions at time of test
 - f. Date of test results submittals following completion of the tests.
 - g. Names and qualifications of the individual(s) responsible for performing the testing.
- C. Following completion of the test submit the completed test results to the Engineer for review. The results shall include a dedicated section with the “as-left” settings of all devices, relays, circuit breakers, etc.
- D. Test result shall be submitted in one submittal
- E. Test reports shall be based on NETA’s latest Acceptance Testing Specifications having a sign-off, pass/fail data filed for each line item covered by NETA’s Acceptance Testing Specifications latest edition.

1.05 COMMISSIONING

- A. Commissioning in Section 01 75 06 shall not be attempted until all subsystems have been found to operate satisfactorily.
- B. Commissioning shall only be attempted as a function of normal plant operation in which plant process flows and levels are routine and equipment operates automatically in response to flow

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and level parameters or computer command, as applicable. Simulation of process parameters shall be considered only upon receipt of a written request by the CONTRACTOR.

1.06 TESTING ORGANIZATION QUALIFICATIONS

- A. Testing organization shall be corporately and financially independent of the supplier, producer and installer of the equipment.
- B. Testing organization shall meet Federal OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, 1910 and 1936. Membership in the National Electrical Testing Association constitutes proof of meeting such criteria.
- C. Testing organization shall provide all materials, equipment, labor and technical supervision to perform inspections and tests.

1.07 SAFETY AND PRECAUTIONS

- A. Safety practices shall include, but are not limited to, the following requirements:
 - 1. Occupational Safety and Health Act.
 - 2. Accident Prevention Manual for Industrial Operations, National Safety Council.
 - 3. Applicable state and local safety operating procedures.
 - 4. Owner's safety practices.
 - 5. National Fire Protection Association - NFPA 70E
 - 6. American National Standards for Personnel Protection
- B. All tests shall be performed with apparatus de-energized. Exceptions must be thoroughly reviewed to identify safety hazards and devise adequate safeguards.
- C. The testing firm shall have a designated safety representative on the project to supervise the testing operations with respect to safety.

PART 2 - TESTING & REPORTS

2.01 PRE-ENERGIZATION AND OPERATING TESTS

- A. The complete electrical system shall be performance tested when first installed on-site. Each protective, switching, and control circuit shall be adjusted in accordance with the recommendations of the protective device study and tested by actual operation using current injection or equivalent methods as necessary to ensure that each and every such circuit operates correctly to the satisfaction of the authority having jurisdiction.
 - 1. Instrument Transformers. All instrument transformers shall be tested to verify correct polarity and burden.
 - 2. Protective Relays. Each protective relay shall be demonstrated to operate by injecting current or voltage, or both, at the associated instrument transformer output terminal and observing that the associated switching and signaling functions occur correctly and in proper time and sequence to accomplish the protective function intended.
 - 3. Switching Circuits. Each switching circuit shall be observed to operate the associated equipment being switched.
 - 4. Control and Signal Circuits. Each control or signal circuit shall be observed to perform its proper control function or produce a correct signal output.
 - 5. Metering Circuits. All metering circuits shall be verified to operate correctly from voltage and current sources, similarly to protective relay circuits.

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6. Acceptance Tests. Complete acceptance tests shall be performed, after the station installation is completed, on all assemblies, equipment, conductors, and control and protective systems, as applicable, to verify the integrity of all the systems.
 7. Relays and Metering Utilizing Phase Differences. All relays and metering that use phase differences for operation shall be verified by measuring phase angles at the relay under actual load conditions after operation commences.
- B. Test Report. A test report covering the results of the tests required in the Pre-Energization and Operating Tests shall be delivered to the authority having jurisdiction prior to energization. Acceptance Testing shall be in accordance with NETA ATS, Electrical Power Equipment and Systems.

PART 3 - EXECUTION

- A. The following test requirements supplement test and acceptance criteria that may be stated elsewhere.
- B. Perform Electrical Tests after electrical installation is 100% completed.

3.02 LIGHTING AND RECEPTACLES

- A. Switching, include remote control, if present in system. Circuitry is in accordance with panel schedules. All interior and exterior lighting shall be checked for proper operation.
- B. Test ground interrupter (GFI) receptacles and circuit breakers for proper operation by methods sanctioned by the receptacle manufacturer.

3.03 SWITCHGEAR AND SWITCHBOARD ASSEMBLIES

- A. Visual and Mechanical Inspection.
1. Inspect for physical, electrical and mechanical condition.
 2. Compare equipment nameplate information with latest one-line diagram and report discrepancies.
 3. Check for proper anchorage, required area clearances, physical damage and proper alignment.
 4. Inspect all doors, panels and sections for paint, dents, scratches, fit and missing hardware.
 5. Verify that fuse and/or circuit breaker sizes and types correspond to drawings.
 6. Verify that current and potential transformer ratios correspond to drawings.
 7. Inspect all bus connections for high resistance. Use low-resistance ohmmeter or check tightness of bolted bus joints by using a calibrated torque wrench.
 - a. Refer to manufacturer's instructions or NETA ATS Table 100.12.
 8. Test all electrical and mechanical interlock systems for proper operation and sequencing.
 9. Closure attempt shall be made on locked open devices. Opening attempt shall be made on locked closed devices.
 10. Clean entire switchgear using manufacturer's approved methods and materials.
 11. Inspect insulators for evidence of physical damage or contaminated surfaces.
 12. Verify proper barrier and shutter installation and operation.
 13. Lubrication
 - a. Verify appropriate contact lubricant on moving current carrying parts.

- b. Verify appropriate lubrication on moving and sliding surfaces.
- 14. Exercise all active components.
- 15. Inspect all mechanical indicating devices for proper operation.
- B. Electrical Tests
 - 1. Perform test on all instrument transformers in accordance with Instrument Transformer Section.
 - 2. Perform ground-resistance tests in accordance with Grounding Systems Section.
 - 3. Perform insulation-resistance test on each bus section, phase-to-phase and phase-to-ground for one (1) minute. Test voltages and minimum resistances shall be in accordance with NETA ATS, Table 100.1.
 - 4. Perform insulation-resistance test on control wiring. Do not perform this test on wiring connected to solid-state components.
 - 5. Perform control wiring performance test. Use the elementary diagrams of the switchgear to identify each remote control and protective device. Conduct tests to verify satisfactory performance of each control feature.
 - 6. Perform secondary voltage energization test on all control power circuits and potential circuits as detailed below. Check voltage levels at each point on terminal boards and at each terminal on devices.
 - 7. Perform current injection tests on the entire current circuit in each section of switchgear.
 - a. Perform current test by primary injection, where possible, with magnitudes such that a minimum of 1.0 ampere flows in the secondary circuit.
 - b. Where primary injection is impractical, utilize secondary injection with a minimum current of 1.0 ampere.
 - c. Test current at each device.
 - 8. Determine accuracy of all meters per Metering and Instrumentation Section. Verify multipliers.
 - 9. Control Power Transformers - Dry Type
 - a. Inspect for physical damage, cracked insulation, broken leads, tightness of connections, defective wiring and overall general condition.
 - b. Verify proper primary and secondary fuse ratings or circuit breakers.
 - c. Verify proper interlock function and contact operation.
 - d. Perform insulation-resistance tests. Perform measurement from winding-to-winding and windings-to-ground. Test voltage and minimum resistances shall be in accordance with NETA ATS, Table 100.1. Results shall be temperature corrected in accordance with NETA ATS, Table 100.14.
 - e. Perform secondary wiring integrity test. Disconnect transformer at secondary terminals and connect secondary wiring to proper secondary voltage. Check potential at all devices.
 - f. Verify proper secondary voltage by energizing primary winding with system voltage. Measure secondary voltage with the secondary wiring disconnected.
 - 10. Potential Transformer Circuits

- a. Perform secondary wiring integrity test. Disconnect transformer at secondary terminals and connect secondary wiring to proper secondary voltage. Check for proper potential at all devices.
 - b. Verify secondary voltage by energizing primary winding with system voltage. Measure secondary voltage with the secondary wiring disconnected.
11. Test circuit breakers in accordance with Circuit Breaker paragraphs.

C. Test Values

1. Bolt-torque levels shall be in accordance with NETA ATS Table 100.12, unless otherwise specified by manufacturer.
2. Insulation-resistance test shall be performed in accordance with NETA ATS, Table 100.1. Values of insulation resistance less than this table or manufacture's minimum should be investigated.

3.04 LOW-VOLTAGE CABLES-600V MAXIMUM

A. Visual and Mechanical Inspection

1. Compare cable data with drawings and specifications.
2. Inspect exposed sections of cables for physical damage and proper connection in accordance with single-line diagram.
3. Inspect bolted electrical connections for high resistance using one of the following methods:
 - a. Use of low-resistance ohmmeter
 - b. Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS, Table 100.12.
4. Inspect compression-applied connectors for correct cable match and indentation.
5. Inspect for correct identification, arrangements, and cable color coding.
6. Inspect cable jacket insulation and condition.

B. Electrical Tests

1. Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential shall be 500 volts dc for 300 volt rated cable and 1000 volts dc for 600 volt rated cable. Test duration shall be one minute.
 - a. Motor feeders shall be tested with motors disconnected and controller open.
 - b. Motor control circuits shall be tested and verified for proper operation with control stations and overcurrent devices connected.
 - c. Panelboard feeders shall be tested with feeder breaker open and panel-board connected. If a lighting transformer is associated with the panelboard, it shall be connected and the test made for both primary and secondary sides.
 - d. Conductors of main lighting feeders, including lighting panel shall be tested with branch circuits open.
2. Prior to performing insulation resistance tests on cables, verify that they are not connected to a solid-state device.
 - a. Equipment shall be disconnected to avoid damage during prior to testing.
 - b. The CONTRACTOR shall notify Engineer if minimum insulation values cannot be obtained.

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3. Perform resistance measurements through all bolted connections with low-resistance ohmmeter, if applicable.
 4. Perform continuity test to insure correct cable connection.
- C. Test Values – Visual and Mechanical
1. Compare bolted connection resistance to values of similar connections. Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 2. Bolt-torque levels should be in accordance with NETA ATS, Table 100.12 unless otherwise specified by the manufacturer.
- D. Test Values – Electrical
1. Compare bolted connection resistance values to values of similar connections. Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 2. Insulation-resistance values shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.1. Values of insulation resistance less than this table or manufacturer's recommendations shall be investigated to determine cause of deviations.
 3. Cable shall exhibit continuity.
 4. Deviations in resistance between parallel conductors shall be investigated to determine cause of deviations.

3.05 CIRCUIT BREAKERS - LOW-VOLTAGE - INSULATED-CASE

- A. Visual and Mechanical Inspection
1. Check circuit breaker for proper mounting and compare nameplate data to drawings and specifications.
 2. Operate circuit breaker to ensure smooth operation.
 3. Inspect case for cracks or other defects.
 4. Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS- 2017, Table 100.12.
- B. Electrical Tests
1. Perform a contact-resistance test.
 2. Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential shall be 500 volts dc for 300 volt rated cable and 1000 volts dc for 600 volt rated cable. Test duration shall be one minute.
 3. Determine long-time minimum pickup current by primary current injection where practical.
 4. Perform long-time delay time-current characteristic test by passing three hundred percent (300%) rated current through each pole separately. Record trip time.
 5. Determine short time pickup and delay by primary current injection.
 6. Determine ground-fault pickup and time delay by primary current injections.
 7. Determine instantaneous pickup current by primary injection using run-up or pulse method.
- C. Test Values

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1. Compare contact resistance or millivolt drop values to adjacent poles and similar breakers. Investigate deviations of more than fifty percent (50%). Values of resistance less than this table or manufacturer's recommendations shall be investigated to determine cause of deviations.
2. Insulation resistance shall not be less than 100 megohms.
3. Trip characteristic of breakers shall fall within manufacturer's published time-current characteristic tolerance band, including adjustment factors.
4. All trip times shall fall within Table ICO. Circuit breakers exceeding specified trip time at three hundred percent (300%) of pickup shall be tagged defective.
5. Instantaneous pickup values shall be within values shown on Table ICI.

Table ICO Insulated-Case Circuit Breaker Overcurrent Trip Test (At 300% of Rated Continuous Current of Circuit Breaker)		
Maximum Breaker Voltage Volts	Range of Related Continuous Current Amperes	Maximum Trip Time in Seconds*
240	15-45	50
240	50-100	70
600	15-45	70
600	50-100	125
240	110-225	200
240	250-400	300
600	110-225	250
600	250-400	300
600	450-600	350
600	700-1200	500
600	1400-2500	600
600	3000-5000	650

*For integrally-fused circuit breakers, trip times may be substantially longer if tested with the fuses replaced by solid links (shorting bars).

Table ICI Insulated-Case Circuit Breaker Instantaneous Trip Tolerances		
Frame Size, Amperes	Tolerances of High and Low Settings	
	High	Low
<250	+40% -25%	+40% -30%
>400	+25%	+30%

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3.06 CIRCUIT BREAKERS - LOW-VOLTAGE - POWER

A. Visual and Mechanical Inspection

1. Inspect for physical damage and compare nameplate data with drawings and specifications.
2. Perform mechanical operation test in accordance with manufacturer's instructions.
3. Check cell fit and element alignment and proper operation of racking interlocks.
4. Bolt-torque levels should be in accordance with NETA ATS, Table 100.12 unless otherwise specified by the manufacturer.
5. Check arc chutes for damage.
6. Clean entire circuit breaker using approved methods and materials.
7. Lubricate as required.

B. Electrical Tests

1. Perform a contact-resistance test.
2. Perform an insulation-resistance test at 1000 volts dc from pole-to-pole and from each pole-to-ground with breaker closed and across open contacts of each phase.
3. Determine long-time minimum pickup current by primary current injection.
4. Determine long-time delay by primary injection.
5. Determine short-time pickup and delay by primary current injection.
6. Determine ground-fault pickup and delay by primary current injection.
7. Determine instantaneous pickup value by primary current injection.
8. Make adjustments for final settings in accordance with breaker setting sheet.
9. Activate auxiliary protective devices, such as ground-fault or under voltage relays, to ensure operation of shunt trip devices. Check the operation of electrically-operated breakers in their cubicle.
10. Check charging mechanism.

C. Test Values

1. Compare contact resistance or millivolt drop values to adjacent poles and similar breakers. Investigate deviations of more than fifty percent (50%).
2. Insulation resistance shall not be less than 100 megohms. Investigate values less than 100 megohms.
3. Trip characteristics of breakers when adjusted to setting sheet parameters shall fall within manufacturer's published time-current tolerance band.

3.07 PROTECTIVE RELAYS

A. Visual and Mechanical Inspection

1. Inspect relays for physical damage and compliance with drawings and specifications.
2. Inspect cover gasket for proper seal; clean cover glass; check for foreign material, particularly in disc slots of permanent and electromagnets; check disk clearance; check conditions of spiral spring and case contacts.
3. Check for freedom of movement, proper travel and alignment, and tightness of mounting hardware and tap plugs.

4. Set relays in accordance with approved settings from Specification Section 26 05 73 – Protective Device Studies.

B. Electrical Tests

1. Perform insulation-resistance test on each circuit-to-frame. Do not perform this test on solid-state devices.
2. Perform the following tests at the recommended trip settings.
3. Pickup parameters on each operating element.
4. Perform timing test at two (2) points on time-current curve.
5. Pickup target and seal-in units.
6. Special tests as required to check operation of restraint, directional, and other elements per manufacturer's instruction manual.
7. Perform phase-angle and magnitude contribution tests on all differential and directional-type relays after energization to vectorially prove proper polarity and connection.

3.08 INSTRUMENT TRANSFORMERS

A. Visual and Mechanical Inspection

1. Inspect for physical damage and nameplate information for compliance with drawings and specifications.
2. Verify proper connection of transformers with system requirements.
3. Verify tightness of all bolted connections and assure that adequate clearances exist between primary circuits and secondary circuit wiring.
4. Verify that all required grounding and shorting connections provide good contact.
5. Test proper operation of transformer withdrawal mechanism (tip out) and grounding operation when applicable.
6. Verify proper primary and secondary fuse sizes for potential transformers.

B. Electrical Tests - Current Transformers

1. Perform insulation-resistance test of the current transformer and wiring-to-ground at 1000V dc. Do not perform this test on solid-state devices.
2. Perform a polarity test of each current transformer.
3. Perform a ratio-verification test using the voltage or current method in accordance with ANSI C57.13.1.
4. Perform an excitation test on transformers used for relaying applications in accordance with ANSI C57.13.1.
5. Measure relaying circuit burdens at transformer terminals and determine the total burden in ohms at 60Hz.
6. When applicable, perform insulation-resistance and dielectric withstand tests on the primary winding with secondary grounded. Test voltages shall be per NETA ATS, Table 100.1 and ITD respectively.

C. Electrical Tests - Voltage Transformers

1. Perform insulation-resistance tests winding-to-winding and windings-to-ground. Test voltages shall be applied for one (1) minute in accordance with NETA ATS, Table 100.1. Do not perform this test with solid-state devices connected.

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2. Perform a polarity test on each transformer to verify the polarity marks or H1-X1 relationship as applicable.
3. Perform a ratio test using a transformer-turns-ratio test set or by voltage comparison method.
4. Perform a dielectric withstand test on the primary windings with the secondary windings connected-to-ground. The dielectric voltage shall be in accordance with Table ITD and applied for one (1) minute.

D. Test Values

1. Insulation-resistance measurement on any instrument transformer shall be not less than that shown in NETA ATS, Table 100.1.
2. Perform a burden/saturation calculation on current transformers supplying relaying circuits.
3. Ratio accuracies shall be within 0.5% of nameplate or manufacturer's specifications.
4. Withstand tests shall be evaluated as pass/fail.

Table ITD Instrument Transformer Dielectric Test Voltage			
Nominal System Voltage	Test BIL (kV)	Dielectric Withstandability Field Test Voltage (kV)	
		AC	DC
2.4	45	11.3	15
4.8	60	14.3	19
13.8	95	25.5	34
13.8	110	25.5	34
25	125	30.0	40
25	150	37.5	50

Table is derived from paragraph 8.8.2 and tables 2 and 7 of ANSI/IEEE C57.13, "Standard Requirements for Instrument Transformers."

3.09 METERING AND INSTRUMENTATION

A. Visual and Mechanical Inspection

1. Examine all devices for broken parts, shipping damage, and tightness of connections.
2. Verify that meter types, scales, and connections are in accordance with drawings and specifications.

B. Electrical Tests

1. Determine accuracy of meters at 25/50/75/100% of full scale for each metered parameter.
2. Calibrate meters to one-half percent (0.5%).
3. Verify all instrument multipliers.

3.10 GROUNDING SYSTEMS

A. Visual and Mechanical Inspection:

1. Inspect ground system for compliance with contract documents and NFPA 70 National Electrical Code Article 250.

2. Inspect physical and mechanical conditions.
3. Inspect bolted electrical connection for high resistance using one or more of the following methods:
 - a. Use of low-resistance ohmmeter
 - b. Verify tightness of accessible bolted electrical connections by calibrated torque-wrench methods in accordance with manufacturer published data and NETA ATS Table 100.12.
4. Inspect anchorage.

B. Electrical Tests

1. Perform ground-impedance measurements utilizing the fall-of-potential method per ANSI/IEEE Standard 81 "IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System." Instrumentation utilized shall be as defined in Section 12 of the above guide and shall be specifically designed for ground impedance testing. Provide sufficient spacing so that plotted curves flatten in the 62% area of the distance between the item under test and the current electrode.
2. Perform point-to-point tests to determine the resistance between the main grounding system and all major electrical equipment frames, system neutral, and derived neutral points.

C. Test Values

1. Compare bolted connection resistance values to values of similar connections. Investigate values which deviate from those of similar bolted connections by more than 50 percent of the lowest value.
2. The resistance between the main grounding electrode and ground shall be no greater than five ohms for large commercial or industrial systems and one ohm or less for generating or transmission station grounds unless otherwise specified by the owner. (Reference ANSI/IEEE Standard 142).
3. Investigate point-to-point resistance values that exceed 0.5 ohm.

3.11 GROUND-FAULT SYSTEMS (NEC 230-95)

A. Visual and Mechanical Inspection

1. Inspect for physical damage and compliance with drawings and specifications.
2. Inspect neutral main bonding connection to assure:
 - a. Zero-sequence sensing system is grounded.
 - b. Ground-strap sensing systems are grounded through sensing device.
 - c. Ground connection is made ahead of neutral disconnect link on zero-sequence sensing systems.
 - d. Grounded conductor (neutral) is solidly grounded.
3. Inspect control power transformer to ensure adequate capacity for system.
4. Manually operate monitor panels (if present) for:
 - a. Trip test
 - b. No trip test
 - c. Nonautomatic reset
5. Record proper operation and test sequence.

6. Set pickup and time-delay settings in accordance with the settings provided by the owner/user's electrical engineer.

B. Electrical Tests

1. Measure system neutral insulation resistance to ensure no shunt ground paths exist. Remove neutral-ground disconnect link. Measure neutral insulation resistance and replace link.
2. Determine the relay pickup current by current injection at the sensor and operate the circuit interrupting device.
3. Test the relay timing by injecting three hundred percent (300%) of pickup current, or as specified by manufacturer.
4. Test the system operation at fifty-seven percent (57%) rated control voltage, if applicable.
5. Test zone interlock systems by simultaneous sensor current injection and monitoring zone blocking function.
6. On multiple sources, tie breaker, etc., systems, devise a simulation scheme that fully proves correct operation.

C. Test Parameters

1. System neutral insulation shall be a minimum of one hundred (100) ohms, preferably one (1) megohm or greater.
2. Relay timing shall be in accordance with manufacturer's published time-current characteristic curves but in no case longer than one (1) second for fault currents equal to or greater than 3,000 amperes.
3. Relay pickup value shall be within +/-10% of setting and in no case greater than 1200A.

3.12 AC MOTORS

A. Visual and Mechanical Inspection

1. Inspect for physical damage and compare nameplate data with drawings and specifications.
2. Inspect for proper anchorage, mounting, grounding, connection, and lubrication.
3. When applicable, perform special tests such as air gap spacing and pedestal alignment.
4. Check for unusual mechanical or electrical noise or signs of overheating during initial test run.

B. Electrical Tests - Induction Motors

1. Perform insulation-resistance tests in accordance with ANSI/IEEE Standard 43.
2. Motor 200 HP and Less - Test duration shall be one minute with resistances tabulated at thirty and sixty seconds. Calculate the dielectric absorption ratio.
3. Motor Larger than 200 HP - Test duration shall be ten minutes with resistances tabulated at thirty seconds, one minute, and ten minutes. Calculate the dielectric absorption ratio and polarization indexes.
4. Perform insulation-resistance test on pedestal per manufacturer instructions.
5. Test motor starter prior to energizing the motor.
6. Check resistance temperature detector (RTD) circuits for conformance with drawings. Check that metering or relaying devices using the RTD's are of the proper rating.
7. Check that the motor space heater circuit is in proper operating condition and in accordance with drawings and specifications.

8. Check all protective devices in accordance with other sections of these specifications.
9. Perform a rotation test to ensure proper shaft direction.
10. Measure running current and evaluate relative to load conditions and nameplate full-load amperes.
11. Perform vibration tests: Motors Larger than 200 HP - Perform vibration base-line test. Amplitude shall be plotted versus frequency. For motors 200 HP and less perform vibration and amplitude test.

C. Test Values

1. Perform insulation-resistance tests at the test voltage listed in NETA ATS, Table 100.1. Investigate dielectric absorption ratios less than 1.4 and polarization index ratios less than 1.5 for Class A insulation and 2.0 for Class B insulation.
2. Vibration amplitudes shall not exceed values shown in Table MAV.
3. Salient pole voltage drop should be equal for each pole. Investigate values that differ by more than ten percent (10%).

Table MAV Maximum Allowable Vibration Per NEMA MG-1	
Speed RPM	Amplitude Inches Peak-to-Peak
3000 and above	0.001
1500-2999	0.0015
1000-1499	0.002
999 and below	0.0025

3.13 LOW-VOLTAGE MOTOR CONTROL CENTERS

A. Visual and Mechanical Inspection

1. Inspect for physical damage, proper anchorage, and grounding.
2. Inspect equipment for compliance with drawings and specifications.
3. Motor-running protection:
 - a. Compare overload heater rating with motor full-load current rating to verify proper sizing. (Adjust as necessary if power factor correction capacitors are connected on load side of heaters.)
4. Check tightness of bolted connections using calibrated torque wrench.

B. Electrical Tests

1. Insulation tests:
 - a. Measure insulation resistance of each bus section phase-to-phase and phase-to-ground for one (1) minute. Test voltage shall be in accordance with NETA ATS, Table 100.1.
 - b. Measure insulation resistance of each starter section phase-to-phase and phase-to-ground with the starter contacts closed and the protective device open. Test voltage shall be in accordance with NETA ATS, Table 100.1.
 - c. Measure insulation resistance of each control circuit with respect to ground. Refer to NETA ATS, Table 100.1. Do not perform this test on wiring connected to solid-state components.

2. Test motor overload units by injecting current through overload unit and monitoring trip time at three hundred percent (300%) of motor full-load current.
3. Test molded-case breakers per Low Voltage Insulated Case Circuit Breakers paragraphs.
4. Perform operational tests by initiating control devices to affect proper operation.
5. Determine accuracy of all meters per Metering and Instrumentation paragraphs.
6. Test protective devices in accordance with Protective Relay paragraphs.

C. Test Values

1. Bolt-torque levels should be in accordance with NETA ATS, Table 100.12 unless otherwise specified by the manufacturer.
2. Insulation-resistance test results shall conform with NETA ATS, Table 100.1.
3. Control wiring-insulation test voltage shall be 500V dc for 300-volt rated cables and 1000V dc for 600-volt rated cables. Do not perform this test on wiring connected to solid-state components.
4. Perform overload tests at three hundred percent (300%) of motor full-load current. Trip times shall be in accordance with manufacturer's tolerances. Investigate values in excess of one hundred twenty (120) seconds.

3.14 TRANSFORMERS – SMALL DRY-TYPE, AIR-COOLED (600 Volt and Below, less than 100 kVA single-phase or 1000 kVA three-phase)

- A. Inspect for physical damage, broken insulation, tightness of connections, defective wiring and general condition.
- B. Thoroughly clean unit prior to making any tests.
- C. Perform insulation-resistance test. Calculate dielectric absorption ratio and polarization index. Make measurements from winding-to-winding and windings-to ground. Test voltages and minimum resistance shall be in accordance with NETA ATS, Table 100.5. Results shall be temperature corrected in accordance with NETA ATS, Table 100.14.
- D. Verify taps and connect transformer to desired tap, is applicable.
- E. Energize primary winding with system voltage. Measure secondary voltage with the secondary load disconnected. Record results.
- F. A functional test and check of electrical components is required prior to performing subsystem testing and commissioning. Compartments and equipment shall be cleaned as required by other provisions of these Specifications before commencement of functional testing. Functional testing shall comprise:
 1. Visual and physical check of cables, circuit breakers, transformers, and connections associated with each item of new and modified equipment.
 2. Verification that electrical equipment has been labeled with Arc Flash protection boundary and PPE levels, as required by Section 26 05 73 – Protective Device Studies.
 3. Setting of protective relays in conformance with results of the Short Circuit Study required by Section 26 05 73 – Protective Device Studies and testing of relays to assure that relays will trip at the current value and time required by the Study.
 4. Circuit Breakers

- a. Circuit breakers that have adjustable time or pick-up settings for ground current, instantaneous overcurrent, short-time overcurrent, or long-time overcurrent, shall be field-adjusted by a representative of the circuit breaker manufacturer.
 - b. Time and pickup setting shall correspond to the recommendations of the Short Circuit Study.
 - c. Setting shall be tabulated and proven for each circuit breaker in its installed position.
 - d. Test results shall be certified by the person performing the tests and shall be submitted to the ENGINEER.
- G. Complete ground testing of grounding electrodes per requirements below prior to operating the equipment.
- H. Subsystem testing shall occur after the proper operation of alarm and status contacts has been demonstrated or otherwise accepted by the ENGINEER and after process control devices have been adjusted as accurately as possible. Alarm conditions shall be simulated for each alarm point, and alarm indicators shall be checked for proper operation. It is intended that the CONTRACTOR will adjust limit switches and level switches to their operating points prior to testing and will set pressure switches, flow switches, and timing relays as dictated by operating results.
- I. Metering and indication lights for motors and other devices shall be tested for proper operation.
- J. All control circuits such as motor, interlock and remote shall be tested for proper operation.
- K. After initial settings have been completed, each subsystem shall be operated in the manual mode and it shall be demonstrated that operation is in compliance with the Contract Documents. Once the manual mode of operation has been proven, automatic operation shall be demonstrated to verify such items as proper start and stop sequence of pumps, proper operation of valves, proper speed control, etc.
- L. Motor operated valves shall be tested after having been phased and tested for correct motor rotation and after travel and torque limit switches have been adjusted by a representative of the valve manufacturer. Tests shall verify status indication, proper valve travel, and correct command control from local and remote devices.
- M. All lighting panels, circuits and fixtures; and power panels, circuits and receptacles shall be tested for proper operation.
- N. Provide ground resistance tests on the main grounding electrode or system in the presence of the ENGINEER and submit results
- 1. Visual and Mechanical Inspection
 - a. Verify ground system is in compliance with drawings and specifications.
 - 2. Electrical Tests
 - a. Perform fall-of-potential test or alternative in accordance with IEEE Standard 81 on the main grounding electrode or system.
 - b. The earth resistance of each ground electrode shall be measured and recorded before electrodes are connected to the grounding loop.
 - c. Perform point-to-point tests to determine the resistance between the main grounding system and all major electrical equipment frames, system neutral, and/or derived neutral points.
 - 3. Test Values

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- a. The resistance between the main grounding electrode and ground shall be no greater than five ohms for commercial or industrial systems and one ohm or less for generating or transmission station grounds unless otherwise specified by the owner.
 - b. Investigate point-to-point resistance values which exceed 0.5 ohm.
- O. Subsystems shall be defined as individual and groups of pumps, conveyor systems, chemical feeders, air conditioning units, ventilation fans, air compressors, etc.

3.15 TEST REPORTS

- A. The test report shall include the following:
 - 1. Summary of project.
 - 2. Description of equipment tested.
 - 3. Description of test.
 - 4. Test data.
 - 5. Analysis and recommendations.
- B. Test data records shall include the following minimum requirements:
 - 1. Identification of the testing organization.
 - 2. Equipment identification.
 - 3. Humidity, temperature, and other atmospheric conditions that may affect the results of the tests/calibrations.
 - 4. Date of inspections, tests, maintenance, and/or calibrations.
 - 5. Identification of the testing technician.
 - 6. Indication of inspections, tests, maintenance, and/or calibrations to be performed and recorded.
 - 7. Indication of expected results when calibrations are to be performed.
 - 8. Indication of "as-found" and "as-left" results.
 - 9. Sufficient spaces to allow all results and comments to be indicated.
- C. The testing firm shall furnish a copy or copies of the complete report to the owner as required in the acceptance contract.

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SECTION 26 05 10
ELECTRIC MOTORS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide electric motors, accessories, and appurtenances complete and operable, in conformance to the Contract Documents.
- B. The provisions of this Section apply to low voltage 3 phase, AC squirrel cage induction motors throughout the Contract Documents, except as indicated otherwise.
- C. The CONTRACTOR shall assign to the equipment supplier the responsibility to select suitable electric motors for the equipment. The choice of motor manufacturer shall be subject to review by the ENGINEER. Such review will consider future availability of replacement parts and compatibility with driven equipment

1.02 RELATED WORK

- | | |
|---------------------|--------------------------------------|
| A. Section 01 33 03 | Submittal Procedures |
| B. Section 26 00 00 | General Electrical Work |
| C. Section 26 29 00 | Low-Voltage Motor Control Centers |
| D. Section 26 29 13 | Solid-State Reduced Voltage Starters |

1.03 REGULATORY AGENCIES AND STANDARDS

- A. Regulatory Agencies: Testing shall conform to the latest provisions of the following agencies:
1. NEC (NFPA 70) National Electrical Code: 2020 Edition
- B. Standards: Where referenced in these specifications or on the drawings, the publications and standards of the following organizations apply:
1. NEMA National Electrical Manufacturers Association
- a. NEMA MG-1, Motor and Generator Standards

1.04 SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 03 - Submittal Procedures.
- B. Complete motor data shall be submitted with the driven machinery Shop Drawings. Motor data shall include:
 - 1. Machine name and specification number of driven machines
 - 2. Motor manufacturer
 - 3. Motor type or model and dimension drawing. Include motor weight.
 - 4. Nominal horsepower
 - 5. NEMA design
 - 6. Enclosure
 - 7. Frame size
 - 8. Winding insulation class and temperature rise class
 - 9. Voltage, phase, and frequency ratings

10. Service factor
 11. Full load current at rated horsepower for application voltage
 12. Full load speed
 13. Guaranteed minimum full load efficiency and nominal efficiencies at 1/2 and 3/4 load.
 14. Type of thermal protection or overtemperature protection, where included
 15. Wiring diagram for devices such as motor leak detection, temperature, or zero speed switches, as applicable
 16. Bearing data. Include recommendation for lubricants of required type bearings.
 17. If utilized with a variable frequency controller, verify motor is inverter duty type. Include minimum speed at which motor may be operated for the driven machinery. Provide shaft grounding details and information. Provide insulated bearing details and information.
 18. Power factor at 1/2, 3/4 and full load.
 19. Recommended size for power factor correction capacitors to improve power factor to 0.95 percent lagging when operated at full load.
- C. If water cooling is required for motor thrust bearings, the Shop Drawing submittals shall indicate this requirement.

1.05 FACILITY OPERATION AND MAINTENANCE MANUALS

A. General

1. Submit complete operation and maintenance manual in accordance with the requirements of Section 01 33 03.13 – O&M Manual Review Checklist.

PART 2 - MATERIALS

2.01 GENERAL

- A. Electric motors driving identical machines shall be identical.
- B. Electric motors shall comply with NEMA MG-1 - Motor and Generator. Motors used with adjustable frequency drives shall comply with NEMA MG-1, Part 31, and shall be clearly identified as "Inverter Duty."
- C. Maximum motor loading shall be equal to nameplate horsepower rating or less, exclusive of service factor and be verifiable from the submittal data of the driven machinery.
- D. Electric motors shall be NEMA Design B unless otherwise indicated. Starting torque or breakdown torque be less than the value in NEMA MG 1 shall not be permitted. Motors shall be suitable for the indicated starting method.
- E. Motor Voltage Ratings
 1. Low voltage motors shall have voltage ratings in accordance with the following, unless otherwise indicated:
 - a. Motors below 1/2 HP shall be rated 115 volts, single phase, 60 Hz. Dual voltage motors rated 115/208 volts is acceptable, provided leads are brought out to the conduit box.
 - b. Motors 1/2 HP and larger shall be rated 460 volts, 3 phase, 60 Hz.
- F. Insulation

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1. Three phase motors shall be provided with Class F insulation, rated to operate at a maximum ambient temperature of 40 degrees C and at the altitudes where the motors will be installed and operated, without exceeding Class B temperature rise limits stated in NEMA MG 1-12.44.
 2. Single phase motors shall have Class F insulation with temperature rise not to exceed the insulation class.
 3. Motors to be operated from adjustable frequency drives shall be provided with insulation systems to withstand 1600-volt spikes, with dV/dT as defined in NEMA MG 1-31.
 4. The adjustable frequency drive manufacturer shall coordinate with the motor manufacturer to determine when additional dV/dT protection is required. Where required, it shall be furnished and installed as per the manufacturer's written instructions.
- G. Motors (Non-hazardous locations)
1. 50 HP or smaller shall be totally enclosed, fan cooled (TEFC) with a Service Factor of 1.15 unless otherwise indicated.
 2. Motors 50 HP and greater shall be TEFC, with a service factor of 1.15.
- H. Motors (hazardous locations)
1. Motors for use in hazardous locations shall have enclosures suitable for the classification indicated. Such motors shall be U.L. listed and be stamped as such.
- I. Motors larger than 50 HP installed outdoors or in unheated areas shall be provided with 120-volt AC space heaters, wired to a terminal strip in a low voltage motor junction box. If provided by the manufacturer when not specified, the manufacturer shall not require that they be connected or the CONTRACTOR shall connect them at no extra cost to the OWNER, in order to keep the warranty in force.
- J. NEMA Premium Efficiency Motors
1. Motors with a nameplate rating of 1 HP and larger shall be NEMA premium efficient units. Motors shall be stamped with the efficiency on the nameplate with the caption "NEMA Nominal Efficiency" or "NEMA Nom. Eff." Such motors shall have efficiencies determined by the test as set forth in ANSI/IEEE 112 - Standard Test Procedure for Polyphase Induction Motors and Generators, Method B.
 2. Efficiency: Nominal efficiency and minimum efficiency shall be defined in accordance with the following tables. Both efficiencies shall be included in the Shop Drawing submittal.

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OPEN DRIP-PROOF (ODP)						
FULL-LOAD EFFICIENCIES OF NEMA PREMIUM EFFICIENCY MOTORS RATED 600 VOLTS OR LESS						
	2 POLE		4 POLE		6 POLE	
HP	Nom. Effic.	Min. Effic.	Nom. Effic.	Min. Effic.	Nom. Effic.	Min. Effic.
1	77.0	74.0	85.5	82.5	82.5	80.0
1.5	84.0	81.5	86.5	84.0	86.5	84.0
2	85.5	82.5	86.5	84.0	87.5	85.5
3	85.5	82.5	89.5	87.5	88.5	86.5
5	86.5	84.0	89.5	87.5	89.5	87.5
7.5	88.5	86.5	91.0	89.5	90.2	88.5
10	89.5	87.5	91.7	90.2	91.7	90.2
15	90.2	88.5	93.0	91.7	91.7	90.2
20	91.0	89.5	93.0	91.7	92.4	91.0
25	91.7	90.2	93.6	92.4	93.0	91.7
30	91.7	90.2	94.1	93.0	93.6	92.4
40	92.4	91.0	94.1	93.0	94.1	93.0
50	93.0	91.7	94.5	93.6	94.1	93.0
60	93.6	92.4	95.0	94.1	94.5	93.6
75	93.6	92.4	95.0	94.1	94.5	93.6
100	93.6	92.4	95.4	94.5	95.0	94.1
125	94.1	93.0	95.4	94.5	95.0	94.1
150	94.1	93.0	95.8	95.0	95.4	94.5
200	95.0	94.1	95.8	95.0	95.4	94.5
250	95.0	94.1	95.8	95.0	95.8	95.0
300	95.4	94.5	95.8	95.0	95.8	95.0
350	95.4	94.5	95.8	95.0	95.8	95.0
400	95.8	95.0	95.8	95.0	--	--
450	96.2	95.4	96.2	95.4	--	--
500	96.2	95.4	96.2	95.4	--	--

Source: NEMA MG1 - 2016, Table 12-12

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TOTALLY ENCLOSED - FAN COOLED (TEFC)						
FULL-LOAD EFFICIENCIES OF NEMA PREMIUM EFFICIENCY MOTORS RATED 600 VOLTS OR LESS						
	2 POLE		4 POLE		6 POLE	
HP	Nom. Effic.	Min. Effic.	Nom. Effic.	Min. Effic.	Nom. Effic.	Min. Effic.
1	77.0	74.0	85.5	82.5	82.5	80.0
1.5	84.0	81.5	86.5	84.0	87.5	85.5
2	85.5	82.5	86.5	84.0	88.5	86.5
3	86.5	84.0	89.5	87.5	89.5	87.5
5	88.5	86.5	89.5	87.5	89.5	87.5
7.5	89.5	87.5	91.7	90.2	91.0	89.5
10	90.2	88.5	91.7	90.2	91.0	89.5
15	91.0	89.5	92.4	91.0	91.7	90.2
20	91.0	89.5	93.0	91.7	91.7	90.2
25	91.7	90.2	93.6	92.4	93.0	91.7
30	91.7	90.2	93.6	92.4	93.0	91.7
40	92.4	91.0	94.1	93.0	94.1	93.0
50	93.0	91.7	94.5	93.6	94.1	93.0
60	93.6	92.4	95.0	94.1	94.5	93.6
75	93.6	92.4	95.4	94.5	94.5	93.6
100	94.1	93.0	95.4	94.5	95.0	94.1
125	95.0	94.1	95.4	94.5	95.0	94.1
150	95.0	94.1	95.8	95.0	95.8	95.0
200	95.4	94.5	96.2	95.4	95.8	95.0
250	95.8	95.0	96.2	95.4	95.8	95.0
300	95.8	95.0	96.2	95.4	95.8	95.0
350	95.8	95.0	96.2	95.4	95.8	95.0
400	95.8	95.0	96.2	95.4	--	--
450	95.8	95.0	96.2	95.4	--	--
500	95.8	95.0	96.2	95.4	--	--

Source: NEMA MG1 - 2016, Table 12-12

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K. Two speed motors shall be of the 2-winding type.

L. Motor Capacity

1. Motor size shall be de-rated from nameplate values as follows:

a. Ambient Temperature

- For ambient temperatures up to but not exceeding 40 degrees C, no derating is required.
- For ambient temperatures exceeding 40 degrees but less than 50 degrees C, de-rate nameplate HP ratings to 85 percent.

b. Site Altitude: No derating is required for altitudes less than 3300 feet (1000 meters). Higher altitudes require the following derating factors:

Altitude	Derating Factor
3,300 to 5,000 ft	97 percent
5,001 to 6,600 ft	94 percent
6,601 to 8,300 ft	91 percent
8,301 to 9,900 ft	88 percent
9,901 to 11,500 ft	85 percent

2. Increased circuit breaker, magnetic starter, and conductor and conduit capacities required for motors larger than the indicated sizes shall be provided as part of the WORK.

2.02 ACCESSORY REQUIREMENTS

- A. General: Horizontal motors 3 HP and larger and every vertical motor shall have split-type cast metal conduit boxes. Motors shall be provided with oversized conduit boxes. Where conduit sizes indicated do not match the motor terminal box, the CONTRACTOR shall provide means to accommodate the motor requirements. Motor boxes other than open drip-proof shall be gasketed.
- B. Lifting Devices: Motors weighing 265lb (120Kg) or more shall have suitable lifting eyes for installation and removal.
- C. Special Requirements: The CONTRACTOR shall refer to individual equipment specifications for special requirements such as motor winding thermal protection or multi-speed windings.
- D. Grounding Lugs: Provide motor grounding lug suitable to terminate ground wire, sized as indicated.
- E. Nameplate: Motors shall be fitted with permanent stainless-steel nameplates indelibly stamped or engraved with NEMA Standard motor data, in conformance with NEMA MG-1-10.40. Inverter duty motors shall be clearly identified as such.
- F. Where motors are indicated by elementary schematics or specifications to have zero speed switches, the switches shall be factory mounted integral to the motors. Switches shall close the contacts when the motor is at zero speed.

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- G. Inverter duty motors shall be provided with shaft grounding rings. Rings shall be factory installed, and shall be manufactured by **Aegis**, or equal. The motor warranty shall include coverage against VFD-induced bearing damage or failure.

2.03 MOTOR THERMAL PROTECTION

- A. Single Phase Motors: Single phase 120, 208-volt motors shall have integral thermal overload protection or shall be inherently current limited.
- B. Thermostats: Where indicated or specified, winding thermostats shall be snap action, bi-metallic, temperature-actuated switch. Thermostats shall be provided with one normally closed contact. The thermostat switch point shall be pre-calibrated by the manufacturer. All inverter duty motors shall be provided with winding thermostats, unless RTDs are specified. All explosion-proof motors shall be provided with winding thermostats.

2.04 MOTOR BEARINGS

A. Vertical Motors

1. Provide bearings of the type and size required to meet the thrust loading requirements with a rated B-10 life of 100,000 hours as defined by the Anti-Friction Bearing Manufacturers Association (AFBMA).
2. Bearings for motors 75 HP and larger shall be oil lubricated and contained in an oil reservoir with oil sight level gage and oil fill and drain openings with plugs.
3. Equip grease lubricated bearings with fittings in each bearing housing. Fittings shall be accessible without removals of any covers or guards. Provide drains to prevent over lubrication.

B. Horizontal Motors:

1. General: Equip motors larger than one (1) HP with end single shielded bearings of either the anti-friction or sleeve type with a rated B-10 life of 100,000 hours as defined by the AFBMA.
2. Anti-Friction Type: Grease lubricated type with sealed end caps to prevent grease from migrating to the bearing exterior. Provide with an excess-grease reservoir located outboard of the bearing and provisions for purging old grease.
3. Sleeve Type: Oil lubricated type contained in an oil reservoir with oil sight level gage and oil fill and drain openings with plugs. Provide bearings with shaft seals and pressure-equalizing vents to prevent oil from migrating to the motor windings.

- C. Inverter Duty Motors: Provide an insulated bearing to prevent circulating bearing currents.

2.05 CONNECTION BOXES

- A. Provide motors with NEMA MG-1 type I connection boxes made of fabricated steel or cast-iron construction compatible with the motor specified. Provide motors larger than 150 Hp with NEMA MG-1 type II connection boxes. Provide boxes with gaskets between the box and motor and between the box and cover. Boxes shall be capable of rotation in 90° increments. Align boxes for bottom conduit entry.
- B. Provide an auxiliary terminal box for terminating auxiliary and protective devices lead wires.

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2.06 MANUFACTURERS, OR EQUAL

- A. **U.S. Motors/Nidec**
- B. **Baldor**
- C. **WEG**

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Motor installation shall be performed in accordance with the motor manufacturer's written recommendations and the written requirements of the manufacturer of the driven equipment. Shaft grounding devices shall be connected to the grounding system in accordance with the manufacturer's recommendations.
- B. Related electrical WORK involving connections, controls, switches, and disconnects shall be performed in accordance with the applicable sections of Division 26.

3.02 STORAGE

- A. Protect motors from exposure of elements for which they are not designed. Install and energize temporary electrical service to motors with electrical heaters.
- B. Unless protected by manufacturer's packing, upon delivery, carefully wrap each motor in three layers of 8 mil minimum polyethylene. Secure the wrap with adhesive tape to minimize the entrance of moisture. For base mounted motors, wrap the entire assembly.

3.03 FACTORY TESTING

- A. Motors rated 100 HP and larger shall be factory tested in conformance with IEEE 112, IEEE 43 - Recommended Practice for Testing Resistance of Rotating Machinery, and NEMA MG-2. Except where specific testing or witnessed shop tests are required by the specifications for driven equipment, factory test reports may be copies of routine test reports of electrically duplicate motors. Test report shall indicate test procedure and instrumentation used to measure and record data. Test report shall be certified by the motor manufacturer's test personnel and be submitted to the ENGINEER.

3.04 FIELD TESTING

- A. The CONTRACTOR shall perform the following field tests (see also Section 26 01 26 – Electrical Testing]):
 - 1. Inspect each motor installation for any deviation from rated voltage, phase, frequency, and improper installation.
 - 2. Visually check for proper phase and ground connections. Verify that multi-voltage motors are connected for proper voltage. Verify shaft grounding devices are properly grounded.
 - 3. Check winding and bearing temperature detectors and space heaters for functional operation.
 - 4. Test for proper rotation prior to connection to the driven equipment.
 - 5. Visually check that motor overload heaters are properly sized and that MCP breaker settings are correct for the motor installed.
 - 6. Test insulation (megger test) of new and re-used motors in accordance with NEMA MG-1. Test voltage shall be 1000 VAC plus twice the rated voltage of the motor.

END OF SECTION

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SECTION 26 05 15
INDUSTRIAL CONTROL PANELS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide complete industrial control panels and/or local control stations as indicated herein or in other Sections of the Specifications.
- B. This section also specifies miscellaneous electrical devices used throughout this project. These devices are not limited to use within industrial control panels or local control stations.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Industrial control panels and/or local control stations shall comply with the requirements of NEC (including Article 409), NEMA, and UL.

1.03 SUBMITTALS

- A. Furnish Shop Drawings in accordance with Sections 01 33 03 –Submittal Procedures and 26 00 00 – General Electrical Work.
 - 1. Ladder diagrams and written descriptions explaining ladder diagram operation and system operation.
 - 2. Include catalog cuts of control equipment including enclosures, overcurrent devices, relays, pilot devices, terminations, and wire troughs.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The CONTRACTOR shall provide the equipment, panels and stations to satisfy the functional requirements in the relevant mechanical equipment and Instrumentation and Control specifications and the Electrical Elementary Schematics. Each panel and station shall be fabricated with UL labeled components. Equipment not specifically indicated as being WORK of other Sections shall be provided under this Section. All equipment, panels and stations shall be wired under this Section.
- B. The controls shall be 120 V maximum. Where the electrical power supply is 240 V, single phase or 480 V, 3 phase, the station shall be provided with a fused control power transformer. Control conductors shall be provided in accordance with Section 26 05 19 – Wire and Cabling
- C. Each panel and/or station shall be provided with identified terminal strips for the connection of external conductors. The CONTRACTOR shall provide sufficient terminal blocks to connect 25 percent additional conductors for future use. Termination points shall be identified in accordance with Shop Drawings. The panels and/or stations shall be the source of power for all 120 VAC solenoid valves interconnected with the panels and/or stations. Equipment associated with the panels and/or stations shall be ready for service after connection of conductors to equipment, controls, panels and/or stations.
- D. Wiring to door-mounted devices shall be extra flexible and anchored to doors using wire anchors cemented in place. Exposed terminals of door-mounted devices shall be guarded to prevent accidental personnel contact with energized terminals.
- E. Enclosures

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1. In finished rooms, enclosures shall be NEMA 12 steel enclosures painted with ANSI 61 exterior and white interior.
 2. In all other non-hazardous areas, enclosures shall be NEMA 4X stainless steel with brushed finish. Where possible, penetrations shall be made in such a manner to maintain the NEMA 4X rating. If this is not possible, the penetrations shall be made in such a manner to minimize entry of foreign materials into the enclosure, subject to approval by the ENGINEER.
 3. In hazardous areas, enclosures shall be cast aluminum NEMA 7 and shall be UL listed for use in hazardous or classified locations.
 4. In chemical areas for alum, sodium hypochlorite, etc., NEMA 4X fiberglass enclosures shall be used.
 5. Enclosures shall be freestanding, pedestal-mounted, or equipment skid-mounted, as indicated. Internal control components shall be mounted on a removable mounting pan. Mounting pan shall be finished white.
- F. Disconnect Switches
1. Heavy duty, fusible, single throw switches shall be rated not less than 65 KAIC at 480 VAC.
 2. Horsepower rated
 3. UL listed
 4. Pad lockable in "Off" position and door interlock
 5. Enclosure per area classification in Section 26 00 00 – General Electrical Work.
 6. 480 V, 3-phase, 3-pole (6-pole when used with 2-speed motor).
 7. Auxiliary control contacts as applicable and where indicated.
 8. As manufactured by **GE, Eaton Electrical, Square D**, or equal.
- G. Identification of panel-mounted devices, conductors, and electrical components shall be in accordance with Section 26 00 00 – General Electrical Work.
- H. Panel-mounted devices shall be mounted a minimum of 3-feet above finished floor elevation, but not higher than 6'-6" above finished floor, unless noted otherwise.

2.02 PANEL/STATION COMPONENTS

- A. Pushbuttons, selector switches, and pilot lights shall be the heavy-duty, oil-tight type, sized to 30-mm. Miniature style devices are not acceptable. Devices shall be as manufactured by **Allen Bradley, EATON, Square-D**, or equal.
1. Lens colors shall be GREEN for "run," "open," or "on"; RED for "stopped," "closed," or "off"; and AMBER for alarm.
 2. Pilot lights shall be full voltage, push-to-test LED cluster type.
 3. Provide hazardous location type pilot devices in classified locations.
- B. Relays shall be 3 PDT with 10-amp contacts, plug-in type with indicating light, rectangular blades and provided with sockets for screw-type termination and hold-down clips. Relays shall be as manufactured by **Square-D, Potter Brumfield**, or equal.
- C. Elapsed time meters shall be non-resettable type, read to a maximum of 99999.9 hours and shall be as manufactured by **GE, EATON**, or equal.
- D. Magnetic starters shall be:

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1. NEMA rated, Size 1 minimum. IEC or dual NEMA/IEC rated type are not acceptable.
 2. FVNR type unless indicated otherwise.
 3. Combination starters with magnetic only instantaneous trip circuit breakers such as **EATON HMCP, SE GV5PB**, or equal. Breakers shall be rated 65 KIAC minimum.
 4. Control transformers shall be provided with primary and secondary fuses, 120 V maximum control voltage. VA rating of transformer shall be based on devices on the control schematic.
- E. Terminal strips shall be provided for every panel and shall be the flanged fork or ring lug type suitable for No. 12 AWG stranded wire minimum. Provide 25 percent spare terminals in each panel.
- F. Time delay relays shall be combination on delay and off delay (selectable) with adjustable timing ranges. Provide socket with screw terminal connections and retaining strap. Time delay relays shall be **Square D, ATC, EATON**, or equal.

2.03 FACTORY TESTING

- A. Each panel/station shall be factory assembled and tested for sequence of operation prior to delivery.

2.04 SPARE PARTS

- A. Provide a minimum of 10 percent spare lamps (minimum 2) and one spare lens for each color pilot lamp in each panel.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Panels/stations shall be installed in accordance with in Section 26 00 00 – General Electrical Work, and in accordance with the manufacturer's recommendations.
- B. Panels/stations shall be protected at the site from loss, damage, and the effects of weather. Panels/stations shall be stored in an indoor, dry location. Heating shall be provided in areas subject to corrosion and humidity.
- C. Panels/station interiors and exteriors shall be cleaned, and coatings shall be touched up to match original finish upon completion of the WORK.
- D. Conduit, conductors, and terminations shall be installed in accordance with Section 26 00 00 – General Electrical Work.

3.02 FIELD TESTING

- A. Each panel/station shall be tested again for functional operation in the field after the connection of external conductors and prior to equipment startup.

END OF SECTION

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SECTION 26 05 19
WIRE AND CABLING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide wire and cable, complete and operable, in accordance with the Contract Documents.
- B. In the event that motors provided are larger horsepower than the motors indicated, raceways, conductors, starters, overload elements, and branch circuit protectors shall be revised as necessary to control and protect the increased motor horsepower in accordance with Section 26 05 10 – Electric Motors. Revisions are part of the WORK of this Section.

1.02 SUBMITTALS

- A. The CONTRACTOR shall submit Shop Drawings in accordance with Sections 01 33 03 – Submittal Procedures and 26 00 00 – General Electrical Work.
- B. Submit catalog cuts and material list for each conductor type. Indicate insulation material, conductor material, voltage rating, manufacturer and other data pertinent to the specific cable, such as type shielding, number of pairs and applicable standards.
- C. Submit cable test results in accordance with this Section as well as Section 26 01 26 – Electrical Tests.

1.03 DELIVERY, STORAGE AND HANDLING

- A. The CONTRACTOR shall protect all cables from damage at all times.
- B. Cable ends shall be protected from water entry in accordance with the manufacturer's recommended procedures. Cable ends shall not be left open in manholes or other locations subject to submergence. If the cable ends become submerged prior to splicing or termination, the cables shall be replaced in their entirety.
- C. Cables shall be pulled into raceways in accordance with the manufacturer's requirements. Under no circumstances shall cable pulling tensions exceed the manufacturer's written instructions.
- D. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.

PART 2 - MATERIALS

2.01 GENERAL – LOW-VOLTAGE CABLE

- A. Conductors, include grounding conductors, shall be stranded copper. Aluminum conductor and/or solid conductor wire and cable will not be permitted. Insulation shall bear the UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size. Conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 LOW-VOLTAGE POWER AND LIGHTING CONDUCTORS

- A. Wire rated for 600 volts in duct or conduit for power and lighting circuits shall be single conductor, Class B Type XHHW-2 cross-linked polyethylene conforming to UL-44 - UL Standard for Thermoset-Insulated Wires and Cables.

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Wires and Cabling

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1. THHN/THWN wire shall not be permitted to be used for any power or control wiring in this project, except as specifically permitted within control panels per Section 40 95 13 – Control Panels.
- B. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3 percent at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5 percent.
- C. Wiring for 600-volt class power and lighting shall be as manufactured by **Okonite, General Cable, Southwire**, or equal.

2.03 LOW-VOLTAGE CONTROL CONDUCTORS

- A. Low voltage control wire in duct or conduit shall be the same type as power and lighting wire indicated above.
- B. Control wiring shall be No.14 AWG.
- C. Control wires inside panels and cabinets shall be machine tool grade type MTW, UL approved, rated for 90 degrees C at dry locations, and be as manufactured by **American, General Cable**, or equal.
- D. Multi-Conductor Cable: Where multi-conductor cable is indicated on the drawings, provide type TC, multi-conductor cable assemblies with an overall heat, moisture, and sunlight resistant PVC jacket. Conductor insulation shall be color coded per ICEA-S-58-679, method 1, colored compounds with tracers.

2.04 INSTRUMENT CABLE

- A. Instrumentation cable shall be rated at 300 volts, minimum.
- B. Individual conductors shall be No. 16 AWG stranded, tinned copper. Insulation shall be color coded polyethylene: black-clear for 2 conductor cable and black-red-clear for 3 conductor cable.
- C. Instrumentation cables shall be composed of the individual conductors, an aluminum polyester foil shield, a No. 18 or larger AWG stranded, tinned copper drain wire, and a PVC outer jacket with a thickness of 0.047-inches.
 1. Single pair, No. 16 AWG, twisted, shielded cable shall be **Belden Part No. 8719**, similar by **General Cable**, or equal.
 2. Single triad, No. 16 AWG, twisted, shielded cable shall be **Belden Part No. 8618**, similar by **General Cable**, or equal.

2.05 CABLE SPLICES AND TERMINATIONS

- A. Where cable lugs are required for power cable terminations, utilize compression lugs – **3M** Scotchklok 30000 and 31100 Series, **Penn Union** HBBLU and BLU, **Burndy** Hylug, or equal. Utilize compression tools as recommended by the manufacturer. Pressure type, twist-on connectors (wire nuts) will not be acceptable.
- B. Pre-insulated fork tongue lugs shall be **Thomas & Betts, Burndy**, or equal.
- C. General purpose insulating tape shall be **Scotch No. 33, Plymouth Slip-knot**, or equal. High temperature tape shall be polyvinyl as manufactured by **Plymouth, 3M**, or equal.
- D. Labels for coding 600-volt wiring shall be computer printable or pre-printed, self-laminating, self-sticking, as manufactured by **W.H. Brady, 3M**, or equal.
- E. Stress cone material for make-up of medium voltage shielded cable shall be as manufactured by **Raychem, 3M**, or equal.

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- F. Shielded power cable shall be spliced using kits specifically designed to splice medium voltage, shielded power cables. Splice kits shall be designed for continuous submergence. Heat shrink splice kits shall be **Raychem “Type HVS”**, or equal. “Cold” shrink splice kits shall be **3M “5760 Series”**, or equal. The CONTRACTOR’s personnel shall be trained by the splice kit manufacturer for proper installation of the splices, and shall submit certification of training as a shop drawing. A certified trainee shall perform the splice work.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The CONTRACTOR shall provide, terminate and test all power, control, and instrumentation conductors.
- B. The CONTRACTOR shall, as a minimum, provide the number of control wires listed in the conduit schedule or on the Contract Drawings. Excess wires shall be treated as spares for future use.
- C. Conductors shall not be pulled into any raceway until raceway has been cleared of moisture and debris.
- D. Instrumentation wire shall not be run in the same raceway with power and control wiring except where specifically indicated.
- E. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps, and shall be neatly fanned out to terminals.
- F. Single conductor cable in cable trays shall be No. 1/0 or larger and shall be of a type listed and marked for use in cable trays. Tray cable smaller than 1/0 shall be multi-conductor, with outer jacket.

3.02 FIELD ASSEMBLY

A. General

1. Wire taps and splices shall be properly taped and insulated according to their respective classes.
2. In general, there shall be no cable splices in underground manholes or pullboxes. If splices are necessary, the cables shall be spliced using submersible cable splices, suitable for continuous submergence. Splices in underground manholes and pullboxes may be made only with the approval of the ENGINEER.
3. Stranded conductors shall be terminated directly on equipment box lugs making sure that conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.
4. Excess control and instrumentation wires shall be long enough to terminate at any terminal block in the enclosure, be properly taped, be identified with origin, and be neatly coiled.

B. Control Wire and Cable

1. Control conductors shall be spliced or terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.
2. In motor control centers, and control panels, control wire and spare wire shall be terminated to terminal strips.
3. The CONTRACTOR shall provide as a minimum the number of control wires listed in the conduit schedule or as indicated in the Contract Documents. Excess wires shall be treated as spares.

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C. Instrumentation Wire and Cable

1. Shielded instrumentation cables shall be grounded at one end only, preferably the receiving end on a 4 - 20 mA system.
2. Two and 3 conductor shielded cables installed in conduit runs which exceed available standard cable lengths may be spliced in pullboxes with the prior approval of the ENGINEER. Such cable runs shall have only one splice per conductor.

D. Power Wire and Cable

1. 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may be spliced in suitable fittings at locations determined by the CONTRACTOR. Cables rated above 2,000 volts shall be spliced or terminated only at equipment terminals indicated.
2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of 2 layers of varnished cambric tape over-taped with a minimum of 2 layers of high temperature tape.
3. Shielded power cable shall be terminated with pre-assembled stress cones in a manner approved by the cable and terminal manufacturer. The CONTRACTOR shall submit the proposed termination procedure as a Shop Drawing.
4. VFD shielded power cables shall have the shield grounded at all locations where it is exposed.

3.03 IDENTIFICATION

A. Cable Identification

1. Wire and cable shall be identified for proper control of circuits and equipment and to reduce maintenance effort. Identification shall be installed at every termination point.
2. Identification Numbers
 - a. The CONTRACTOR shall assign to each control and instrumentation wire and cable a unique identification number in a Source/Destination format. The following are specific examples:
 - 61FY106-3/61PLCx001-1-1-4. This is a connection from a Flow Transmitter Signal Isolator to a PLC Analog Input Module Point, at Rack 1, Slot 1, Point 4.
 - 64FSHx00400-NC/61PLCP00001-TB5-123. This is a connection from an eyewash station flow switch to a PLC Panel Terminal Block TB-5, Terminal 124.
 - CB1-S/M1-L1. This is a connection within a MCC Bucket from Circuit Breaker CB-1 to Motor Contactor M1, Terminal L1 (the example show is a 120VAC Single Phase Motor).
 - b. Numbers shall be assigned to conductors having common terminals and shall be shown on "as built" drawings. Identification numbers shall appear within 3-inches of conductor terminals. "Control and Instrumentation Conductors" shall be defined as any conductor used for control, interlock, alarm, annunciator, or signal purposes.
 - c. Multiconductor cable shall be assigned a number which shall be attached to the cable at intermediate pull boxes and at stub-up locations beneath free-standing equipment. It is expected that the cable number shall form a part of the individual wire number. Individual control conductors and instrumentation cable shall be identified at pull points as described above. The instrumentation cable numbers shall incorporate the loop numbers assigned in the Contract Documents.

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- d. Color Coding of Power Wire: Provide color coding throughout the entire network of feeders and circuits (600 volts and below) per sheet I-02.
- e. Insulated ground wire shall be green, and neutral shall be gray. Color coding and phasing shall be consistent throughout the Site, but bars at panelboards, switchboards, and motor control centers shall be connected Phase A-B-C, top to bottom, or left to right, facing connecting lugs.
- f. Color coding tape shall be used where colored insulation is not available. Colored identification tape may be used on conductors between the local disconnect and the load, where permitted by the NEC. Any phase changes necessary for proper rotation shall be made at the driven equipment where colored insulation is used. Phase changes may be made on the load side of the local disconnect, where phase colors are identified using tape.
- g. General purpose AC control cable shall be red. General purpose DC control cable shall be blue.
- h. Spare cable shall be terminated on terminal screws and shall be identified with a unique number as well as with destination.
- i. Terminal strips shall be identified by computer printable, cloth, self-sticking marker strips attached under the terminal strip.

3.04 FIELD QUALITY CONTROL

- A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements of ICEA Publication No. S-95-658/NEMA WC70 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
- B. Factory test results shall be submitted in accordance with Section 01 33 03 – Submittal Procedures, prior to shipment of cable. The following field tests (in addition to the tests specified in Section 26 01 26 – Electrical Tests) shall be the minimum requirements:
 - 1. Insulation resistance testing, using a DC megohmmeter, shall be performed on cables operating at more than 2,000 volts to ground. Time-resistance readings shall be taken and recorded at intervals of 30 seconds and one minute. Time-resistance voltage levels shall be per the cable manufacturer's recommendations.
 - 2. Power cable rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a megohmmeter.
 - 3. Field testing shall be done after cable is installed in the raceways.
 - 4. Field tests shall be performed by a NETA-certified test organization. Field megger testing may be performed by a NETA-certified test organization. Test results shall be submitted to the ENGINEER for review and acceptance.
 - 5. Cables failing the tests shall be replaced with a new cable or be repaired. Repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.
- C. Continuity Test: Control and instrumentation cable shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing cable in service.

END OF SECTION

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Wires and Cabling

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SECTION 26 05 26

GROUNDING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide the electrical grounding system, complete and operable, as indicated in accordance with the Contract Documents.
- B. The requirements of Section 26 00 00 – General Electrical Work, apply to this Section.
- C. Single Manufacturer
 - 1. Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

1.02 SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures and Section 26 00 00 – General Electrical Work.
- B. Shop Drawings
 - 1. Submit manufacturer's product information for connectors, clamps, and all grounding system components, showing compliance with the requirements of this Section.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Components of the grounding electrode system shall be manufactured in accordance with UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.
- B. Grounding System
 - 1. Grounding loop conductors shall be bare annealed copper conductors.
 - 2. Conductors shall be No. 4/0 unless indicated otherwise.
 - 3. Ground Rods
 - a. Unless indicated otherwise, provide ground rods minimum of 3/4 inch in diameter, 10 feet long, and with a uniform covering of electrolytic copper metallurgically bonded to a rigid steel core.
 - b. Provide corrosion-resistant copper-to-steel bond.
 - c. The rods shall conform to UL 467.
 - d. The rods shall be of the sectional type, joined by threaded copper alloy couplings.
 - 4. Buried, concrete-encased, or otherwise inaccessible cable-to-cable and cable-to-ground rod connections using exothermic welds.
 - a. Manufacturer, or Equal
 - **Cadweld**
 - **Thermoweld**
 - 5. Exposed Connectors

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- a. Exposed grounding connectors shall be of the compression type (connector-to-cable), constructed of high-copper alloy, and manufactured specifically for the particular grounding application.
 - b. Manufacturer, or Equal
 - **Burndy**
 - **O.Z. Gedney**
6. Use grounding clamps to bond each separately-derived system to the grounding electrode conductors.
7. Equipment Grounding Circuit Conductors
- a. The conductors shall be the same type and insulation as the load circuit conductors.
 - b. The minimum size shall be as indicated. Where not indicated, sizes shall conform to Table 250.122 of the National Electrical Code.
 - c. Metallic conduit systems shall have an equipment grounding wires as well as being equipment grounding conductors themselves.
8. Grounding Materials Manufacturer, or Equal
- a. **Copperweld**
 - b. **Thermoweld**
 - c. **OZ Gedney**

PART 3 - EXECUTION

3.01 PREPARATION

- A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.
- B. Provide a separate grounding conductor for each motor and connect at motor box. Provide a supplemental ground connection for motor shaft grounding rings, where applicable.
- C. Do not use bolts for securing the motor box to the frame or the cover for grounding connectors.
- D. Sizes shall be as indicated on the Conduit Schedule and in accordance with NEC Article 250.
- E. Route the conductors inside the raceway.
- F. Provide a grounding-type bushing for secondary feeder conduits that originate from the secondary section of each MCC section, switchboard, or panelboard.
- G. Individually bond the raceway to the ground bus in the secondary section.
- H. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw, and, for grounding type devices, to the equipment grounding conductor.
- I. Provide a separate grounding conductor in each individual raceway for parallel feeders. Connect the parallel ground conductors together at each end of the parallel run, as required by the NEC.
- J. Interconnect the secondary switchgear MCC or panelboard neutral bus to the ground bus in the secondary switchgear compartment only at the service entrance point. For wye connected, 3 phase, separately derived systems with 3 wire distribution, connect the transformer neutral to the grounding electrode system at the transformer. Connections shall be in accordance with the NEC.

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- K. Provide the duct bank ground system as indicated, including trenching, splices, ground rods, and connections to equipment and structures.
- L. Measure ground impedance in accordance with IEEE STD 81 after installation but before connecting the electrode to the remaining grounding system. Provide additional grounding system testing in accordance with Section 26 01 26 – Electrical Tests.
- M. Low Voltage Grounded System (600V or less)
1. A low-voltage grounded system is defined as a system where the local power supply is a transformer, with the transformer secondary grounded.
 2. Grounding system connections for a premises-wired system supplied by a grounded AC service shall be provided with a grounding electrode connector connected to the grounded service conductor at each service, in accordance with the NEC.
 3. The grounded circuit conductor shall not be used for grounding non-current-carrying parts of equipment, raceways, and other enclosures except where specifically listed and permitted by the NEC.
- N. Embedded Ground Connections
1. Underground and grounding connections embedded in concrete shall be UL-listed ground grid connectors.
 2. The connection shall be made in accordance with the manufacturer's instructions.
 3. Do not conceal or cover ground connections until the ENGINEER or an authorized representative has established that every grounding connection conforms to the requirements of the Contract Documents and has given the CONTRACTOR written confirmation.
- O. Ground Ring
1. Furnish trenching and materials as necessary to install the ground ring as indicated.
 2. The bonding conductor shall be in direct contact with the earth and of the indicated size.
 3. Provide a minimum burial depth of 36 inches or as indicated on the Drawings, whichever is greater.
 4. Re-compact disturbed soils to their original density in 6-inch lifts.
- P. Duct Bank Ground
1. Embed a grounding conductor in every duct bank as indicated. The ground conductor shall be terminated at the ground grid at each end of the duct bank. Where no ground grid is installed, terminate at a suitable grounding electrode conductor near the end of the duct bank in accordance with the NEC.
- Q. Ground Rods
1. Provide ground rods at the indicated locations.
 2. A single electrode that does not have resistance-to-ground of 25 ohms or less shall be augmented by additional electrodes to obtain this value.
 3. Take the resistance-to-ground measurement during dry weather, a minimum of 48 hours after a rainfall.
 4. Rods forming an individual ground array shall be equal in length.
- R. Instrumentation Shield Grounding

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1. Shielded instrumentation cable shall have its shield grounded at one end only unless the approved Shop Drawings indicate that the shield will be grounded at both ends.
2. The grounding point shall be at the control panel or at the receiving end of the signal carried by the cable.
3. The termination of the shield drain wire shall be on its own terminal screw.
4. Jumper together the terminal screws, using manufactured terminal block jumpers or a No. 14 green insulated conductor.
5. Connect the ground bus via a green No. 12 conductor to the main ground bus for the panel.

END OF SECTION

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SECTION 26 05 33
ELECTRICAL RACEWAY SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide electrical raceway systems, complete and in place, as indicated in accordance with the Contract Documents.
- B. In the event that individual equipment loads provided are larger than indicated in the Contract Documents, revise raceways, conductors, starters, overload elements, and branch circuit protectors as necessary in order to control and protect the increased connected load in conformance to NEC requirements as part of the WORK.

1.02 SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 03 – Submittal Procedures, and Section 26 00 00 – General Electrical Work.
- B. Shop Drawings
 - 1. Submit complete catalog cuts of raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures that are dedicated to the raceway system shall comply with the requirements of this Section.

2.02 CONDUIT

- A. Galvanized Rigid Steel (GRS) Conduit
 - 1. Provide rigid steel conduit manufactured from mild steel, hot-dip galvanized inside and out.
 - 2. Provide rigid steel conduit manufactured in accordance with NEMA C80.1 – Electrical Rigid Steel Conduit, and UL-6 – Electrical Rigid Metal Conduit - Steel.
 - 3. Manufacturer, or Equal
 - a. **Allied Tube & Conduit**
 - b. **Wheatland Tube**
- B. PVC Rigid Non-Metallic Conduit
 - 1. Provide rigid non-metallic conduit manufactured from Schedule 40 PVC, as indicated, and sunlight-resistant.
 - 2. Provide rigid non-metallic conduit manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.
 - 3. Manufacturer, or Equal
 - a. **Carlton**
 - b. **Cantex**
- C. Rigid PVC-Coated Galvanized Steel (GRS-PVC) Conduit

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1. The conduit shall meet the requirements for GRS conduit as indicated above.
 2. Bond a PVC coating to the outer surface of the galvanized conduit.
 3. Ensure that the bond between the coating and the conduit surface is greater than the tensile strength of the coating.
 4. Provide the inside surfaces and threads of the conduit with a 2-mil urethane coating.
 5. Provide a PVC coating thickness not less than 40 mils.
 6. The PVC-coated RGS shall be manufactured in accordance with the following standards:
 - a. UL-6
 - b. ANSI C80.1
 - c. NEMA RN1 - PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
 7. Manufacturer, or Equal
 - a. **Robroy Industries**
 - b. **O'Kote**
 - c. **Thomas & Betts**
- D. Liquid-Tight Flexible Conduit
1. Provide liquid-tight flexible conduit constructed of a flexible galvanized metal core with a sunlight-resistant thermoplastic outer jacket.
 2. Provide liquid-tight flexible conduit manufactured in accordance with the requirements of UL-360 - Steel Conduits, Liquid-Tight Flexible.
 3. Manufacturer, or Equal
 - a. **Anaconda, Sealtite**
 - b. **Electriflex, Liquatite**
- E. Electrical Metallic Tubing (EMT) or Intermediate conduit (IMC) will not be accepted.

2.03 FITTINGS AND BOXES

A. General

1. For use with metallic conduit, provide cast and malleable iron fittings of the threaded type with 5 full threads.
2. Fittings and Boxes
 - a. Provide fittings and boxes with neoprene gaskets and non-magnetic stainless steel screws.
 - b. Attach covers by means of holes tapped into the body of the fitting.
 - c. Covers for fittings attached by means of clips or clamps will not be accepted.
 - d. Provide surface-mounted switches and receptacles shall be housed in FD-type weatherproof conduit fittings. Bell type boxes are not permitted.
3. Provide boxes larger than standard cast or malleable types manufactured of Type 316 stainless steel, NEMA 4X.
4. Terminations

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- a. In outdoor areas, terminate conduit in rain-tight hubs.
 - b. Manufacturer, or Equal
 - **Myers**
 - **O.Z. Gedney**
 - **Appleton**
 - c. In other than outdoor areas, provide sealed locknuts and bushings.
5. Hazardous Locations
- a. In hazardous locations, provide conduit, fittings, and boxes suitable for the indicated Class and Division.
 - b. Provide conduits terminated in NEMA 7 boxes with a male bushing, inside the box.
 - c. Manufacturer, or Equal
 - **Adalet Type PEM**
- B. Cast Aluminum Fittings and Boxes
- 1. Provide cast aluminum boxes and fittings with less than 0.40 percent copper content, and use with aluminum conduit.
 - 2. Manufacturer, or Equal
 - a. **Crouse-Hinds (EATON) Mark 9**
- C. Malleable Iron Fittings and Boxes
- 1. For use with galvanized steel conduit, provide fittings and boxes constructed of malleable iron or gray-iron alloy with zinc plating boxes shall be of the FD type.
 - 2. Manufacturer, or Equal
 - a. **Crouse-Hinds (EATON) Form 5**
 - b. Equivalent by **O.Z. Gedney**
 - c. Equivalent by **Appleton**
- D. PVC Fittings and Boxes
- 1. For use with rigid non-metallic conduit, provide fittings manufactured of solvent-welded PVC.
 - 2. Provide boxes manufactured of PVC.
 - 3. Manufacturer, or Equal
 - a. **Hoffman**
 - b. **Crouse-Hinds (EATON)**
 - 4. Provide welding solvent as required for the installation of non-metallic conduit and fittings.
- E. PVC-Coated RGS Fittings
- 1. For use with PVC-coated RGS, provide PVC-coated coated that are the products of the same manufacturer as the conduit.
 - 2. Provide male and female threads and internal surfaces with a 2-mil urethane coating.
- F. Stainless Steel Boxes
- 1. Provide stainless steel boxes with PVC-coated RGS conduit and where indicated.

2. Provide NEMA 4X stainless steel boxes, constructed of Type 316 stainless steel.
3. Provide stainless steel of a minimum of 14-gauge thickness, with a brushed finish.
4. Door Hinges
 - a. Provide doors with full-length stainless steel piano hinges.
 - b. Non-hinged boxes will not be accepted.
5. Manufacturer, or Equal
 - a. **Hoffman**
 - b. **Rittal**

G. Sheet Steel Boxes

1. Sheet steel boxes shall be galvanized steel outlet and switch boxes.
2. Manufacturer, or Equal
 - a. **Raco**
 - b. **Steel City**
 - c. **Appleton Electric**

2.04 HAZARDOUS LOCATIONS

- A. Conform with NEC Articles 501 and 502 for areas identified as "Hazardous Areas".
- B. Provide threaded cast boxes and fittings for junction boxes and pull boxes in Class I and Class II areas. Unless otherwise indicated, boxes and fittings shall be UL listed for installation in Class I, Groups A, B, C, and D and Class II, Groups E, F, and G.
- C. Fixture hangers for pendant-mounted lighting fixtures shall conform to Class I, Division 1 and Class II Division 1 requirements.
- D. Provide conduit seals with sealing compound and fiber in Class I, Division I location within 18 inches of each conduit entering an enclosure containing electrical devices except for hermetically sealed switches and receptacles. Provide a conduit seal for each conduit leaving the hazardous location.
- E. Flexible connections to motors and other vibrating equipment in Class I, Division I locations shall be made with flexible fittings approved for Class I locations.

2.05 WIREWAY

- A. General
 1. Provide wireway of the lay-in type and NEMA-rated for the area in which it is to be installed in accordance with the requirements of Section 26 00 00 – General Electrical Work.
 2. Separate power, control, signal and communications cables by grounded metallic dividers in wireways or run in separate wireways.
- B. Fittings and Covers
 1. Provide fittings and sections with non-magnetic stainless steel screws.
 2. Attach covers by hinges and clamps to the bodies.
 3. Covers attached by means of clips or screws will not be accepted.
 4. Provide covers and bodies constructed of aluminum or minimum 14-gauge steel.
- C. Grounding

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1. Ground the steel and aluminum wireway bodies.
 2. Provide steel dividers with steel wireways or aluminum dividers with aluminum wireways, and ground by means of an individual grounding conductor.
 3. Non-metallic dividers will not be accepted.
- D. Terminations
1. In indoor and outdoor areas, terminate conduit in rain-tight hubs as manufactured by Myers, O.Z. Gedney, or equal.
 2. Manufacturer, or Equal
 - a. **Myers**
 - b. **O.Z. Gedney**

PART 3 - EXECUTION

3.01 GENERAL

- A. Run wiring in raceway unless indicated otherwise.
- B. Install raceways between equipment as indicated.
- C. Provide raceway systems that are electrically and mechanically complete before conductors are installed.
- D. Bends and Offsets
 1. Provide bends and offsets that are smooth and symmetrical, and accomplished with tools designed for this purpose.
 2. Provide factory elbows wherever possible.
- E. Routing
 1. Where raceway routings are indicated, follow those routings to the extent possible.
 2. Where raceways are indicated but routing is not indicated, such as home runs or on conduit developments and schedules, raceway routing shall be the CONTRACTOR's choice and provided in strict accordance with the NEC as well as customary installation practice.
 3. Provide the raceway encased, exposed, concealed, or under-floor as indicated, except conceal conduit in finished areas unless specifically indicated otherwise.
 4. Adjust routings in order to avoid obstructions.
- F. Coordination
 1. Coordinate between trades prior to installing the raceways.
 2. The lack of such coordination shall not be justification for extra compensation, and any costs for removal and re-installation to resolve conflicts shall be part of the Contract Price.
- G. Install exposed raceways parallel or perpendicular to structural beams.
- H. Expansion Fittings
 1. Install expansion fittings with external bonding jumpers wherever exposed raceways cross building expansion joints.

2. Install expansion/deflection fittings where conduit movement is expected in more than one dimension, and where conduits transition out of structures in locations where differential settlement may occur.
3. Encased Expansion Fittings
 - a. Install encased expansion fittings wherever encased conduits cross building expansion joints.
 - b. Deflection type fittings shall not be required for encased conduits crossing an expansion joint within a single structure.
4. Provide expansion and expansion/deflection fittings constructed of the same material as the raceway to which they are installed.
- I. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.
- J. Install exposed raceways at least 1/2 inch from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, install exposed raceways at least 1/4 inch from the face of walls or ceilings by the use of clamp backs or struts.
- K. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, provide a means of suitable insulation in order to prevent such corrosion.

3.02 CONDUIT

- A. Provide exposed conduit manufactured of rigid galvanized steel, except as follows and unless indicated otherwise:
 1. In areas with chlorine or hydrofluosilicic acid, provide Schedule 40 PVC conduit.
 2. In Class I, Div I or Div II hazardous locations, provide PVC-coated GRS conduit.
 3. For conduit containing only grounding system bonding conductors, provide Schedule 80 PVC conduit.
- B. Power conduit encased in concrete shall be constructed of Schedule 40 PVC.
- C. Analog control or instrumentation conduit shall be GRS.
- D. Concrete Encasement
 1. Where PVC or GRS conduit is stubbed up from a concrete encasement, provide a PVC-coated GRS elbow.
 2. The conduit shall emerge from the concrete in a direction perpendicular to the surface whenever possible.
 3. Do not encase conduit in the bottom floor slab below grade.
- E. Size
 1. Provide exposed conduit of 3/4-inch minimum trade size.
 2. Provide encased conduit of one-inch minimum trade size.
- F. Install supports at distances required by the NEC.
- G. Concrete cover for conduit and fittings shall not be less than 1-1/2 inches for concrete exposed to earth or weather, or less than 3/4 inch for concrete not exposed to weather or in contact with the ground.
- H. Penetrations

1. Provide conduit passing through walls or floors with plastic sleeves.
 2. Perform core drilling in accordance with the requirements of Section 26 00 00 – Electrical Work, General.
 3. Conduits passing through a slab, wall, or beam shall not significantly impair the strength of the construction.
- I. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall meet the following requirements:
1. Conduits with their fittings embedded within a column shall not displace greater than 4 percent of the gross area of cross section;
 2. Conduits shall not be larger in outside dimension than 1/3 the overall thickness of the slab, wall, or beam in which it is embedded; and,
 3. Conduits shall not be spaced closer than 3 outside diameters on centers.
- J. Place the conduit such that cutting, bending, or displacing reinforcement from its proper location will not be required.
- K. Coat threads with a conductive lubricant before assembly.
- L. Joints
1. Provide joints that are tight, thoroughly grounded, secure, and free of obstructions in the pipe.
 2. Adequately ream the conduit in order to prevent damage to the wires and cables inside.
 3. Use strap-wrenches and vises to install the conduit, in order to prevent wrench marks on the conduit.
 4. Replace conduit with wrench marks.
 5. Where installed in chemical or fuel containment areas, the conduit shall not have joints or fittings located below the top of the containment area to prevent entry of chemicals or fuel into the conduit system.
- M. Slope
1. Wherever possible, slope the conduit runs to drain at one or both ends of the run.
 2. Wherever conduit enters a substructure below grade, slope the conduit in order to drain water away from the structure.
 3. Take extreme care in order to avoid pockets or depressions in the conduit.
- N. Where conduits from duct banks enter building walls below grade, transition to PVC-coated GRS at least 12" outside the wall. Installation of PVC-coated rigid steel conduit through a core-drilled hole in an exterior wall below-grade shall utilize a sealing device as manufactured by **Link Seal**, or equal.
- O. Connections
1. Make connections to lay-in-type grid lighting fixtures by using flexible metal conduit not exceeding 4 feet in length.
 2. Make connections to motors and other equipment subject to vibration by using liquid-tight flexible conduit not exceeding 3 feet in length.
 3. Provide equipment subject to vibration that is normally provided with wiring leads with a cast junction box for the make-up of connections.

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- P. Provide conduit seal fittings in hazardous classified locations, in strict accordance with the NEC.
- Q. Provide conduit, fittings, and boxes required in hazardous classified areas that are suitably rated for the area, and provide in strict accordance with NEC requirements.
- R. Duct sealant shall be foam duct sealant such as **Polywater FST or approved equal**. Provide duct sealant at the following locations:
1. Where required by NEC Article 300.7.
 2. In areas where chlorine gas or fumes from sodium hypochlorite exist to prevent passage of gas through the raceway system.
- S. Empty Conduits
1. Tag empty conduits at both ends to indicate the final destination.
 2. Where it is not possible to tag the conduit, identify the destination by means of a durable marking on an adjacent surface.
 3. Install a pull-cord in each empty conduit in floors, panels, manholes, equipment, and the like.
 4. Install a removable plug on empty conduits that terminate below grade, in vaults, manholes, handholes, and junction or pullboxes.
- T. Identification of Conduits
1. Identify conduits at ends and at pulling points.
 2. Identification shall be the unique conduit number assigned in the Contract Documents.
 3. Other than 120 VAC panelboard circuits, if a conduit has not been assigned a unique number in the Contract Documents, assign a unique number following the numbering scheme used in the Contract Documents.
 4. Assign a unique number to 120 VAC panelboard circuits, similar to the cable numbering scheme used in the Contract Documents.
 5. Provide conduit identification by a stamped or engraved non-corroding metal tag attached to the conduit bushing.
 6. Provide an engraved phenolic nameplate in accordance with the requirements of Section 16050 – General Electrical Work.
 7. Markings with a pen or paint will not be accepted.
- U. Identification of Pullboxes and Junction Boxes
1. Identify pullboxes and junction boxes.
 2. Identification shall be the unique conduit number assigned in the Contract Documents, or if not assigned a unique number the CONTRACTOR shall assign one following the numbering scheme used in the Contract Documents.
 3. Provide box identification by a stamped or engraved non-corroding metal tag or an engraved phenolic nameplate, in accordance with the requirements of Section 16050 – General Electrical Work, and attached to the box or enclosure.
 4. Markings with a pen or paint will not be accepted.
- V. Provide conduit for data cables in accordance with the equipment manufacturer's recommendations, especially regarding separation from low- and medium-voltage power raceways.

END OF SECTION

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SECTION 26 05 43
UNDERGROUND RACEWAY SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide underground raceway systems, complete and in place, as indicated in accordance with the Contract Documents.
- B. Pull boxes, and fittings that are dedicated to the underground raceway system shall comply with the requirements of this Section.

1.02 SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures, and Section 26 00 00 – General Electrical Work.
- B. Shop Drawings
 - 1. Submit complete catalog cuts of all raceways, fittings, pullboxes, marked where applicable in order to show proposed materials and finishes.
- C. As-Built Drawings
 - 1. Prepare as-built drawings of encased concealed and exposed raceways, ducts, raceways, junction boxes, pull boxes, and electrical and instrumentation equipment.
 - 2. Show routings, burial depths, and handhole locations and sizes, and where applicable, connections to drainage systems.
 - 3. Furnish the drawings to the ENGINEER in accordance with the requirements of Section 01 33 03 – Submittal Procedures.

PART 2 - PRODUCTS

2.01 PULLBOXES

- A. Frames and Covers
 - 1. Provide traffic-type covers with an H-20 loading, except as otherwise indicated.
 - 2. Identify pullbox covers as "ELECTRIC" by providing raised letters cast into the covers.
 - 3. Provide frost-proof and water-tight grey iron frames and covers with solid lids and inner lids, and with 28-inch clear openings.
 - 4. Bolt the covers and lids to cast-in-place steel frames using corrosion-resistant hardware.
 - 5. Factory-prime the frames.
 - 6. Provide covers constructed of cast-iron, and provide pick holes.
 - 7. Provide frames with a 1/2-inch drilled and tapped hole and lug in order to accommodate a No. 4/0 AWG bare stranded copper conductor connected to a ground rod and the ground conductor of power cables passing through the pull boxes.
- B. Equip pull boxes with pulling-in irons, opposite and below each ductway entrance.
- C. Provide pull boxes with closed bottoms; open-bottom pull boxes will not be accepted.
- D. Provide PVC duct bank conduits with end bells.

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E. Brackets

1. Provide non-metallic, non-conductive brackets and stanchions in pull boxes as required for racking wiring through the pull boxes. Attach to pull boxes walls using stainless steel anchors and hardware.
2. Brackets and stanchions: **Underground Devices, Inc.**, or equal.

F. Precast Pull boxes Manufacturer, or Equal

1. **Jensen Precast**
2. **Old Castle**
3. **U.S. Precast**

2.02 DUCTBANKS

A. Provide underground ducts constructed of Schedule 40 PVC.

B. Encase ducts in red-dyed concrete with steel reinforcing bars.

C. Provide concrete with a 3,000-psi compressive strength conforming to the requirements of Section 03 30 03 – Cast-in-Place Concrete.

D. Colorant

1. The concrete shall be dyed red throughout the ducts; surface treatment will not be accepted.
2. Provide colorant consisting of an integral red-oxide coloring pigment in the proportion of 8 pounds per cubic yard of concrete.
3. The costs, if any, of cleaning coloring pigment from the concrete delivery equipment and other related cleanings shall be considered as part of the WORK.

E. Grounding

1. Duct banks shall contain a No. 4/0 bare stranded copper ground wire.
2. The ground wire shall be continuous through the ductbank and terminate at power distribution equipment and the grounding grid.

F. Identification Tape

1. Provide continuous lengths of underground warning tapes located 12 inches above and parallel to the duct banks.
2. Provide tape consisting of 6-inch wide polyethylene film, imprinted with "CAUTION - ELECTRIC UTILITIES BELOW."
3. Manufacturer, or Equal

a. **Brady**

PART 3 - EXECUTION

3.01 GENERAL

- A. Install underground raceways between pull boxes as indicated.
- B. Raceway systems shall be electrically and mechanically complete before conductors are installed.
- C. Provide bends and offsets that are smooth and symmetrical, and fabricated with tools designed for this purpose.

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- D. Use factory elbows wherever possible.
- E. To the extent possible, follow the raceway routings as indicated on the Drawings.
- F. Adjust the indicated routings as necessary in order to avoid obstructions.
- G. Coordination with Other Trades
 - 1. Coordinate with other trades prior to installation of raceways.
 - 2. The lack of coordination shall not be justification for extra compensation.
 - 3. Perform removal and re-installation to resolve conflicts as part of the WORK.

3.02 DUCTBANKS

- A. Install duct banks in accordance with the following criteria:
 - 1. Assemble the duct using high-impact, non-metallic spacers and saddles in order to provide conduits with vertical and horizontal separation.
 - 2. Set the plastic spacers every 5 feet.
 - 3. Anchor the duct array every 5 feet in order to prevent movement during the placement of concrete.
 - 4. Lay the duct on a grade line of at least 3 inches per 100 feet, sloping towards pull boxes.
 - 5. Install the duct and adjust the pull box depths such that the top of the concrete envelope is a minimum of 18 inches below grade and a minimum of 24 inches below roadways.
 - 6. Accomplish changes in direction of the duct envelope by more than 10 degrees horizontally or vertically by using bends with a minimum radius 24 times the duct diameter.
 - 7. Stagger duct couplings a minimum of 6 inches.
 - 8. Provide select backfill or sand for the bottom of the trench.
 - 9. Cleaning
 - a. Clean each bore of the completed duct bank by drawing through it a standard flexible mandrel, one foot long and 1/4 inch smaller than the nominal size of the duct.
 - b. After passing the mandrel, draw through a wire brush and swab.
 - 10. For spare raceways that are not indicated to contain conductors, provide a 1/8-inch polypropylene pull cord installed throughout the entire length of the raceway.
- B. Grout duct entrances smooth, and terminate ducts with flush end bells.
- C. Assemble sections of pre-fabricated pull boxes using waterproof mastic, and set on a 6-inch bed of gravel as recommended by the manufacturer or as required by field conditions.
- D. Provide watertight duct bank penetrations through walls of pull boxes, and building walls below grade.
- E. Terminate concrete-encased duct banks at building foundations.
- F. Where ducts enter buildings, provide duct sealant in every duct at the building-end of the duct run to prevent water or condensation entry from the duct bank into the building.
 - 1. Manufacturer, or Equal
 - a. **Polywater FST, FST-MINI**

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- G. When duct enters the building on a concrete slab on grade, do not encase the duct but transition to rigid steel PVC-coated conduits on stub-ups.
- H. Sealing
 - 1. Where an underground conduit enters a structure through a concrete roof or a membrane-waterproofed wall or floor, provide a sealing device.
 - 2. Manufacturer, or Equal
 - a. **Link-Seal**
 - 3. Use the sealing device with rigid steel conduit.
 - 4. Transition from PVC to rigid steel conduit prior to building entry.

END OF SECTION

SECTION 26 05 48
SEISMIC RESTRAINTS AND SUPPORTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide seismic restraint devices for electrical systems, complete and operable, in accordance with the Contract Documents.

1.02 SUBMITTALS

- A. Submittals shall be in accordance with Administrative Requirements Section 01 33 03 – Submittal Procedures and Section 26 00 00 – General Electrical Work.
- B. Submit seismic anchoring calculations with equipment and raceway submittals. Calculations and determination of anchor types shall be performed and stamped by a licensed structural engineer registered in the State of California. Engineer shall either be employed by the equipment manufacturer or the equipment manufacturer shall hire an independent consultant to perform these services.
- C. Submit equipment anchoring methods. Include anchoring locations, anchor types and minimum anchor embedment depths.
- D. Submit catalog cuts and material list for each anchor type.
- E. Submit recommended torque values for bolting.

PART 2 - MATERIALS

2.01 SEISMIC ANCHORING AND RESTRAINTS

- A. Equipment Anchors:
 - 1. Securely anchor electrical equipment. Anchoring shall have the capability of withstanding seismic forces per ASCE 7-05, Minimum Design Loads for Buildings and Other Structures, Chapter 13, with SDS = 0.686, IP = 1.5, RP = 2.5, and ap = 1.0.
- B. Raceway Supports:
 - 1. Seismically support raceways (conduit, cable tray, busway, etc.) 2.5 inches inside diameter and larger and suspended 12 inches or more from the top of the raceway to the bottom of the support for the hanger. Raceway supports shall have the capability of withstanding seismic forces per ASCE 7-05, Minimum Design Loads for Buildings and Other Structures, Chapter 13, with SDS = 0.686, IP = 1.5, RP = 2.5, and ap = 1.0.
 - 2. Seismically supported raceway systems shall currently be pre-approved by the California Office of Statewide Health Planning and Development.

2.02 MOUNTING HARDWARE

- A. Miscellaneous Hardware
 - 1. Provide nuts, bolts, and washers constructed of stainless steel.
 - a. Materials
 - All Areas: Anchor bolts and screws shall be Type 316 ASTM A276 stainless steel. Nuts shall be hex Type 316 stainless steel, ASTM A194, Grade 8M, or ASTM F594, Type 316 stainless steel.

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Seismic Restraints and Supports

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2. Provide threaded rods for trapeze supports constructed from continuous threaded galvanized steel, 3/8-inch diameter minimum.

- a. Materials

- All Areas: ASTM A276, Type 304 stainless steel.

- B. Struts

1. Construct struts for mounting of conduits and equipment of 304 stainless steel.
2. Where contact with concrete or dissimilar metals may cause galvanic corrosion, use suitable non-metallic insulators in order to prevent such corrosion.
3. Aluminum strut for free-standing support frames are not permitted.
4. Strut Manufacturer, or Equal: **Unistrut; B-Line**

- C. End Caps

1. Provide plastic protective end caps for all exposed strut ends.
2. End Caps Manufacturer, or Equal: **Unistrut, Model P2860**

- D. Anchors

1. Provide stainless steel expansion anchors for attaching equipment to concrete walls, floors, and ceilings.
2. Wood plugs will not be accepted.
3. Anchor Manufacturer, or Equal: **"Power-Bolt" or "Power-Stud"** as manufactured by **Power Fasteners, Inc.**; similar by **Star**.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The CONTRACTOR shall provide and install equipment anchors and raceway supports in accordance with the final shop drawings and manufacturer's recommendations. Properly torque all bolts to the recommended values.

END OF SECTION

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Seismic Restraints and Supports

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SECTION 26 05 73
PROTECTIVE DEVICE STUDIES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall perform the indicated short circuit and protective device studies for the electrical power system in accordance with the Contract Documents.
- B. The WORK of this Section shall include protection studies for motors with solid state overload and overcurrent protection devices.
- C. It is the responsibility of the CONTRACTOR to obtain the information required from the electric utility and appropriate vendors.

1.02 QUALIFICATIONS

- A. Short circuit studies, protective device evaluation studies, arc-flash hazard analysis studies, and protective device coordination studies shall be performed by a manufacturer who has been regularly engaged in short circuit and protective device coordination services for a period of at least 10 years.
- B. The indicated studies shall be signed by the professional electrical engineer, registered in the State of California, responsible for the studies.
- C. The studies shall utilize computer programs with proven reliability and accuracy for performing 3-phase fault-duty calculations.

1.03 SUBMITTALS

- A. The indicated studies shall be submitted and approved by the ENGINEER prior to final approval of the distribution equipment Shop Drawings and release of equipment for manufacture.
- B. An initial short circuit study shall be submitted and reviewed before the ENGINEER will approve the Shop Drawings for medium-voltage switchgear, transformers, or 480-volt distribution equipment.
- C. Submit an initial protective device coordination study shall be submitted with 90 days after the approval of the initial short circuit study.
- D. The short circuit, arc-flash hazard analysis, and protective device coordination studies shall be updated prior to Project Substantial Completion; utilize characteristics of as-installed equipment and materials.
- E. The adequacy of the equipment "withstand" and interruption ratings shall be approved by the ENGINEER.

1.04 MANUFACTURERS' SERVICES

- A. The low-voltage switchgear manufacturer shall furnish the services of a qualified field engineer and necessary tools and equipment in order to test, calibrate, and adjust the protective relays and circuit breaker trip devices as recommended in the power system coordination study.
- B. The motor control center manufacturer shall furnish the services of a qualified field engineer to calibrate the MCPs as recommended in the power system study.

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Protective Device Studies

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PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. The studies shall include development of single-line and impedance diagrams of the power system.
- B. The diagrams shall identify components considered in the study and the ratings of power devices, including transformers, circuit breakers, relays, fuses, busses, and cables.
- C. The resistances and reactance's of cables shall be identified in the impedance diagram.
- D. The studies shall contain written data from the electric utility company regarding maximum available short circuit current, voltage, and X/R ratio of the utility power system.
- E. The studies shall include every protective device and feeder included within the WORK.
- F. The first upstream overcurrent device outside the WORK shall be used as a fixed reference.
- G. The studies shall include all portions of the electrical distribution system for normal and standby power sources down to and including the 480-volt distribution system.

3.02 SHORT CIRCUIT STUDY

- A. The short circuit study shall be performed with the aid of a digital computer program, and shall be in accordance with the following Standards:

ANSI/IEEE 141	Recommended Practice for Electrical Power Distribution for Industrial Plants
ANSI/IEEE 242	Recommended Practice for Protection, and Coordination of Industrial, and Commercial Power Systems
ANSI/IEEE C 37.010	Application Guide for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis
ANSI/IEEE C 37.13	Low-Voltage AC Power Circuit Breakers Used in Enclosures

3.03 PROTECTIVE DEVICE EVALUATION STUDY

- A. A protective device evaluation study shall be performed in order to determine the adequacy of circuit breakers, molded case switches, and fuses.
- B. Any problem areas or inadequacies in the equipment due to prospective short-circuit currents shall be promptly brought to the attention of the ENGINEER.
- C. Do not utilize series-rated circuit breakers to meet short circuit requirements for this project.
- D. Devices shall be fully rated to withstand available fault currents.

3.04 PROTECTIVE DEVICE EVALUATION STUDY

- A. A protective device coordination study shall be performed in order to develop the necessary calculations to select power fuse ratings, protective relay characteristics and settings, ratios and characteristics of associated current transformers, and low-voltage breaker trip characteristics and settings.

- B. Any problem areas or inadequacies in the equipment due to prospective short-circuit currents shall be promptly brought to the ENGINEER's attention.

3.05 TIME/CURRENT COORDINATION CURVES

- A. As a minimum, the time/current coordination curves for the power distribution system shall include the following items plotted on 5-cycle log-log graph paper:
1. time/current curves for each protective relay, circuit breaker, or fuse demonstrating graphically that the settings will provide protection and selectivity within industry standards
 2. Each curve shall be identified, and tap and time dial settings shall be specified.
 3. Provide individual curves for each feeder unless identical to others.
 4. Selectivity
 - a. Time/current curves for each device shall be positioned to provide the maximum selectivity to minimize system disturbances during fault clearing.
 - b. Where selectivity cannot be achieved, the ENGINEER shall be notified as to the cause.
 - c. Recommendations shall be included for alternate methods that would improve selectivity.
 5. time/current curves and points for cable and equipment damage.
 6. circuit interrupting device operating and interrupting times
 7. Indicate maximum fault values on the graph.
 8. sketch of bus and breaker arrangement
 9. magnetizing inrush points of transformers
 10. thermal limits of dry-type and liquid-insulated transformers (ANSI damage curve)
 11. Every restriction of the ANSI and National Electrical Code shall be followed, and proper coordination intervals and separation of characteristics curves shall be maintained.

3.06 ARC FLASH STUDY

- A. An arc flash study shall be performed with the aid of a digital computer program in order to determine the "Arc Flash Protection Boundary" and "Personal Protective Equipment" (PPE) levels for applicable electrical distribution equipment, stand-alone disconnects, starters, and VFDs in the power distribution system.
- B. The arc flash study shall be performed in conjunction with short circuit calculations and protective device coordination.
- C. The arc flash study shall be in accordance with the latest version of the following Standards:
1. NFPA 70E Standard for Electrical Safety Requirements for Employee Workplaces
 2. IEEE 1584 IEEE guide for performing Arc Flash Hazard Calculations
 3. OSHA (29 CFR PART 1910) Occupational Safety and Health Standards for General Industry
 4. ANSI Z535.4 Product Safety Signs and Labels
- D. The recommended values for the "Arc Flash Protection Boundary" and PPE levels, based on the arc flash study results, shall be tabulated in the study.
- E. Labeling

1. The digital computer program shall provide the “Arc Flash Protection Boundary” and PPE values in a format that can be directly printed on to labels.
2. The CONTRACTOR shall provide these labels in accordance with Section 26 00 00 – General Electrical Work.

3.07 FINAL SUMMARY REPORT

- A. Summarize the results of the indicated power system studies in a final report.
- B. The report shall include the following items:
 1. single-line diagram
 2. impedance diagram
 3. tabulation of all protective devices identified on the single line diagram
 4. time/current coordination curves
 5. specific recommendations, if any
 6. test instrumentation, condition, and connections, as applicable, for each study
 7. computerized fault current calculations
 8. any suggested changes to the protection scheme or equipment selection that will result in improved system reliability and safety
 9. recommendations to minimize the arc flash energy
- C. The report shall include information concerning the computer program used for the study, as well as a general discussion of the procedure, items, and data considered in the preparation of the study.
- D. Submit 1 bound copy and PDF including all protective device study data files of the report to the ENGINEER.
- E. The final report shall include all coordination study data files copied to 32GB flash drive.

3.08 PROTECTIVE DEVICE TESTING, CALIBRATION, AND ADJUSTMENT

- A. Test, calibrate, and adjust the protective relays and circuit breaker trip devices in accordance with the recommendations in the power system coordination study.
- B. Calibrate the MCPs as in accordance with the recommendations in the power system study.
- C. Adjustments shall be made prior to energizing any electrical equipment.

END OF SECTION

SECTION 26 12 16

PANELBOARDS AND GENERAL-PURPOSE DRY TYPE TRANSFORMERS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide panelboards and general-purpose dry-type transformers, complete and operable, in accordance with the Contract Documents.
- B. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

1.02 SUBMITTALS

- A. General: Submittals shall be in accordance with Section 01 33 03 – Submittal Procedures and Section 16050 – General Electrical Work.
- B. Shop Drawings
 - 1. Transformers
 - a. Dimension drawings
 - b. Technical certification sheets
 - c. Drawing of conduit entry/exit locations
 - d. Transformer ratings, including:
 - Voltage
 - Continuous current
 - Basic impulse level for equipment over 600 volts
 - KVA
 - e. Descriptive bulletins
 - f. Product sheets
 - 2. Panelboards
 - a. Breaker layout drawings with dimensions and nameplate designations
 - b. Component list
 - c. Drawings of conduit entry/exit locations
 - d. Assembly ratings including:
 - Short circuit rating
 - Voltage
 - Continuous current
 - e. Cable terminal sizes
 - f. Descriptive bulletins
 - g. Product sheets
 - h. Installation information
 - i. Seismic certification and equipment anchorage details

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Panelboards and General-Purpose Dry Type Transformers

Pump Station 26 Improvement Project

PART 2 - PRODUCTS

2.01 GENERAL

A. Transformers

1. The transformers shall be dry-type, designed, manufactured, and tested in accordance with the latest applicable standards of ANSI and NEMA.
2. Transformers shall be UL-listed and bear the UL label.

B. Panelboards

1. Panelboards shall be dead front factory assembled. Panelboards shall comply with NEMA PB-1-Panelboards, as well as the provisions of UL 50 - Safety Enclosures for Electrical Equipment and UL 67 - Safety Panelboards. Panelboards used for service equipment shall be UL labeled for such use. Lighting panelboards shall be rated for 120/208-volt, 3 phase operation or 120/240 volt for single phase operation as indicated. Power panelboards shall be rated for 480 volts, 3 phase, 3 wire operation, unless indicated otherwise.
2. The manufacturer of the panelboard shall be the manufacturer of the major components within the assembly, including circuit breakers.

2.02 TRANSFORMERS

- #### **A. Energy Efficiency:** Standard dry-type transformers shall meet the energy efficiency requirements of the Department of Energy Code of Federal Regulations (10 CFR PART 431), DOE 2016 Efficiency Levels. The product requirements are in the appliance regulations, Title 20, and the usage requirements are in Title 24.

B. Ratings

1. KVA and voltage ratings shall be as indicated.
2. Transformers shall be designed for continuous operation at rated kVA, for 24 hours a day, 365 days a year operation, with normal life expectancy as defined in ANSI C57.96 - Guide for Loading Dry Type Distribution and Power Transformers
3. Transformer sound levels shall not exceed the following ANSI and NEMA levels for self-cooled ratings:

Up to 9 kVA	40 dB
10 to 50 kVA	45 dB
51 to 150 kVA	50 dB

C. Construction

1. Insulation Systems

- a. Transformers shall be insulated as follows:

- 2 kVA and smaller: 150 deg C insulation system based upon 80 deg C rise.
- 3 to 15 kVA: 185 deg C insulation system based upon 115 deg C rise.
- 15 kVA and larger: 220 deg C insulation system based upon 150 deg C rise.

- b. Required performance shall be obtained without exceeding the above indicated temperature rise in a 40 deg C maximum ambient.
- c. Insulation materials shall be flame-retardant and shall not support combustion as defined in ASTM D 635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
2. Transformer windings shall be copper.
3. Transformers shall have four 2-1/2 percent taps, 2 above and 2 below 480 volts.
4. Transformer shall include vibration dampeners between the core and the enclosure to minimize and isolate sound transmission.

D. Manufacturers: **General Electric, Eaton, Schneider Electric/Square D Company, or equal.**

2.03 PANELBOARDS

A. Ratings

1. Panelboards rated 240-VAC or less shall have short circuit ratings not less than 22,000 amperes RMS symmetrical.
2. Panelboards rated 480-VAC shall have short circuit ratings not less than 65,000 amperes RMS symmetrical.
3. Panelboards shall be labeled with a UL short circuit rating. Series ratings are not acceptable.

B. Construction

1. Lighting and power distribution panels shall have tin-plated copper bus bars.
2. Breakers shall be one, 2, or 3-pole as indicated, with ampere trip ratings as required by the equipment. Breakers shall be quick-make and quick-break, inverse time trip characteristics, to trip free on overload or short circuit, and to indicate trip condition by the handle position.
3. The panels shall have hinged doors with combination catch and latch. The front panels shall be so arranged that when the plates are removed, the gutters, terminals and wiring will be exposed and accessible. The doors shall have inner doors within the plates to have only the breaker operating mechanism exposed when they are opened. Live conductors and terminals shall be concealed behind the plates.
4. Panelboards shall be rated for the intended voltage.
5. Circuit breakers shall be interchangeable and capable of being operated in any position as well as being removable from the front of the panelboard without disturbing adjacent units. No plug-in circuit breakers will be acceptable.
6. Lighting and power distribution panels which are not part of a motor control center shall be constructed in accordance with Section 26 00 00 – General Electrical Work, Panels shall have the necessary barriers, supports, and liberal wiring gutters. Trim screws shall be stainless steel. Panelboard parts of metal other than copper, aluminum, or stainless steel shall be cadmium plated.
7. Panelboards shall be UL listed except for special enclosures which are not available with UL listing.
8. Panelboards shall be suitable for use as service entrance where indicated.

C. Manufacturers: **General Electric, Eaton, Schneider Electric/Square D Company, or equal**

D. Surge Protection Devices (SPD)

1. Provide integral SPDs. SPDs shall conform to Section 26 43 00 – Surge Protection Devices.
2. SPD units shall be rated for the voltage and phase service of the panel at 240 kA per phase.

2.04 NAMEPLATES

- A. Nameplates shall meet the requirements of Section 26 00 00 – General Electrical Work.

PART 3 - EXECUTION

3.01 GENERAL

- A. WORK of this Section shall be installed as indicated in Section 26 00 00 – General Electrical Work.

END OF SECTION

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Panelboards and General-Purpose Dry Type Transformers

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SECTION 26 29 00
LOW-VOLTAGE MOTOR CONTROL CENTERS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide motor control centers (MCCs), complete and operable, in accordance with the Contract Documents.
- B. Contract documents were developed utilizing sizing for EATON MCCs. If MCCs other than EATON are approved for this project, it is the contractor's responsibility to make accommodations for equipment sizing and layout that is different from that show on the contract document
- C. The requirements of Section 26 00 00 – General Electrical Work, apply to the WORK of this Section.
- D. In the event that provided motors are of greater horsepower than the indicated motors, revise the raceways, conductors, starters, overload elements, and branch circuit protectors as necessary in order to control and protect the increased motor horsepower in accordance with Section 16150 – Electric Motors.
- E. Single Manufacturer
 - 1. The MCCs shall be the end product of one manufacturer in order to standardize appearance, operation, maintenance, spare parts, and manufacturer's services.
 - 2. This requirement, however, does not relieve the CONTRACTOR of overall responsibility for the WORK.
- F. Coordination
 - 1. The equipment provided under this Section shall operate the electric motor driver with the driven equipment as indicated under other equipment Sections.
 - 2. The MCC manufacturer shall be provided with the following information, at a minimum:
 - a. Section 26 00 00 – General Electrical Work
 - b. Section 26 05 10 – Electric Motors
 - c. Section 26 05 15 – Industrial Control Panels
 - d. Section 26 01 26 – Electrical Tests
 - e. Electrical Contract Drawings

1.02 SUBMITTALS

- A. Furnish submittals in accordance with Section 26 00 00 – General Electrical Work.
- B. Furnish the following equipment information in the Shop Drawings:
 - 1. NEMA rating and color of enclosure
 - 2. horizontal and vertical bus ampacities, voltage rating, interrupting capacity, and materials of construction
 - 3. ground bus size and material of construction
 - 4. conduit entrance provisions
 - 5. main incoming line entry provision (top or bottom)

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Low-Voltage Motor Control Centers
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6. control unit nameplate schedule
 7. circuit breaker types, frames, and settings
 8. starter NEMA sizes, auxiliary contact provisions, and coil voltage
 9. relays, timers, pilot devices, control transformer VA and fuse sizes
 10. MCC Wiring Diagrams
 - a. Furnish custom elementary schematic ladder diagrams for each compartment.
 - b. The ladder diagrams shall include remote devices.
 - c. Submittals not meeting these requirements will not be reviewed further and will be returned to the CONTRACTOR.
 11. MCC Internal Connections
 - a. Furnish the MCC internal connection list and diagram developed by the UL 508C panel assembly shop that is preparing the PLC Section.
 - b. The list and diagram shall detail each wiring connection between the PLC Section and each compartment provided by the MCC Manufacturer, and shall specifically include and indicate the terminals and wire numbers on both ends of each internal connection wire.
 - c. Submittals not meeting these requirements will not be reviewed further and will be returned to the CONTRACTOR.
 12. Short circuit rating of the complete assembly
 13. Replacement parts lists and operation and maintenance procedures
 14. Seismic design certification of the anchoring system in accordance with Section 16070.
 15. Time-current curves for protective devices
 16. RVSS and VFD Equipment Information
 - a. name of starter and drive manufacturer
 - b. type and complete model number
 - c. assembly drawing and nomenclature, including enclosure dimensions, mounting and anchoring details, and internal layout
 - d. detailed schematics, including external wiring connections
 - e. maximum heat dissipation capacity in kW
 - f. altitude de-rating information
 17. Factory test data certifying compliance with requirements of similar equipment from the same manufacturer
- C. Furnish an Owner's Manual, including:
1. manufacturer's 2-year warranty
 2. field test report
- D. Furnish the Manufacturer's Service Representative's resume, including the following documentation:
1. copy of the proposed representative's Factory Training Certificate

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2. number of years' experience servicing the manufacturer's MCCs and VFDs
 3. a statement that the individual is authorized to inspect, test and perform field service and repairs
- E. Spare Parts List
1. Furnish spare parts information for parts required by this Section as well any other spare parts recommended by the MCC manufacturer.
- F. Startup and Testing Report
1. Within 15 days after completion of startup and testing, the CONTRACTOR shall submit a report for the MCC.
 2. The report shall contain the following documentation:
 - a. the device name, serial number, rating, and complete model number of each MCC
 - b. a complete listing of all tests performed and the results of each test
 - c. a complete listing of all circuit breaker and overload settings, fuse ratings, settings, setpoints and configuration information for VFDs and equipment or devices with adjustable settings
 - d. documentation for training that was provided to the OWNER's personnel, including topics covered, instructor's name and contact information, and a list of attendees.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The manufacturer of the low-voltage motor control center shall also manufacture at least the following:
1. molded case circuit breakers, up to and including 225 ampere frame size
 2. disconnect switches
 3. magnetic motor starters
 4. control and timing relays rated at 600 volts AC
 5. pushbuttons, lights and selector switches, including remote mounted control stations
 6. meters, including ammeter, voltmeter, and solid-state metering devices
- B. Single Manufacturer
1. Devices of the same type shall be products of the same manufacturer.
 2. This requirement applies to control devices, custom-fabricated equipment, and insofar as practical to equipment manufactured on a production basis.
- C. Lighting transformers and panelboards shall be in accordance with the requirements of Section 12 16 – Panelboards and General-Purpose Dry-Type Transformers.
- D. Motor control centers shall conform to the standards for NEMA Class IIS, Type B diagrams and wiring.
- E. MCC Schedule

MCC DESIGNATION	LOCATION
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MCC 100	East of Wet Well

2.02 DESIGN, CONSTRUCTION, AND MATERIAL REQUIREMENTS

- A. The motor control centers shall be 600-volt class and suitable for operation on a 3-phase, 60-Hz system.
- B. The system operating voltage and number of wires shall be as indicated.
- C. Power
 - 1. The motor control center shall receive power from a 3-phase, wye-connected 480-volt service panel with a grounded neutral.
 - 2. Power distribution from the MCC shall be 480-volt, 3-phase, 3-wire.
 - 3. The MCC shall include provision for termination of an incoming neutral conductor in conformance to NEC requirements for service entrance.
- D. Enclosure
 - 1. The enclosure shall be of NEMA Type 12.
 - 2. The variable frequency drive (VFD) and solid-state soft starter (RVSS) compartments may be of NEMA Type 1, gasketed, provided that ventilation inlet openings are covered by externally replaceable dust filters.
 - 3. Compartment doors shall be interlocked with compartment circuit breakers, fitted with a maintenance override.
 - 4. Latches for panelboard compartments shall have butterfly heads or another hand operable method that does not require tools to operate.
- E. Size and Arrangement
 - 1. Motor control centers shall be configured as mechanical groupings of control center units, assembled into a lineup of control center sections.
 - 2. Each control section shall be nominally 90 inches tall by a minimum of 20 inches deep.
 - 3. MCCs shall be designed to not exceed the indicated spatial requirements, including spaces, spares, and future compartments.
 - 4. MCCs shall be subject to rejection if they exceed the indicated lengths, where allotted space is critical.
 - 5. Equipment within the MCC may be rearranged at the discretion of the manufacturer, providing that the MCC includes the spares, space, and future provisions as indicated and that panelboards are either at the top of their sections or the bottoms are at least 36 inches above the housekeeping pad.
 - 6. Switches and circuit breakers used as switches shall be located such that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, will not be more than 6 feet, 7 inches above the floor, including the height of the concrete pad unless provided with a handle extension acceptable to the Authority Having Jurisdiction.

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F. Components

1. Busses

a. Provide a continuous copper ground bus, full width of the motor control center line-up.

b. Horizontal Busses

- The main horizontal bus shall be of silver-plated copper, and located within an isolated compartment.
- The bus shall be rated for 600 amperes minimum, but in no case less than the main lug or main breaker frame size.

c. Vertical Busses

- The vertical bus in each section shall consist of a single silver-plated copper conductor per phase, with a current capacity of not less than 300 amps.
- The vertical bus shall be completely isolated and insulated, and shall extend the full height of the section wherever possible.

d. Power buses shall be braced to withstand 65,000 amperes, minimum.

e. The PLC section shall have neither a horizontal nor a vertical bus, in order to allow the maximum room for control components.

2. Wireways

a. Provide a separate vertical wireway adjacent to each vertical unit, covered by a hinged door.

b. Each individual unit compartment shall be provided with a side barrier to permit pulling wire in the vertical wireway without disturbing adjacent unit components.

c. Full height (90-inch) compartments or sections are not required to have a separate wireway.

3. Power, control, and signal fuses shall have blown fuse indicators.

4. Control wires shall be color coded in accordance with Section 16120 – Wires and Cabling.

G. Cabinets

1. Structural members shall be fabricated of not less than 12-gauge steel, and side and top panels and doors shall be fabricated of not less than 14-gauge steel.

2. Spaces designated as SPACE or BLANK shall include blank hinged doors and vertical bus bars.

3. Control units inside compartments shall be clearly identified with tags or stencil markings.

4. Identification

a. Each control unit, including spares, spaces and blanks, lights, and devices shall be identified by an engraved nameplate.

b. Identification shall include the indicated circuit number.

c. Each motor control center shall be fitted with the manufacturer's nameplate which shall include the NEMA Standard electric rating and other pertinent data, including manufacturer, sales order number, date of manufacture, and place of manufacture.

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5. Where "L" or "U" shaped MCC layouts are indicated, corner compartments shall have similar current and short circuit ratings as functional compartments.
6. Fans, heat exchangers, transformers, capacitors, junction boxes, and other devices shall not be mounted on the outside of the motor control center enclosure.
7. Protective Coating
 - a. The finish for motor control center shall be light grey: ANSI 61 or 49.
 - b. The panels shall be coated with 2 coats of primer inside and out, and 2 coats of enamel finish.
 - c. External colors other than ANSI 61 or 49 will not be accepted.

2.03 MAIN AND FEEDER CIRCUIT BREAKERS (480 V)

- A. Circuit breakers having a frame size of 150 amperes or less shall be molded-case type with thermal magnetic non-interchangeable, trip-free, sealed trip units.
- B. Circuit breakers with a frame size of 225 amperes to 1,200 amperes shall be molded case with interchangeable thermal, and adjustable magnetic trip RMS sensing electronic trip elements with the following adjustments:
 1. long-time setting (by changing the unit)
 2. long-time delay
 3. short-time setting
 4. short-time delay
 5. instantaneous setting
 6. ground-fault setting
 7. ground-fault delay
- C. The interrupting capacity of the main and feeder branch circuit breakers shall be a minimum of 65,000 RMS symmetrical amperes.
- D. Service disconnects rated 1000 amps or greater shall provide for ground fault protection of the equipment.
- E. Circuit breaker disconnect operators shall be capable of accommodating 3 padlocks for locking in the OPEN position.
- F. Circuit breaker auxiliary contacts shall be furnished where indicated.

2.04 MOTOR STARTERS

- A. Motor starters shall be mounted in standard motor control center assemblies, arranged as indicated.
- B. Components
 1. Each motor starter unit shall consist of a combination magnetic contactor and short circuit protective device, mounted in a completely enclosed cubicle.
 2. The short circuit protective device shall be an instantaneous, magnetic only circuit breaker: **Cutler-Hammer Type HMCP, G.E. Mag-Break Motor Circuit Protector**, or equal.

3. Circuit breakers provided as part of a motor starter unit shall be capable of being padlocked in the OPEN position.
4. Resetting of thermal overload elements shall be possible with the unit door closed.
5. Provide 3-phase overload trip units to suit the full load current of the equipment installed, and the trip unit shall be adjusted as required for power factor correction capacitors.

C. Magnetic Starters

1. Magnetic starters shall have auxiliary contacts as indicated, including N-O and N-C contacts as indicated, plus one each spare N-O and N-C contact.
2. The combination motor starters shall be draw out-type for Size 5 and below.
3. The fixed-type unit assembly shall be constructed such that it can be easily removed from its panel after disconnecting the wires to the terminal block and withdrawing from the primary bus.
4. Removal of a unit assembly shall be possible without rear access and without disturbing any other unit in the motor control center.

D. Control Power Transformer

1. Each starter unit shall have its own control power transformer, with a 115-volt grounded secondary.
2. Provide one secondary fuse and 2 primary fuses.
3. Control power transformers shall be sized to accommodate the indicated control devices.
4. Local control devices shall be mounted independently of the cover door.
5. Starters shall have a local GREEN RUN indicator, and a RED OFF indicator to indicate the presence of control power when the motor is not energized.
6. Starters shall be provided with elapsed time meters, HAND-OFF-AUTO selector switches, and other devices as indicated.
7. Cubicle control wires shall be terminated at a pull-apart disconnecting terminal block located at the cubicle.

E. Identification

1. The motor control center manufacturer shall be responsible for identifying each control wire within each motor starter unit with wrap-around permanent plastic markers.
2. Each control wire shall be identified at both ends.

F. Full-Voltage Starters

1. Full-voltage motor starter units shall be NEMA Size 1 or larger.
2. Each combination starter shall be rated for a minimum 65,000 RMS symmetrical amperes.

G. NEMA Ratings

1. Motor starters shall be designed to NEMA ratings.
2. Starters designed to IEC ratings or with dual IEC/NEMA ratings will not be accepted, either as part of an MCC, as remote starters, or as part of an equipment package.

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2.05 CONTROL DEVICES

- A. Control devices shall be in accordance with the requirements of Section 26 05 15 – Local Control Stations and Miscellaneous Electrical Devices.
- B. Metering
 - 1. Provide solid-state metering where indicated.
 - 2. Include CTs and PTs of ratios as indicated or as recommended by the MCC manufacturer.
 - 3. The CT leads shall terminate on shorting type terminal blocks, and the shorting bar shall be grounded to the MCC ground bus.
 - 4. Manufacturer, or Equal
 - a. **G.E. – Multilin “PQM” II**
 - b. **EATON - PXM 2260**
 - c. **Allen Bradley – PowerMonitor 3000**
 - d. **Square-D – PowerLogic ION 7300**

2.06 FACTORY TESTS

- A. Provide the manufacturer's standard electrical and mechanical production tests and inspections for motor control centers and their components.
- B. The tests shall include electrical continuity check, dielectric tests for each circuit, and inspection for proper functioning of components including controls, protective devices, metering, and alarm devices.

2.07 SPARE PARTS

- A. The CONTRACTOR shall furnish the following for each MCC:
 - 1. Unit Control Transformer: one of each size furnished in magnetic starters installed
 - 2. Bezels: 3 of each color installed for pilot indicators
 - 3. Panel Lamps: one dozen of each type (form, voltage and current rating) installed
 - 4. Control Fuses: one dozen of each type (form, voltage and current rating) installed
 - 5. Relays: one of each type and size installed
- B. Spare parts shall be identified by MCC number, type, size, and manufacturer.

2.08 MCC MANUFACTURER, OR EQUAL

- A. **EATON Cutler-Hammer Freedom "2100" Series**
- B. **General Electric "8000 Line"**
- C. **Schneider Square-D, Model 6**

PART 3 - EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall install motor control centers in accordance with the manufacturer's published instructions.

- B. Conduit installation shall be coordinated with the manufacturer's as-fabricated drawings such that conduit stub-ups are within the area allotted for conduit.
- C. Conduit shall be stubbed up in the section that contains the devices to which conductors are terminated.

3.02 STORAGE AND HANDLING

- A. If stored at the Site, motor control centers shall be stored in a clean, dry space.
- B. Factory wrapping shall be maintained or an additional heavy plastic cover shall be provided to protect units from dirt, water, construction debris, and traffic.
- C. The storage space shall be heated or the MCC space heaters shall be energized.
- D. Motor control centers shall be handled carefully to avoid damage to motor control center components, enclosure, and finish.
- E. Damage shall be repaired before installation.

3.03 MANUFACTURER'S SERVICES

- A. General
 - 1. An authorized Service Representative of the manufacturer shall be present at the Site for 3 Work Days in order to provide the services listed below.
 - 2. For the purpose of this paragraph, a Work Day is defined as an 8-hour period, excluding travel time.
 - 3. The service representative's resume shall be approved by the ENGINEER before training is scheduled.
- B. Inspection, Startup, Field Adjustment
 - 1. The Service Representative shall supervise the following items, and shall certify that the equipment and controls have been properly installed, aligned, and readied for operation:
 - a. installation of the equipment
 - b. inspection, checking, and adjusting of the equipment
 - c. startup and field testing for proper operation
 - d. performance of repairs to correct any discrepancies or problems revealed during startup and testing
 - e. performance of field adjustments to ensure that the equipment installation and operation comply with the indicated requirements
 - f. Preparation and submittal of a report covering startup and testing, including a listing of equipment settings and parameters at the end of startup and testing.

3.04 INSTALLATION

- a. Motor control centers shall be installed on 3-1/2-inch concrete pads and in accordance with the requirements of Section 26 00 00 – General Electrical Work.
- B. After leveling and shimming, the CONTRACTOR shall anchor motor control centers to the concrete pads, and shall grout such that no space exists between the pad and support beams.
- C. The CONTRACTOR shall:

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1. torque bus bar bolts to manufacturer's recommendations, and tighten sheet metal and structure assembly bolts;
2. adjust motor circuit protector (MCP) devices to the instantaneous trip setting position recommended for the actual horsepower and full load amps of the motor;
3. verify that overload devices are proper for equipment installed;
4. make necessary changes in overload devices as required for motors having power factor correcting capacitors;
5. touch up scratches after the equipment has been installed;
6. verify that nameplate, and other identification is accurate; and
7. provide high-voltage switchboard matting in front of the MCC, in accordance with the requirements of Section 16050 – General Electrical Work.

3.05 FIELD TESTS

A. Provide a visual and mechanical inspection after installation, as follows:

1. Inspect for physical damage, proper anchorage, and grounding.
2. Verify that the ratings of the thermal overload heaters match the motor full-load current nameplate data.
3. Check tightness of bolted connections.

B. Electrical Tests

1. Insulation Tests

- a. Measure the insulation resistance of each bus section phase-to-phase and phase-to-ground for one minute.
 - b. The test voltage and minimum acceptable resistance shall be in accordance with manufacturer's recommendations.
 - c. Measure the insulation resistance of each starter section phase-to-phase and phase-to-ground with the starter contacts closed and the protective device open.
 - d. The test voltage and minimum acceptable resistance shall be in accordance with the manufacturer's recommendations.
 - e. Measure the insulation resistance of each control circuit with respect to ground.
2. Verify the proper operation of control logic in each mode of control.

END OF SECTION

SECTION 26 29 13
SOLID-STATE REDUCED VOLTAGE STARTERS

PART 1 - GENERAL

1.01 WORK OF SCOPE

- A. General: The CONTRACTOR shall provide solid-state reduced voltage motor starters, complete and operable, in accordance with the Contract Documents.
- B. Single Manufacturer: Like products shall be the end product of one manufacturer in order to standardize appearance, operation, maintenance, spare parts, and manufacturer's services. However, the CONTRACTOR shall remain responsible to the OWNER for the WORK of the Contract.
- C. Coordination: Equipment provided under this Section shall operate the electric motor and the driven equipment indicated under other equipment specifications. The CONTRACTOR's attention is specifically directed to the need for proper coordination of the WORK under this Section with the WORK under the equipment section and with the WORK under Section 26 05 10 - Electric Motors.

1.02 SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 03 – Submittal Procedures, except that Shop Drawing information for the drives shall be submitted as part of the information for the driven equipment.
- B. Shop Drawings
 - 1. Equipment information
 - a. Name of drive manufacturer
 - b. Type and model
 - c. Assembly drawing and nomenclature
 - d. Maximum heat dissipation capacity (KW)
 - 2. Written description of ladder diagram operation. Custom schematics shall be furnished. Diagrams shall include remote devices.
 - 3. System block diagram and interconnection diagrams.
 - 4. Replacement parts list and operation and maintenance instructions.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Solid-state reduced voltage starters (SSRV) shall be UL-listed and consist of a SCR-based power section, logic board, internal paralleling bypass contactor, and forward/reverse contactors.
- B. Starters shall conform to the following:
 - 1. The SCR-based power section shall consist of 6 back-to-back SCRs, 2 SCRs per phase, and shall be rated for a minimum peak inverse voltage rating of 2.5 times line voltage, 1200 PIV for 480 volts. Units using triacs or SCR/diode combinations shall not be

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acceptable. Resistor/capacitor snubber networks shall be used to prevent false firing of SCRs due to dv/dt characteristics of the electrical system.

2. Starters shall include the following logic and control functions:

- a. Adjustable maximum starting current from 200 percent to 500 percent
- b. Ramp time adjustment from 1 to 40 seconds
- c. Adjustable linear voltage deceleration
- d. Kick start
- e. Phase loss protection
- f. Undervoltage protection
- g. Current unbalance protection
- h. Phase rotation protection (prevents starting)
- i. Class 20 electronic overload protection. Heat sink overtemperature protection shall be provided.
- j. Dry contacts for remote indication of RUN and TRIP status

3. The paralleling bypass contactor shall energize when the motor reaches full speed. The contactor shall be an integral part of the reduced voltage starter and be connected directly across the power SCRs.

4. The starter shall be housed in a NEMA 3R enclosure. Heaters and cooling fans shall be provided if required to maintain the equipment within the manufacturer's environmental guidelines.

5. The starter shall be provided with a control power transformer sized to accommodate controls indicated on the Contract Drawings. An input power circuit breaker shall be provided. Lug termination of the incoming power conductors shall not be permitted. The starter and circuit breaker shall be rated for 65 KAIC RMS at 480 V.

6. The starter shall have door-mounted indication of run, phase rotation, phase loss, undervoltage, current unbalance, and current trip.

7. The starter shall be provided with the operator controls indicated. Operator interface controls shall be heavy duty, oil-tight, 30.5-mm.

8. Starter controls shall be amended with Deragger+ anti-ragging pump management system controllers, one for each starter provided and per contract drawings.

2.02 MANUFACTURERS, OR EQUAL

- A. Solid-state reduced voltage starters shall be **Schneider Electric/Square D Company Altistart 48 with Reversing Contactors, Isolation Contactors, and Modbus TCP Ethernet Connectivity, or approved equal.**

PART 3 - EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall install the solid-state reduced voltage starters in accordance with the manufacturer's published instructions.

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B. The CONTRACTOR shall

1. Verify that the overload devices are properly adjusted for the equipment installed.
2. After the equipment is installed, touch up scratches and verify that nameplate and other identification is accurate.

C. Inspection, Startup, Field Adjustment: An authorized service representative of the manufacturer shall supervise the following and certify the equipment and controls have been properly installed, aligned, and readied for operation.

1. Installation of the equipment
2. Inspection, checking, and adjusting the equipment
3. Startup and field testing for proper operation

END OF SECTION

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Solid-State Reduced Voltage Starters

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SECTION 26 32 13
STANDBY POWER GENERATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide an engine-driven standby electrical generating system, complete and operable, in accordance with the Contract Documents.
- B. The CONTRACTOR shall be responsible for coordination of interface with other equipment and for any special construction necessary to complete the WORK of this Section in an acceptable manner.
- C. The supplier of the generator set shall also be the manufacturer of the engine for the generator system; however, the CONTRACTOR shall be responsible to the OWNER for the WORK of this Section.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Materials shall conform with applicable requirements of the National Electrical Code (NEC), and any other State or Municipal codes which apply. Generator system shall meet applicable standards and codes, including IEEE, NEMA, ANSI, OSHA, and UL.

1.03 SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 03 – Submittal Procedures.
- B. Shop Drawings
 - 1. Detailed, dimensioned Shop Drawings and data demonstrating adherence to the requirements of these specifications shall be submitted and approved before fabrication, shipment, or other WORK under this Section begins. Include the manufacturer's certification that engine atmospheric emissions will comply with the limitations.
 - 2. Certified custom drawings and custom wiring diagrams of each component in the system and a master wiring diagram showing the entire system on one sheet. This diagram shall include all AC and DC power control connections between the generator, engine, fuel tank system, batteries, and circuit breakers and shall be a custom drawing for this specific installation. A master drawing of the engine/generator set shall also be provided, showing general dimensions, bill of materials, location and size of all connections for fuel, cooling, exhaust, direct current connections, conduit locations, and connections for control and power wiring. Include wire and terminal numbers for all diagrams. Furnish KW output curves, fuel consumption curves, and certified air emission data sheets.
 - 3. Outline drawings and connection diagrams shall be complete enough to enable the installation to be designed completely, and connection diagrams shall give both internal and external connections. Include foundation loading and clearances.
 - 4. Four copies of complete and detailed instructions for the operation, lubrication, and maintenance of equipment in the system. The manuals shall be furnished after final approval of Shop and working drawings but prior to shipment of equipment. Manuals shall be complete with wiring diagrams, lubrication schedules and recommended lubricants, drawings, cuts, parts lists, and other necessary data. All parts shall be numbered or

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otherwise clearly identified to facilitate ordering of replacements. Descriptions of all operational control devices and their functions shall also be included.

1.04 QUALITY ASSURANCE

- A. Permits from Local Air Quality District: Contractor shall submit engine emissions data and required fees and obtain a "Permit to Construct" from Placer County Air Pollution Control District (PCADCD) in the Owner's name prior to delivery of engine-generator set to job-site.
- B. The engine/generator shall be the product of a manufacturer who has been regularly engaged in the design and production of similar engine/generator sets for a minimum of 10 years.
- C. The supplier shall maintain a local part and 24-hour service facility within the State of California. The supplier shall have factory trained and authorized service representatives to furnish necessary installation, test, and start-up supervision as well as operation and maintenance training necessary for final approval and acceptance.

PART 2 - PRODUCTS

2.01 SYSTEM COMPONENTS

- A. Provide one new diesel engine-powered electric generator set, in an outdoor, waterproof, walk-in sound attenuated enclosure. The engine generator shall have a nominal standby rating of 130KW, 163KVA, 0.8 power factor, 480 volts, three phase, four wire, grounded neutral, 60 Hertz. The equipment package shall include in general, and as applicable, engine and generator on a common vibration isolating base, with auxiliaries, accessories, and controls, including intake filters, discharge silencer, turbocharger, heat exchangers, foundation bolts, isolators, piping, flexible couplings, supports, complete exhaust piping, ring, and silencer, insulation, control panels, lubrication system, water jacket heaters, cooling system, fuel tank, batteries and battery rack, battery charger, spare parts, and all materials necessary to permit installation, testing and placing the system in successful operation.
- B. Provide one 400-amp frame circuit breaker located in the generator enclosure with 250 amp trip unit.
- C. Provide fuel storage tank with double wall steel construction, integral with the base of the generator-set and generator-set enclosure capable of operating the engine at 100% load for 24 hours minimum.
- D. The generator-set, enclosure, base-mounted fuel tank, and accessories shall be assembled and shipped to the Site as a complete, coordinated package, ready for installation. The engine generator base, cooling system, etc., shall be factory painted before installation in the enclosure.

2.02 SYSTEM OPERATION

- A. The system shall operate as follows:
 - 1. Automatic Control
 - a. A maintained remote contact closure from the automatic transfer switch shall cause the generator-set to start and run.
 - b. When the remote startup contact opens, the engine shall continue to operate for an adjustable cool-down time (typically 5 to 30 minutes).

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2. Local Control: The generator-set shall be capable of manual initiation or stopping from the locally mounted generator control panel. The local generator control panel shall be provided as part of this Contract.
3. Emergency Stop Control: An emergency stop pushbutton shall be provided at the generator control panel that shall cause the unit to stop without any delay.

2.03 ENGINE

- A. The CONTRACTOR shall provide a complete engine-powered standby electrical generating system of the type and capacity indicated.
- B. The diesel engine shall be mounted on a common base with the generator and the direct connected radiator and shall be rated for standby service, continuously for the duration of the electric power interruption, with engine jacket water cooled by means of a direct mounted water-to-air radiator under SAE conditions at 85 degrees F, 1500 feet above sea level. It should be noted that this is the rating of the engine.
- C. The minimum generator rating shall be 125 KW.
- D. The diesel engine shall be four-cycle, turbocharged, aftercooled, 1800 rpm, with individual fuel pumps and injection valve for each cylinder.
- E. The generator-set shall be **Cummins**, or approved equal.
- F. The engine shall have a dry type air cleaner with service indicator, fuel oil filter, full pressure positive pump lubrication with full-flow oil filters, thermostatic regulated oil cooling system, and crankcase drain with valving to be able to drain the crankcase oil without reaching under the engine.
- G. The engine shall also be equipped with two 120 volt, thermostatically controlled jacket water heaters. Power shall be derived from a suitably-rated dry-type transformer and panelboard, also provided as part of the generating system, and including facilities to provide power to the battery charger, fuel oil transfer pumps if required, and other generator-related facilities.
- H. The diesel engine shall perform as indicated when operating on a commercial grade of non-premium distilled petroleum fuel oil such as No. 2 domestic burner oil and diesel fuel.
- I. The engine shall be equipped with an electric 12 or 24 volt dc starting system of sufficient capacity to crank at a speed which will start the engine under conditions indicated. Include a charging alternator. The starting pinion shall disengage automatically when the engine starts. The starting system shall include relays for fully automatic operation from a remote signal.
- J. The engine shall be provided with electronic governor system capable of automatic isochronous frequency regulation.
- K. The engine shall minimize discharge of gaseous pollutants and shall comply with the discharge limitations of the Air Quality Management District. The CONTRACTOR shall furnish a certification from the manufacturer that the proposed generator set will comply with the limitations.

2.04 BATTERIES AND BATTERY CHARGER

- A. Battery: Provide a lead-acid storage battery with sufficient capacity for three 30 second cranking cycles, allowing 10 seconds between cycles. Submit calculations verifying adequate capacity. The battery shall be on a plastic rack as close as practical to the starter motor. The CONTRACTOR shall provide vented, nonmetallic protective covers or red and black plastic or rubber boots

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covering all terminals to protect against an accidental short circuit as might be caused by laying a metallic object on the battery. Metallic racks and covers are not acceptable.

- B. Battery Charger: A unit-mounted battery charger for 120 V, single phase, 60 Hz input shall be provided. The battery charger shall be voltage regulated, with separate float and equalize charge voltage adjustment having a 10 amp rating. The battery charger shall include alarm relays to sense high and low dc voltage, zero current, and ac power failure, with individual output contacts wired to terminal strips for tie into remote alarms. Also, provide an ac "on" indicating pilot LED light and dc voltmeter and ammeter and annunciator. The battery charger shall be as recommended by generator-set provider.

2.05 EXHAUST SYSTEM

- A. The engine shall be provided with an exhaust system consisting of flexible connection, exhaust silencer, steel piping, fittings, stainless steel hardware and supports, brackets, and rain collar.
- B. The flexible connection shall be of the stainless-steel bellows type with flanged ends. Flexible elements shall be stainless steel suitable for exhaust temperatures recommended by the engine manufacturer. The flexible connection shall be suitable for vibration isolation and for relieving stress caused by thermal expansion.
- C. The exhaust silencer shall be a critical grade manufactured by **Maxim**, or equal.
- D. Exhaust piping shall be pitched upward from the engine and be provided with sufficient drains to eliminate condensation and rain water. Exhaust piping shall be welded steel pipe. Elbows shall be welding type, standard wall. Flanges shall be welding slip-on type, 125 pound, either forged or plate steel. Exhaust piping shall be supported independently of the silencer. The silencer and exhaust piping shall be insulated with a minimum of 2-1/2 inches of calcium silicate with a stainless steel jacket and shall be supported as required. The weight of the exhaust and silencer shall not be supported by the engine.

2.06 COOLING SYSTEM

- A. The engine shall be equipped with a cooling system having sufficient capacity to effectively cool the engine when delivering full rated horsepower at the conditions stated above. A radiator and engine-driven fan of a type and capacity recommended by the engine manufacturer shall be included.
- B. The radiator shall be sized in accordance with the engine manufacturer's recommendation for use with 50 percent aqueous ethylene glycol. Air flow shall be controlled by a power inlet damper and a gravity discharge damper, both provided as part of the walk-in outdoor enclosure. Design ambient air temperature shall be 100 degrees F at sea level.
- C. The engine shall have an engine-driven, gear driven centrifugal type water circulating pump for circulating water through the cooling system.

2.07 GENERATOR

- A. The generator shall be nominally rated 130 KW at .8 PF, 480 V 3 phase, 60 Hz, 4 wire wye and shall be a brushless design with solid state permanent magnet generator (PMG) exciter. Other excitation methods are not acceptable. The voltage regulator shall be solid state, generator mounted. Provide radio-interference suppression meeting commercial standards.
- B. If a line to neutral short circuit occurs, the generator shall be capable of supporting 300 percent rated current for 10 seconds without externally mounted devices.

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- C. Voltage Regulation Tolerance: Plus or minus 1 percent of any present value over the 3 phase load range. Instantaneous voltage dip or rise, when measured with an oscilloscope, shall not exceed 25 percent upon full load application or rejection, and shall return to preset value within 0.5 seconds.
- D. Waveform: Deviation factor of output voltage shall not exceed 5 percent and the value of any individual harmonic shall not exceed 2 percent of the fundamental when operating with an unbalanced load.
- E. Temperature Rise: Temperature rise of any component shall not exceed the rise permitted by NEMA standards. The voltage regulator shall be adjustable minus 25 percent to plus 10 percent.
- F. Bearing: Double sealed ball bearing, lubricated for life.

2.08 VIBRATION ISOLATORS

- A. The engine and generator shall be mounted on a common system base and shall be provided with vibration isolators of number and size as recommended by the engine supplier to support the engine, generator, radiator, and base. The isolation mountings shall consist of steel or cast iron top and bottom housings incorporating steel springs or "donut" style isolators, located between the genset and the base, and shall be provided with built-in leveling bolts and built-in resilient chocks to control isolation and withstand lateral forces in all directions.
- B. The vibration isolators shall be **Korfund Dynamics Corporation Series L**, or equal.

2.09 LUBRICATION AND COOLING FLUIDS

- A. The supplier shall furnish the engine fully charged with lubricating oil and grease as specified by the manufacturer for continuous service. The cooling system shall be furnished with a full charge of 50 percent ethylene glycol.

2.10 GENERATOR SYSTEM CONTROL PANEL

- A. The engine shall be provided with an integrally mounted instrument and control panel, vibration isolated, NEMA 12 compliant, dead front, constructed of 14-gauge steel and containing at least the following equipment:

Coolant temperature gauge
Oil pressure gauge
Four position selector switches marked for "auto," "manual," "stop," and "stop/reset."
Automatic starting controls (2 wire start/stop)
Coolant level pre-alarm
Coolant temperature pre-alarms (low and high)
Fuel pressure pre-alarm

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Low dc voltage alarm to indicate loss of charge on battery
Electrical contacts and "push to test" pilot lights for shutting down the engine on low oil pressure, high oil temperature, over-crank, high coolant temperature, and overspeed condition
Individual electrical contacts for remote indication of any pre-alarm or alarm condition
Running Time Meter (Non Resettable)
Emergency stop switch
Voltmeter and switch, ammeter and switch, frequency meter

B. Wiring

1. Signal wiring shall be segregated from power wiring and be arranged neatly to facilitate tracing of circuits.
2. Plastic wiring wraps shall be used to bundle wires, except within wiring ducts. The bundles shall be securely fastened to the steel structure at suitable intervals not exceeding 12-inches in length. No open space hanging of wires will be permitted. Flexible stranded copper wiring shall be used throughout. No solid conductor wire shall be permitted.
3. Terminal blocks shall be provided for interconnections between remote devices and local control panel wiring. The terminal blocks shall be factory assembled on a mounting channel, and the channel shall be bolted to the inside of the panel. The terminals shall have a continuous marking strip using the nomenclature on the schematic diagrams. No more than 2 wires shall be terminated at any one terminal. Wire terminals shall have sleeve wire markers properly marked to match the schematic diagrams.

2.11 GENERATOR ENCLOSURE AND FUEL TANK

A. Generator Enclosure

1. A weatherproof, sound attenuated, walk-in type enclosure shall be provided to house the engine/generator and accessories. The following standards and codes shall be met at a minimum:
 - a. NEPA 70 (National Electric Code)
 - b. NFPA 30
 - c. NFPA 37
 - d. NFPA 110
 - e. UL 142
 - f. API 620
2. The enclosure shall be constructed with an aluminum diamond plate finished floor for mounting on a concrete pad. The enclosure shall conform to the following design criteria.

Rigidity wind test equal to	[150] MPH
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Roof load equal to	[50] lbs. per sq. ft.
Floor load equal to	[200] lbs. per sq. ft.
Rain test equal to	[4]-inches per hour
Enclosure certified to meet	[BOCA base building and mechanical codes]

3. Test data on similar construction by the manufacturer shall be available to the ENGINEER upon request.
4. Enclosure shall consist of a roof, steel floor, fuel tank base, 2 side walls and 2 end walls, of stressed skin, semi-monocoque construction, sized as required to meet dimensional, sound attenuation, and code requirements for the actual generator provided.
5. The system shall include a cooling and combustion air inlet silencer section, an equipment enclosure section, and a cooling air discharge silencer section. It shall be designed to reduce source noise by an estimated average 75 dB(A) as measured at a distance of 7-meters from the enclosure. The enclosure shall also be bird- and rodent-proof with all openings screened.
6. Roof and walls shall be of one-piece semi-monocoque construction. Framing members shall be aluminum or aluminized steel. Skin material shall be minimum thickness 0.040-inch, pre-painted earth bronze color, aluminum (roof shall be mill finish) or minimum thickness 18-gauge aluminized steel. Other materials of construction may be acceptable; however, the CONTRACTOR shall furnish data verifying that the proposed system is equivalent or better than that indicated. Alternative skin colors may be submitted to the ENGINEER for selection. Skin panels shall be hard-riveted to framing members on 3-inch centers maximum. Pop rivets and bolts are not acceptable fasteners to attach exterior skin to framing. Roof assembly shall be cambered to aid in rain runoff.
7. Insulation in walls and roof shall be semi-rigid, thermo acoustic, thickness as required to meet the noise criteria. Lining shall be perforated mill finish aluminum. Self-adhesive foam and loose or batt-type insulating materials will not be accepted.
8. Lifting provisions shall be provided at the enclosure base, with capacity suitable for rigging the entire assembly. Quality assurance procedures of the manufacturer shall include regular testing of the lift devices.
9. A minimum of 4 single personnel access doors shall be provided. A hinged access door for the load bank controls shall also be provided. Doors shall consist of an extruded frame with skin material matching enclosure. Doors shall be fully gasketed to form a weathertight perimeter seal and be pad-lockable. Hinges shall be stainless steel, and lock mechanisms shall be 3 point, with panic hardware to allow opening from inside even when padlocked. The door threshold, if needed, shall be aluminum. Stairs and handrails shall be aluminum and shall be manufactured to meet field-installed conditions.
10. Air handling shall be as follows: Air shall enter the enclosure through a removable hood. Motor-operated dampers shall be provided, wired to be spring operated to open upon engine startup. Radiator discharge shall be through a gravity-operated damper and into a hood.

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The system shall not exceed 0.5-inch wg total external static pressure to ensure adequate airflow for cooling and combustion.

11. A bolt-in-place removable end wall panel shall be provided for maintenance and/or equipment installation. Bolts, nuts, and washers shall be stainless steel.
12. Enclosure manufacturer shall provide all necessary hardware to externally mount the exhaust silencer and maintain the weatherproof integrity of the system. A bird screen shall be installed on exhaust outlet.
13. An electrical package shall include minimum four 100 watt incandescent lights, one battery-backed emergency light with two 25 watt heads, one light switch, and one duplex GFCI receptacle. These items, as well as the motor-operated air inlet damper, shall be factory wired to a 60A 120/240V Load Center. Input power to the load center shall be as indicated.

B. Sub-base Fuel Storage System

1. Provide a double wall secondary containment sub-base fuel tank mounted within or beneath the structural skid below the generator set. The tank shall have fuel level gauge, fill, vent, bottom drain, top supply and return lines.
2. The tank shall have venting and emergency venting per UL 12 and NFPA 30; lockable fill, low-level, and high-level alarm contacts; and a dc electric analog fuel level gauge. The rupture basin shall include a float contact to indicate tank rupture. The crossmembers shall incorporate 3/8-inch thick steel tapping plates for gen-set mounting. The entire enclosure/fuel tank package shall be UL listed for use with a diesel engine generator system and shall meet the previously indicated codes and standards.
3. The fuel storage tank capacity shall be sufficient for operating the engine at 100% load for 24 hours, generator rating.
4. Pipe and Fittings
 - a. Pipe and fitting materials shall be new and the best of their respective classes. Pipe shall be clearly marked with the manufacturer's standard trade mark or identification mark. Pipe and fittings, unless otherwise indicated, shall meet the requirements of these specifications.
 - b. Piping carrying fuel oil shall be copper type "L" with wrought copper fittings silver soldered. Flexible connections shall be provided between fuel lines and the engine.
5. Hangers, Supports, and Miscellaneous Metalwork: The CONTRACTOR shall provide all necessary hangers, supports, concrete inserts, anchors, and guides for the standby generator equipment.
6. Valves: The CONTRACTOR shall provide ball valves for installation at all required points and on at least each fuel supply line. Ball valves shall be stainless steel, rated 125 pounds working pressure and in every respect be suitable for the purpose intended.

2.12 SPARE PARTS

- A. Four sets of the following spare parts shall be furnished:
1. Air filters
 2. Oil filters
 3. Fuel filters

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PART 3 - EXECUTION

3.01 START-UP ASSISTANCE AND TRAINING

- A. The manufacturer's representative shall furnish on-Site start-up assistance and shall inspect the installation prior to start-up to verify that equipment is installed in accordance with the manufacturer's requirements.
- B. Upon completion of startup and after acceptance by the OWNER, the CONTRACTOR shall completely fill the fuel tank.
- C. In addition, the manufacturer's representative shall provide on-Site training for operation and maintenance of all equipment included in this Section.
- D. The following times shall be included, as a minimum, for the above tasks. A Day is defined as 8 hours on-Site, exclusive of meals and travel. Each task shall be considered a separate trip to the site. Dates and times for the trips shall be coordinated with the OWNER.
 - 1. Inspection of the installation: One Day
 - 2. Startup assistance: One Day
 - 3. Operation and Maintenance Training: One Day

END OF SECTION

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SECTION 26 36 23
AUTOMATIC TRANSFER SWITCH

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide automatic transfer switch, control and terminal cabinets, control devices, circuit breakers, and all appurtenant work, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 26 00 00 – General Electrical Work, apply to the WORK of this Section.

1.02 REGULATORY AGENCIES AND STANDARDS

- A. Regulatory Agencies: Installation, materials, equipment and workmanship shall conform to the latest provisions of the following agencies:
 - 1. NEC (NFPA 70) National Electrical Code: 2020 Edition
- B. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.
- C. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.
- D. Standards: Where referenced in these specifications or on the drawings, the publications and standards of the following organizations apply:
 - 1. ANSI American National Standards Institute
 - a. ANSI/IEEE C37.20 Switchgear Assemblies, including Metal-Enclosed Bus
 - b. ANSI/NEMA ICS-2 Devices, Controllers, and Assemblies for Industrial Control
 - c. ANSI/UL 1008 Automatic Transfer Switches, Safety Standard for
 - 2. ASTM American Society of Testing and Materials
 - 3. ICEA Insulated Cable Engineers Association
 - 4. IEEE Institute of Electrical and Electronics Engineers
 - 5. NEMA 250 Enclosure for Electrical Equipment (1000 Volts Maximum)
 - 6. NFPA National Fire Protection Association
 - 7. NETA International Electrical Testing Association

1.03 QUALITY ASSURANCE

- A. General: All materials shall be inspected for compliance with Section 26 00 00 – General Electrical Work, and shall be tested per Section 26 01 26 - Electrical Tests.
- B. Factory Tests: Design test reports conducted on similar assemblies at the factory testing facilities shall be submitted.

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Automatic Transfer Switch
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1.04 WARRANTY

- A. The system warranty shall be no less than one year after initial startup and shall include all costs for repair, parts, travel and living expenses, and labor.

1.05 SUBMITTALS

- A. The CONTRACTOR shall submit Shop Drawings of the Automatic Transfer Switch in accordance with the requirements for of Section 01 33 03 –Submittal Procedures.
- B. Equipment ratings and characteristics including voltage ratings, continuous current ratings, fault current withstand ratings, neutral bus ratings, enclosure type, ratings and arrangement of overcurrent protective devices.
- C. Outline and dimensional drawings and conduit entry restrictions.
- D. Nameplate designations, sizes and mounting methods.
- E. ATS information on setpoints and methods for adjusting settings.
- F. Short circuit rating of the complete assembly
- G. Replacement parts lists and operation and maintenance procedures
- H. Seismic design certification of the anchoring system in accordance with Section 26 05 48.

1.06 FACILITY OPERATION AND MAINTENANCE MANUALS

- A. General
 - 1. Submit complete operation and maintenance manual in accordance with the requirements of Section 01 33 03.13 – O&M Manual Review Checklist.
- B. The CONTRACTOR shall submit operation and maintenance procedures for the ENGINEER's review. The data sheets shall be supplemented by written text and shall include the following:
 - 1. Operating procedures.
 - 2. Maintenance procedures.
 - 3. Manufacturer's parts list, illustrations, assemblies, and diagrams.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Materials: All materials and equipment provided under this Specification shall be new; they shall be in accordance with the requirements of the Institute of Electrical and Electronic Engineers, the National Electrical Manufacturer's Association, the National Fire Protection Association, and the National Electrical Code. Where available, all materials and equipment shall bear the Underwriters' Laboratories label.
- B. Equipment: All equipment for the same purpose shall be of the same make.
- C. Enclosure Requirements: All outdoor equipment, fixtures, and wiring devices shall be of approved, weatherproof construction.
- D. Standard Products: Materials and equipment submitted for approval shall be the cataloged products of companies regularly engaged in the manufacture of such items, of the latest standard design that conforms to the specification requirements, and shall essentially duplicate material and equipment that has been in satisfactory use for several years.

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Automatic Transfer Switch

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2.02 AUTOMATIC TRANSFER SWITCH

- A. The automatic transfer (ATS) switch shall be a 3-pole, double-throw, with in-phase monitor rated at 480 volts, with the continuous current rating shown.
- B. The ATS switch shall be able to withstand the short circuit currents indicated or shall have the same withstand rating as the switchboard in which it is installed.
- C. The load terminals of the ATS switch shall be de-energized when the ATS switch is in the neutral position; the duration of the neutral position shall be adjustable from zero to 30 seconds. The ATS switch shall comply with requirements of ANSI/UL 1008 and ANSI/NEMA ICS-2.
- D. The ATS switch shall be manually operable but the manual operating mechanism shall be declutched when the electric operator becomes energized. Mechanical and electrical interlocks shall be provided to prevent simultaneous closure of the normal and emergency positions.
- E. The automatic transfer switch shall include integrated controls featuring solid state timing and sensing relays. Protective features and indicators shall include:
 - 1. Three-phase, close-differential undervoltage protection on the Normal source; dropout shall be adjustable from 80-85 percent; pick-up shall be adjustable from 90-95 percent.
 - 2. Engine start and run contact closure; contact closure shall be adjustable from zero to 120 seconds after failure of the Normal source is detected. The engine run contact shall remain closed for an adjustable period of zero to 5 minutes (cool down period) after the load has been transferred back to the normal source.
 - 3. Circuitry shall be provided to prevent transfer to the Emergency source until Emergency source voltage and frequency are within 90 percent of nominal values.
 - 4. Adjustable time delay of retransfer of up to 10 minutes after the voltage of the Normal source has attained the pick-up setting specified in the foregoing Item No. 1 on all phases.
 - 5. The automatic transfer switch shall be equipped with indicator lamps for the Normal and Emergency positions. Two "dry" contacts shall be provided for the Emergency position and one "dry" contact for the Normal position; said contacts shall be wired to identified terminals.
 - 6. Three-position selector switch: TEST-OFF-AUTO; the AUTO position shall cause engine start-up, transfer, and retransfer of the load on failure and subsequent restoration of the Normal source. The TEST position shall simulate failure of the Normal source for however long the switch is in the Test position.
- F. The automatic transfer switch shall be as manufactured by **ASCO 7000 Series, EATON**, or equal.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. All electrical equipment shall be installed securely in place. Equipment shall be mounted parallel and perpendicular to the walls, floors, and ceilings.
- B. All anchors and fasteners shall be types designed for the intended purpose and shall be capable of adequately, safely, and permanently securing the material in place. Generally, screws shall be used on wood surfaces, masonry anchors in concrete or brick, toggle bolts on hollow walls, machine screws, bolts, or welded studs on steel. Nails shall be used only for temporary attachment or support.

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- C. Omissions or conflicts on Drawings or between Drawings and Specifications shall be brought to the attention of the ENGINEER for clarification before proceeding with the work.
- D. The CONTRACTOR shall make all necessary provisions throughout the Site to receive all equipment as construction progresses and shall provide adequate backing, supports, inserts, and anchor bolts for the hanging and support of all electrical cabinets, enclosures, conduits, panelboards, and switches, and shall provide sleeves through walls, floors, or foundations where electrical lines are required to penetrate.
- A. Floor standing equipment shall be leveled with shims as required to maintain horizontal surfaces within 1/32-inch per horizontal foot; after leveling, equipment shall be anchored, then grouted so that no space exists between concrete and equipment support beams.

3.02 PREPARATION AND FINISH SYSTEMS

- A. All equipment cabinets or enclosures furnished under this Section shall have a finish that will conform to Section 26 29 00 - Low-Voltage Motor Control Center.

END OF SECTION

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SECTION 26 43 00
SURGE PROTECTION DEVICES (SPD)

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install surge protective devices (SPD).
- B. SPDs furnished under this Section shall be ANSI/UL 1449 Type 2 integrating both surge suppression and high-frequency noise filtering suitable for use on low-voltage distribution systems.
- C. The requirements of Section 26 00 00 – General Electrical Work, apply to the WORK of this Section

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Reference Standards:
 - 1. ANSI/UL 1449, Fourth Edition, Safety Surge Protective Devices
 - 2. IEEE C62.41.1, Guide on the Surge Environment in Low-Voltage (1000V and Less) AC Power Circuits
 - 3. IEEE C62.45, Recommended Practice on Surge Testing for Equipment Connect to Low-Voltage (1000V and Less) AC Power Circuits
 - 4. UL 1283, Safety Electromagnetic Interference Filters
 - 5. NFPA 70, National Electric Code

1.03 SUBMITTALS

- A. Furnish submittals in accordance with Section 26 00 00 – General Electrical Work, General.
- B. Shop Drawings:
 - 1. Electrical and mechanical drawings for each type of unit, showing electrical ratings, dimensions, mounting provisions, connection details, and layout diagrams.
- C. Product Data:
 - 1. Manufacturer's technical information, including catalog information.
 - 2. Manufacturer's technical specifications with assembly and component ratings.
- D. Certifications: Certification that SPD devices comply with standards referenced in this Section.

1.04 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: Shall have at least five (5) years' experience manufacturing and servicing products substantially similar to those required and shall be able to submit documentation of at least 5 installations in satisfactory operation for at least five (5) years each.
- B. Component Supply and Compatibility:
 - 1. Obtain all products included in this Section regardless of component manufacturer from a single SPD manufacturer.
 - 2. SPD manufacturer shall review and approve or prepare all Shop Drawings and other submittals for all components furnished under this Section.

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Surge Protection Devices (SPD)
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3. Components shall be suitable for the specified service conditions and shall be integrated into overall assembly by SPD manufacturer.

PART 2 - PRODUCTS

2.01 GENERAL

- A. SPD shall be modular, high-energy, parallel design with fast-acting transient voltage suppression using metal oxide varistors. Equipment shall provide noise attenuation with electromagnetic interference filter.
- B. SPD shall be suitable for operation under the following environmental conditions:
1. Relative Humidity: Zero to 95%, non-condensing
 2. Frequency: 47 to 63 Hz
 3. Temperature: Zero to 149°F
 4. SPD operating voltage shall be suitable for the associated SPD location(s).
 5. SPD shall be suitable for internal and external mounting. SPD shall be factory-mounted and integrated into distribution equipment specified under the following Sections:
 - a. Section 26 00 00 – General Electrical Work
 - b. Section 26 12 16 – Panelboards and General-Purpose Dry Type Transformers
 - c. Section 26 29 00 – Low-Voltage Motor Control Centers
- C. SPD shall include a surge suppression path for each mode as required for the system configuration. Each mode shall be individually fused and equipped with thermal cutouts. SPD short-circuit current rating shall be 200 kA. Protection modes shall include, to the extent applicable, the following:
1. Line-to-line
 2. Line-to-neutral
 3. Line-to-ground
 4. Neutral-to-ground
- D. SPD shall include electromagnetic interference/radio frequency interference (EMI/RFI) noise rejection filter with attenuation up to 30 dB from 10 kHz to 100 MHz.
- E. SPDs and components in the operating path shall have maximum continuous operating voltage greater than 115% of nominal system operating voltage.
- F. ANSI/UL 1449 minimum withstand rating shall be 20 kA per pole, and ANSI/UL 1449 voltage protection rating for SPD shall not exceed the following:

Modes	208Y/120	480Y/277
L-N,L-G, N-G	800	1200
L-L	1200	2000

- G. SPD surge capacity based upon IEEE C62.41 location category shall, as a minimum, be the following:

Category	Application	Per Phase	Per Mode
C	Service entrance	240 kA	120 kA

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B	High exposure locations (distribution equipment)	160 kA	80 kA
A	Branch locations	120 kA	60 kA

H. Provide SPD equipped with the following accessories:

I. Surge counter with display for indicating the number of surges detected.

J. LED indicators for monitoring device status.

K. Audible alarm and silence switch for indicating an inoperative condition.

L. Dry contacts, "form C", for remote annunciation of unit status.

M. Source Quality Control: Perform manufacturer's standard factory tests on equipment. Tests shall be in accordance with ANSI/UL 1449.

N. Manufacturers: **General Electric, Eaton, Schneider Electric/Square D Company, or approved equal.**

PART 3 - EXECUTION

3.01 GENERAL

A. Install SPD in accordance with equipment manufacturer's written recommendations and instructions and the Contract Documents.

B. Where an SPD cannot be installed integral with the equipment to which it is connected, conductor length between suppressor and connection point shall be as short and as straight as possible.

END OF SECTION

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SECTION 26 50 00

LIGHTING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide luminaires and accessories, complete and operable, in accordance with the Contract Documents.

1.02 REGULATORY AGENCIES AND STANDARDS

- A. Regulatory Agencies: Installation, materials, equipment and workmanship shall conform to the latest provisions of the following agencies:

- | | |
|-------------------|---|
| 1. CBC | California Building Code |
| 2. CEC (TITLE 20) | California Energy Commission |
| 3. IBC | International Building Code - Earthquake Requirements |
| 4. NEC (NFPA 70) | National Electrical Code: 2020 Edition |
| 5. OSHA | Occupational Safety and Health Act |
| 6. UBC | Uniform Building Code |

- B. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

- C. Standards: Where referenced in these specifications or on the drawings, the publications and standards of the following organizations apply:

- | | |
|---|---|
| 1. AEIC | Association of Edison Illuminating Companies |
| 2. ANSI | American National Standards Institute |
| 3. ANSI C82.1 – Specifications for Fluorescent Lamp Ballasts | |
| 4. ANSI C84.4 – Specifications for High-Intensity-Discharge Lamp Ballasts (Multiple Supply) | |
| 5. ASTM | American Society of Testing and Materials |
| 6. ICEA | Insulated Cable Engineers Association |
| 7. IEEE | Institute of Electrical and Electronics Engineers |
| 8. NEMA 250 | Enclosure for Electrical Equipment (1000 Volts Maximum) |
| 9. NFPA | National Fire Protection Association |
| 10. NETA | International Electrical Testing Association |

- D. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

- | | |
|-----------|--|
| 1. UL-595 | Standard for Safety Marine-Type Electric Lighting Fixtures |
| 2. UL-844 | Standard for Safety Electric Lighting Fixtures for Use in Hazardous (Classified Locations) |
| 3. UL-924 | Standard for Safety Emergency Lighting and Power Equipment |

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1.03 SUBMITTALS

- A. Furnish the following product information in accordance with the requirements of Section 01 33 03 – Submittal Procedures.
- B. Furnish the following information:
 - 1. Interior Luminaires
 - a. catalog data sheets and photos
 - b. luminaire finish and metal gauge
 - c. lens material, pattern, and thickness
 - candlepower distribution curves in 2 or more planes
 - d. candlepower chart, 0 to 90 degrees
 - e. lumen output chart
 - f. average maximum brightness data in foot-lamberts
 - g. coefficients of utilization for zonal cavity calculations
 - h. mounting or suspension details
 - i. heat exchange and air handling data
 - 2. Exterior Luminaires
 - a. catalog data sheets and photos
 - b. luminaire finish and metal gauge
 - c. lens material, pattern, and thickness
 - d. IES lighting classification and Isolux diagram
 - e. fastening details to wall or pole
 - f. ballast type, location, and method of fastening
 - g. for light poles: wind loading; complete dimensions; and finish
 - 3. Lamps
 - a. voltages
 - b. colors
 - c. approximate life (in hours)
 - d. approximate initial lumens
 - e. lumen maintenance curve
 - f. lamp type and base
 - 4. Ballasts
 - a. type
 - b. wiring diagram
 - c. nominal watts and input watts

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- d. input voltage and power factor
 - e. starting current, line current, and restrike current values
 - f. sound rating
 - g. temperature rating
 - h. efficiency ratings
 - i. low-temperature characteristics
 - j. emergency ballasts rating and capacity data
5. Photocells
- a. voltage and power consumption
 - b. capacity
 - c. contacts and time delay
 - d. operating levels
 - e. enclosure type and dimensions
 - f. temperature range

PART 2 - PRODUCTS

2.01 LUMINAIRES

A. General

1. Additional WORK requirements are indicated in the Luminaire Schedule on the Drawings.
2. Fluorescent luminaires that utilize double-ended lamps and contain ballast(s) that can be serviced in place shall be provided with a disconnecting means either internal or external to each luminaire, in accordance with the requirements of Article 410.130(G)(1) of the 2020 NEC.

B. Provide a feed-through type or separate junction box.

C. Provide 2-lamp ballasts when possible.

D. Tandem-wire luminaires for 3-lamp fluorescent luminaires.

E. Provide minimum 18 AWG wire leads.

F. Provide components that are accessible and replaceable without removing the luminaire from the ceiling.

G. Soffit Installations

1. Installations shall be UL-labeled as "Suitable for Damp Locations."
2. Provide removable and prewired ballasts.

H. Exterior Installations

1. Installations shall be UL-labeled as "Suitable for Wet Locations."
2. Provide removable and prewired ballasts.
3. When factory-installed photocells are provided, the entire assembly shall be UL-labeled.

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I. Emergency Lighting

1. Power Pack

- a. self-contained
- b. 120 V
- c. 6 V sealed lead-calcium, maintenance free
- d. indicator switch in accordance with the requirements of UL 924

2. lighted, push-to-test pushbutton and indicator

3. capability of providing full illumination for 1-1/2 hours in emergency mode

4. capability of full recharge in 24 hours, automatically initiated upon resumption of normal line voltage

5. capability of protecting against excess charging and discharging

6. twin halogen, sealed lighting heads

7. solid state charger

8. normal and emergency LED indicating lights

9. Provide a 3-wire power cord and plug set.

10. mounting stand

11. time delay relays in order to maintain emergency lighting in areas illuminated by HID luminaires for 5 minutes after normal power has been restored.

12. Provide NEMA-rated enclosures in accordance with the area classifications in which they are installed.

J. Exit Signs

1. internally illuminated

2. universal mounting type

3. internal 6V sealed lead-calcium, maintenance free battery

4. battery charger

5. LED-type emergency and normal indicating lights

6. press-to-test button

7. directional arrows

8. red letters on a white panel

2.02 LAMPS

A. Light Emitting Diode (LED)

1. High

2. Efficiency Type: energy

3. Color: per schedule

B. Manufacturer, or Approved Equal

1. Cooper Crouse (EATON)

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2. Lithonia

2.03 LED DRIVER

A. General

1. UL-Listed, ETL-certified
2. high power factor, energy-efficient type
3. Driver shall meet luminaire requirements.
4. LED driver shall be UL listed with integral short circuit, overload and overheat protection.
5. Power factor >90% and total harmonic distortion THD <20%.
6. Provide driver capable of operating on 120, 208V.
7. Driver shall have minimum 3 years warranty and rated for 50,000 hours.

2.04 LIGHTING CONTROL

A. Photocell

1. Photo Control: automatic ON-OFF switch
2. Housing: self-contained; die-cast aluminum; unaffected by moisture, vibration, or temperature changes
3. Settings: ON at dusk; OFF at dawn
4. Provide a time delay feature in order to prevent false switching.
5. field-adjustable to control operating levels
6. Manufacturer, or Equal
 - a. **Tork**
 - b. **Paragon**

2.05 POLES

- A. Rating (with luminaire): 125-mph steady winds without incurred damage
- B. Material: steel
- C. one-piece stationary type

PART 3 - EXECUTION

3.01 LUMINAIRES

A. General

1. Install in accordance with the manufacturer's recommendations.
2. Provide necessary hangers, pendants, canopies, and other accessories.
3. Provide additional ceiling bracing, hanger supports, and other structural reinforcements to the building as required to safely mount the luminaire.
4. Install the luminaire plumb and level.
5. The mounting heights indicated for wall-mounted or pendant-mounted luminaires are from the bottom of the luminaire to finished floor or finished grade, whichever is applicable.

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6. Install each luminaire outlet box with a galvanized stud.

B. Pendant Mounting

1. Provide swivel-type hangers and canopies to match the luminaires, unless otherwise indicated.
2. Space single-stem hangers on continuous-row fluorescent luminaires 48 inches apart.
3. Provide twin-stem hangers on single luminaires.

C. Pole Mounting

1. Provide a cast-in-place concrete base.
2. Install the pole base flush with the finished grade where located in grassy areas not subject to vehicular traffic, and 30 inches above the finished grade when the pole is located in areas subject to damage from vehicular traffic.
3. Set the luminaire poles on anchor bolts and secure with double nuts on each bolt.
4. After the luminaire has been leveled and plumbed, dry-pack the luminaire base with grout.

D. Finished Areas

1. Install the luminaires symmetrically with tile pattern.
2. Locate with the centerline of tile or with centerline of the joint between adjacent tile runs.
3. Install recessed luminaires tight to the finished surface such that no spill light will show between the ceilings and the sealing rings.
4. When installing on combustible low-density cellulose fiberboard, provide spacers and mount luminaires 1-1/2 inches from ceiling surface, or use luminaires suitable for mounting on low-density ceilings.

5. Junction Boxes

- a. Flush and Recessed Luminaires: Locate a minimum of one foot from the luminaire.
- b. In concealed locations, install junction boxes to be accessible by the removal of the luminaire.

6. Wiring and Conduit

- a. Provide wiring of a suitable temperature rating as required by the luminaire.
- b. Provide flexible steel conduit.

7. Provide plaster frames when required by ceiling construction.

8. Independent Supports

- a. Provide each recessed fluorescent luminaire with 2 safety chains or 2 No. 12 soft-annealed galvanized steel wires of length needed to secure the luminaire to the building structure, independent of the ceiling structure.
- b. Ensure that the tensile strength of chain or wire, and the method of fastening to the structure, is adequate to support the weight of the luminaire.
- c. Fasten the chain or wire to each end of the luminaire.

E. Unfinished Areas

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1. Locate the luminaires to avoid conflicts with other building systems and blockage of the luminaire light output.
2. Luminaire Suspension
 - a. Provide 1/4- inch threaded steel hanger rods.
 - b. Scissor-type hangers will not be accepted.
3. For attachments to steel beams, provide flanged beam clips and straight or angled hangers.

3.02 LAMPS

- A. Within each luminaire, provide the number and type for which the luminaire is designed, unless otherwise indicated.

3.03 LED DRIVERS

- A. Install in accordance with the manufacturer's recommendations.
- B. Use LED driver mounting holes to fasten the driver securely within the luminaire.
- C. Replace noisy or defective drivers.

3.04 LIGHTING CONTROL

- A. Outdoor Luminaires
 1. The photocells shall switch lights ON at dusk and OFF at dawn.
- B. Dimming Systems
 1. Install in accordance with the manufacturer's recommendations.
 2. Do not connect ballasts or equipment to the dimming system unless such connections are acceptable to the dimming system manufacturer.

3.05 CLEAN-UP

- A. Remove labels and other markings, except the UL listing mark.
- B. Wipe the luminaires inside and out in order to remove construction dust.
- C. Clean the luminaire plastic lenses with an antistatic cleaner only.
- D. Touch up painted surfaces of the luminaires and the poles with matching paint provided by the manufacturer.
- E. Replace defective lamps at the Date of Substantial Completion.

END OF SECTION

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SECTION 31 05 03

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Section includes: All excavating, backfilling, filling, grading, subgrade preparation and disposing of earth materials as required. It also includes all temporary means needed to prevent discharge of sediment to watercourses from dewatering systems or erosion.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C33, Standard Specification for Aggregate Material.
 - 2. ASTM D422, Method for Particle-Size Analysis of Soils.
 - 3. ASTM D423, Liquid Limit of Soils.
 - 4. ASTM D427, Shrinkage Factors of Soils.
 - 5. ASTM D698, Test Method for Laboratory Compaction Characteristics of Soil.
 - 6. ASTM D1556, Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 7. ASTM D2922, Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 8. ASTM D2166, unconfined compressive strength of soils.
- B. Occupational Safety and Health Administration (OSHA)
 - 1. Title 29, Code of Federal Regulations, Part 1926
- C. City of Roseville
 - 1. Design and Construction Details for Trench Backfill

1.3 SYSTEM DESCRIPTION

- A. Permits and Regulations:
 - 1. Perform excavation Work in compliance with applicable requirements of governing authorities having jurisdiction.
 - 2. Obtain all necessary permits for Work in roads, rights-of-way, railroads, etc. Also, obtain permits as required by local, state and federal agencies for discharging water from excavations, for erosion control, and for prevention of air and water pollution.

1.4 SUBMITTALS

- A. Test Reports - Borrow, Backfill, and Grading: Testing laboratory shall submit copies of the following reports directly to ENGINEER:
 - 1. Tests on borrow material.
 - 2. Tests on footing subgrade.
 - 3. Field density tests.
 - 4. Optimum moisture - maximum density curve for each soil used for backfill.

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5. Reports of observations for conformance of borrow material to the Project Geotechnical Report.
 6. Quality Control Plan: Names and phone numbers of independent testing companies that will be used to perform soil and asphalt concrete testing, qualifications, and proposed procedures for performing tests and providing test results to ENGINEER.
- B. Submit to the ENGINEER samples of all materials, including select backfill, general backfill, bedding, crushed stone, sand and topsoil. Submit samples of the proposed material at least seven days in advance of its anticipated use.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General:
1. All material will be tested by the laboratory and approved by the ENGINEER.
 2. No material shall be placed without the approval of the ENGINEER.
- B. Marking Tape:
1. Plastic:
 - a. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
 - b. Thickness: Minimum 4 mils.
 - c. Width: 12 inches.
 - d. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
 - e. Manufacturers and Products:
 - 1) Reef Industries; Terra Tape.
 - 2) Allen; Markline.
 - 3) Or equal.
 2. Metallic:
 - a. Solid aluminum foil, visible on unprinted side, encased in a protective high visibility, inert polyethylene plastic jacket.
 - b. Foil Thickness: Minimum 5.5 mils.
 - c. Width: 12 inches.
 - d. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
 - e. Joining Clips: Tin or nickel-coated, furnished by tape manufacturer.
 - f. Manufacturers and Products:
 - 1) Reef Industries; Terra "D".
 - 2) Allen; Detectatape.
 - 3) Or equal.
 3. Marking tape shall be marked with the following statements:
 - a. Sanitary Sewer Pipeline: "CAUTION - SANITARY SEWER PIPELINE BURIED BELOW."
 - b. For Existing Utilities Within Trench Limits: "CAUTION - BURIED PIPELINE/CONDUIT" or as specified by utility owner.
 4. Color:
 - a. Sanitary Sewer Pipeline: Green, as specified in ANSI Z53.1 Safety Color Code.

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- b. Others Disturbed: Color, as specified for specific utility in ANSI Z53.1 Safety Color Code.
- C. Pipe Locating Wire:
 - 1. Pipe locating wire shall be bare AWG No. 10, soft drawn, single-strand copper wire.
 - 2. Provide at least 6-mil PVC electrical tape insulation around wire where adjacent to metal pipe, valves, and in all valve boxes.
- D. Filter Fabric:
 - 1. Filter fabric shall be Mirafi, Type 140N; Dupont, Type PAR, Style 3401, or equal and shall conform to the following requirements:
 - 2. Minimum grab strength of 120 lbs per ASTM D4632.
 - 3. Apparent open size (AOS) to be equal to or greater than the U.S. Standard Sieve No. 100 (0.210 mm) per ASTM D4751.
 - 4. Percent open area not to exceed about 25 percent. The percent open area is defined as the ratio of the sum of 20 or more individual open areas (times 100) to the sum of the corresponding 20 or more individual total areas.
 - 5. Permittivity shall not be less than 1.7 sec-1.
- E. Fill Material:
 - 1. Classification:
 - a. Fill adjacent to structures to a distance measured horizontally from the structure that is equal to the depth from the finished grade is classified as Select Fill.
 - b. Outside these limits, the fill is classified as Common Fill, unless otherwise specified.
 - 2. Common Fill:
 - a. Common Fill materials shall consist of soils obtained from on-site excavations or off-site sources that are uniformly mixed, contain no organic material, and have been passed through a 3-inch screen.
 - b. The maximum expansion of off-site materials shall be 1.5% as performed on a sample remolded to approximately 9% of the maximum dry density as determined in accordance with ASTM D 698 at 2% below optimum moisture content under a 100 psf surcharge pressure.
 - c. If on-site material is unsuitable as determined by the ENGINEER, imported fill shall be used.
 - 3. Select Fill:
 - a. Select fill or backfill is material selected by the ENGINEER from the excavation.
 - b. Select material shall be free of organic or other unsuitable materials and shall not contain rocks, or unbroken masses of soil larger than 4 inches in greatest dimension.
- F. Aggregate Base:
 - 1. Class 2, $\frac{3}{4}$ inch maximum conforming to Section 26 of the Caltrans Standard Specifications.
- G. Granular Bedding:
 - 1. Well-graded sand and gravel materials.
 - 2. Unfrozen, friable, and no clay balls, roots, or other organic material.
 - 3. Clean or gravelly sand with less than 5% passing No. 200 sieve, as determined in accordance with ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.

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4. 3/4-inch maximum particle size, except 1/4 inch for stainless steel pipe, copper pipe, tubing, and plastic pipe under 3-inch diameter.
 5. Conduit and Direct-Buried Cable:
 - a. Sand, clean or clean to silty, less than 12% passing No. 200 sieve.
 - b. Individual Particles: Free of sharp edges.
 - c. Maximum Size Particle: Pass a No. 4 sieve.
 - d. If more than 5% passes No. 200 sieve, the fraction that passes No. 40 sieve shall be non-plastic as determined in accordance with ASTM D4318.
- H. Sand:
1. Natural or manufactured granular material, containing no organic material.
 2. Sand will be non-plastic, when tested in accordance with ASTM D 4318, 100% passing a 1/2 inch screen and no more than 20% passing a No. 200 screen.
- I. Crushed Stone:
1. Crushed stone will be crushed rock or gravel conforming to the requirements of ASTM C33, Size #57.
- J. Gravel Surfacing
1. Gravel Surfacing will be crushed rock, angular, and well-graded.
 2. Maximum size of 3/4 inch, at least 50% passing the No 4. screen, between 10 and 30% passing the No. 10 screen and no more than 15% passing the No. 40 screen.
 3. Color to be selected by CITY.
- K. Controlled Low Strength Material (CLSM):
1. Select and proportion ingredients to obtain compressive strength between 50 and 150 psi at 7 days in accordance with ASTM D4832. Sufficient cement shall be added to meet the strength and material requirements given below and as required to provide sufficient strength for compacting overlying trench backfill. Provide certified mix design and test results in accordance with submittal requirements.
 2. Materials:
 - a. Cement: ASTM C150, Type I or II, two sacks minimum per cubic yard.
 - b. Aggregate: ASTM C33, maximum Size 7. The amount of material passing a No. 200 sieve shall not exceed 12%. The above No. 200 sieve material shall be well graded so as to avoid segregation. The minus #200 sieve fraction shall be non-plastic.
 - c. Fly Ash (if used): ASTM C618, Class C or F.
 - d. Water: Clean, potable, containing less than 500 ppm of chlorides.
 3. Mix Design:
 - a. The CONTRACTOR and its suppliers shall determine the materials and proportions used to meet the requirements of these Specifications. Make daily checks of the aggregate gradation and adjust the mix design as required. Modify the CLSM mix as necessary to meet the flowability, pumpability, and set time requirements for each individual pour.
 - b. At least 30 days before placing CLSM, submit to the ENGINEER a mix design for each CLSM to be used. The mix design shall include trial lab and field data, with pairs of 6-inch by 12-inch cylinder breaks performed at 7, 14, and 28 days. Molds shall be plastic or waxed cardboard. The mix design shall be performed by an independent laboratory under the direction of an engineer licensed in California.

- c. No CLSM shall be placed until the ENGINEER has approved the mix design. The ENGINEER's approval of the mix design shall be understood to indicate conditional acceptance. Final acceptance will be based on tests conducted on field samples and conformance with these Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Inspection:
 - 1. Provide ENGINEER with sufficient notice and with means to examine the areas and conditions under which excavating, filling, and grading are to be performed.
 - 2. ENGINEER will notify CONTRACTOR if conditions are found that may be detrimental to the proper and timely completion of the Work.
 - 3. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.
- B. "Pot-holing":
 - 1. Excavate and backfill, in advance of the construction, test pits to determine conditions or location of the existing utilities and structures.
 - 2. Define the location of each existing facility involved within the area of his excavation for Work under this Contract.
 - 3. Exercise care during such location work to avoid damaging and/or disrupting the affected facility.
 - 4. CONTRACTOR is responsible for repairing, at his expense, damage to any structure, piping, or utility caused by his Work.
- C. Temporary Fencing:
 - 1. Furnish and install a temporary fence surrounding excavations and work area, including the stockpile and storage areas.
 - 2. Provide fence openings only at vehicular, equipment, and worker access points.

3.2 EROSION CONTROL

- A. General: Implement the construction procedures outlined herein to assure minimum damage to the environment during construction. Take all additional measures required to conform to the requirements of applicable codes and regulations.
 - 1. Whenever possible, locate and construct access and temporary roads to avoid environmental damage. Make provisions to regulate drainage, avoid erosion, and minimize damage to vegetation.
 - 2. Where areas must be cleared for storage of materials or temporary structures, provisions will be made for regulating drainage and controlling erosion, subject to the ENGINEER'S approval.
 - 3. Remove only those shrubs and grasses that must be removed for construction. Protect the remainder to preserve their erosion-control value.
- B. Control Measures: Apply measures to control erosion and to minimize the siltation of the existing waterways, and natural ponding areas. Such measures include, but are not limited to, the use of berms, baled straw silt barriers, gravel or crushed stone, mulch, slope drains, and other methods.

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1. Install erosion and sediment control practices where shown and according to applicable standards, codes, and specifications. The practices will be maintained in effective working condition during construction and until the drainage area has been permanently stabilized.
 2. Temporary measures will be coordinated with the construction of permanent drainage facilities and other Work to the extent practicable to assure economical, effective, and continuous erosion and siltation control.
 3. CONTRACTOR will provide special care in areas with steep slopes. Disturbance of vegetation will be kept to a minimum to maintain stability.
 4. After stabilization, remove all straw bale dikes, debris, etc., from the site.
- C. Dust Control:
1. Prevent blowing and movement of dust from exposed soil surfaces and access roads to reduce on- and off-site damage and health hazards.
 2. Control may be achieved by irrigation in which the site is sprinkled with water until the surface is moist.
 3. Repeat the process as needed.
- D. Failure to Comply: In the event CONTRACTOR repeatedly fails to satisfactorily control erosion and siltation, the CITY reserves the right to employ outside assistance or to use its own forces to provide the corrective measures indicated. The cost of such work, plus engineering costs, will be deducted from monies due CONTRACTOR.

3.3 DEWATERING

- A. General:
1. Continuously control all water during the course of construction, including surface water and ground water, to prevent any damage to any excavation or to the construction activities occurring within those excavations.
 2. Maintain all dewatering systems full time (24-hours/day) during the entire time the excavation is open. Do not shut down dewatering systems at night, on weekends or on holidays, or any other time the excavation is open.
 3. Each excavation will be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein is inspected by the ENGINEER and backfill operations have been completed.
 4. Provide adequate alarm, monitoring and back-up systems for all dewatering systems to maintain control of all water during all times any excavation is open.
- B. Surface Water:
1. Provide and maintain adequate drainage and dewatering system to prevent surface water from entering excavations and to remove and dispose of all rainwater entering excavations, trenches, or other parts of the Work.
 2. Keep the different working areas on the site free of surface water at all times. Special care will be taken to eliminate depressions that could serve as mosquito pools.
 3. The diversion and removal of surface water will be performed in a manner that will prevent the accumulation of water behind temporary structures or at any other locations within the construction area where it may be detrimental.
- C. Ground Water:

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1. Provide, operate and maintain dewatering system to permit excavation and subsequent construction activities in a dry, safe environment.
 2. System shall be of sufficient size and capacity to maintain groundwater level a minimum of 2 feet below the lowest point of excavation.
 3. Contractor shall make an assessment of the potential for dewatering induced settlement of surrounding soils and structures. Contractor shall provide all necessary equipment and facilities, including re-injection wells, cutoff walls, infiltration trenches, etc, to prevent damage to adjacent structures.
- D. Disposal of water:
1. Disposal of discharge water shall conform to any and all applicable permit requirements.

3.4 EXCAVATION SUPPORT SYSTEMS

- A. Trench Support
1. Provide, install and maintain trench shields for all trench excavations for which trench shields are required (at a minimum, as required by OSHA).
 2. Follow all OSHA guidelines and other applicable laws and ordinances.
 3. Elevation of Bottom:
 - a. Excavation of earth material below the bottom of a shield will not exceed the limits established by ordinances, codes, laws and regulations.
 - b. When using a shield for pipe installation, the bottom of the shield will not extend below the mid-diameter of installed pipe at any time.
 - c. When using a shield for the installation of structures, the bottom of the shield shall not extend below the top of the bedding for the structures.
 4. Moving Shield: When a shield is removed or moved ahead, extreme care will be taken to prevent the movement of pipe or structures or the disturbance of the bedding for pipe or structures. Pipe or structures that are disturbed are to be removed and reinstalled as specified.
- B. Below Grade Structure Excavation Support
1. Provide, install and maintain excavation support systems for all structural excavations where excavation support is required (at a minimum, as required by OSHA).
 2. Follow all OSHA guidelines and other applicable laws and ordinances.
 3. Prepare excavation support plan addressing the following topics:
 - a. Details of shoring, bracing, sloping or other provisions for worker protection from the hazards of caving ground
 - b. Design assumptions and calculations
 - c. Methods and sequencing of installing excavation support
 - d. Proposed locations of stockpiled excavated materials
 - e. Minimum lateral distance from the crest of slopes for vehicles, equipment, and materials
 - f. Location of vertical and horizontal monitoring points on structures and recommended frequency of monitoring for excavation support system stability and performance
 4. Design of excavation support systems and excavation support plan shall be prepared by a civil or structural engineer registered in the state in which the system is installed.

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- a. Excavation support system shall consist of h-pile and lagging, sheet piles, or other reliable method of excavation support.
 - b. The use of below-ground tiebacks is allowed, however, Contractor is responsible for locating and avoiding potential conflicts with existing utilities in the area in which the tie-backs are installed. All tiebacks shall be further than 3 feet from any conflicting utility. Tiebacks shall not use existing structures for support.
- C. Removal of Excavation Support
1. Completely remove all excavation support unless ENGINEER specifically allows requested excavation support to remain in place after backfill.
 2. Remove all excavation support in a manner that will maintain support as excavation is backfilled and will not leave voids in the backfill.

3.5 EXCAVATION

A. General:

1. Material removed: Excavations include earth, sand, clay, gravel, hardpan, boulders, rock, pavements, rubbish, and all other materials within the excavation limits.
2. Excavations for structures and pipelines will be open excavations. Provide excavation protection system(s) required by ordinances, codes, laws, and regulations to prevent injury to workmen and to prevent damage to new and existing structures or pipelines. Unless shown or specified otherwise, protection system(s) will be utilized under the following conditions.
 - a. Excavation Less Than 5 feet deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations will be sloped and benched, shielded, or shored and braced.
 - b. Excavations More Than 5 feet deep: Excavations in stable rock where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations will be sloped and benched, shielded or shored and braced.
 - c. Excavation protection system(s) will be installed and maintained in accordance with the excavation plan submitted.
3. CONTRACTOR shall be made aware of the specific excavation support suggestions detailed in the Geotechnical report.

B. Structural Excavation:

1. The elevation of the bottom of footings shown is approximate only. ENGINEER may order such changes in dimensions and elevations as may be required to secure a satisfactory footing.
2. Hand-trim all structure excavations to permit the placing of full widths and lengths of footings on horizontal beds. Rounded and undercut edges will not be permitted.
3. Excavations shall allow for aggregate base, forms, working space, installation of shoring or bracing or the safe sloping of banks.

C. Pipe Trench Excavation:

1. No more than 100 feet of trench may be opened in advance of pipe laying.
2. Minimize trench width to the greatest extent practical but conform to the following:
3. Sufficient to provide room for installing, jointing, and inspecting piping, but in no case wider at top of pipe than pipe barrel outside diameter plus 3 feet.
4. Enlargements at pipe joints may be made, if required, and approved by ENGINEER.

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5. Sufficient for shoring and bracing, or shielding and dewatering.
 6. Sufficient to allow thorough compaction of backfill adjacent to bottom half of pipe.
 7. Depth of trench will be as shown. If required and approved by ENGINEER, depths may be revised.
- D. Subgrades:
1. Subgrades for roadways, structures and trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; free from mud, muck, and other soft or unsuitable materials; and remain firm and intact under all construction operations.
 2. Subgrades that are otherwise solid, but which become soft or mucky on top due to construction operations, shall be reinforced with select fill.
 3. The finished elevation of stabilized subgrades shall not be above subgrade elevations shown.
- E. Material Storage: Stockpile satisfactory excavated materials in approved areas, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
1. Locate and retain soil materials away from edge of excavations.
 2. Dispose of excess soil material and waste materials as specified hereinafter.
- F. Unauthorized Excavation:
1. All excavation outside the lines and grades shown, and which is not approved by ENGINEER, together with the removal and disposal of the associated material is at the CONTRACTOR'S expense.
 2. Unauthorized excavations shall be filled and compacted with select fill by the CONTRACTOR at his expense.

3.6 PLACEMENT OF FILL AND BACKFILL

- A. General:
1. Backfill excavations as promptly as Work permits, but not until completion of the following:
 - a. Acceptance by the ENGINEER of construction below finish grade.
 - b. Inspection, testing, approval, and recording of locations of underground piping and ductwork.
 - c. Removal of concrete formwork.
 - d. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
 - e. Removal of trash and debris.
 2. Remove and replace with approved fill material, as specified, fill containing organic materials or other unacceptable material.
 3. Compact all fill and backfill as specified in Subsection 3.7.
- B. Structural Backfill:
1. Select fill shall be placed as structural backfill where shown on the Drawings or indicated herein.
 2. Constraints:
 - a. Backfill water-holding basins or structures only after satisfactory leakage tests have been conducted as specified in Sections Concrete and Precast Concrete.
 - b. No backfill or fill material shall be placed when free water is standing on the surface of the area.

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- c. No compaction of fill will be permitted with free water on any portion of the fill to be compacted.
 - d. No fill shall be placed or compacted in a frozen condition or on top of frozen material.
 - e. Any fill containing organic materials or other unacceptable material previously described shall be removed and replaced with approved fill material prior to compaction.
 - 3. Levels of backfill against concrete walls are not to differ by more than 2 feet on either side of walls, unless walls are adequately braced, or all floor framing is in place up to and including grade level slabs.
 - 4. Wherever a pipe passes through a structure backfill, the structure backfill shall be placed and compacted to an elevation 12 inches above the top of the pipe before the trench is excavated.
- C. Backfill in Pipe Trenches:
- 1. Pipeline trenches may be backfilled prior to pressure testing, but no structure shall be constructed over any pipeline until it has been tested.
 - 2. Unless otherwise shown, place all pipe on a minimum 6 inches thick layer of Granular Bedding. The bedding shall extend 12 inches above the top of the pipe.
 - 3. Install bedding as follows:
 - a. Spread bedding and grade to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints.
 - b. After each pipe section is placed, deposit and compact sufficient bedding material under and around each side of the pipe to hold the pipe in proper position and to maintain alignment during subsequent pipe jointing and bedding operations.
 - c. Bedding material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement. Then place and compact the bedding material to an elevation 12 inches above the top of pipe.
 - 4. Above the level of bedding, place Select or Common Fill, as specified elsewhere in these specifications.
 - 5. Controlled Low Strength Material (CLSM):
 - a. When CLSM pipe zone material is indicated, the pipe may be supported above the trench floor on pea gravel bags or sandbag supports. The CONTRACTOR shall demonstrate to the ENGINEER, 7 days prior to full pipeline backfill installation, placement of CLSM as described below. This demonstration shall occur on the first 300 feet of trench, The CLSM pipe zone material shall be installed as indicated.
 - 1) Bedding and Embedment: Place and compact CLSM pipe zone material using the following techniques:
 - a) Following placement and anchoring of the pipe, remove all loose soil from trench walls and floor. Remove any unstable soil at the top of the trench which might fall into the trench during placement of the CLSM.
 - b) Deliver the CLSM to the trench in ready mix trucks or traveling pug mill and utilize pumps or chutes to place the CLSM in the trench. Direct CLSM to one side of the pipe, taking care not to displace the pipe at any time. Continue placing CLSM on one side of the pipe until CLSM has gone under the pipe and up the other side to a depth of 6 inches above the pipe bottom. Use at least two handheld vibrators to continuously liquefy and

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move CLSM into all voids. Adjust water in mixture to maintain fluid consistency but maintain strength requirements. Continue placing CLSM on both sides of the pipe continuously using two vibrators for every 30 feet of pipe run.

- c) Maintain stability of pipe and conduit throughout CLSM placement and curing. CLSM will likely require placement in lifts to prevent pipe flotation. No movement of the pipe caused by flotation will be allowed. If any movement occurs, the CLSM material shall be removed and/or repaired in full conformance with these Contract Documents at no additional cost to the CITY. Remove all sloughed material or other debris from top of previously placed CLSM.
- d) CLSM shall be allowed to cure a minimum of 4 hours prior to placing each lift as well as trench zone material. A smaller cure period will be allowed if it can be demonstrated to the ENGINEER that it will support the individual lift or trench zone material. The CLSM shall be sufficiently strong to support trench backfill material and the compaction effort required to achieve the specified compaction.

D. Marking Tape:

- 1. Continuously install marking tape along centerline of all buried piping, on top of last lift of pipe zone material unless otherwise shown. Coordinate with piping installation drawings. Install in accordance with manufacturer's recommendations.
 - a. Metallic Marking Tape: Install with nonmetallic piping and waterlines. Join ends with clips provided by the manufacturer.
 - b. Plastic Marking Tape: Install with metallic piping.

E. Pipe-Locating Wire:

- 1. Pipe-locating wire shall be provided for the entire length of all nonmetallic pipelines and shall be continuous around restrained joint sections.
- 2. Install pipe locating wire by strapping to the top of the pipe with PVC tape, polyethylene-backed tape, or tie locks. Test pipe locating wire with pipe locator equipment prior to final acceptance.
- 3. Stub the pipe-locating wire up inside each valve box or flush-mounted Type C corrosion monitoring stations. Sufficient excess length shall be provided at terminal connections to allow continuation of the pipe-locating wire to the terminal connection.
- 4. Wire splices shall be made with compression fittings or soldering; wrapped with Tac-Tape, Aqua-Seal, or equal, and wrapped with electrical tape. Prevent bare copper wire from contacting metallic appurtenances including, but not limited to, pipe, buried valves, or fittings.

F. Resume backfilling operations using the techniques described above to complete the pipe zone backfill. ENGINEER will approve the pipe zone backfill prior to initiating the trench zone backfill.

G. Embankments:

- 1. To the maximum extent available, use excess earth obtained from structure and trench excavations for construction of embankments. Obtain additional material from borrow pits, if such pits are shown, otherwise obtain additional material from offsite sources as necessary.

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2. Strip, scarify, level and roll the subgrade so that surface materials of the subgrade will be compact and well bonded with the first layer of the embankment.
 3. Wherever a pipe is to pass through a fill or embankment, place and compact the fill or embankment material to an elevation 12 inches above the top of the pipe before the trench is excavated.
- H. Crushed Stone:
1. Place where shown on the Drawings, to the limits shown.
 2. Place in hand-tamped lifts, not to exceed 6 inches.
- I. Replacement of Unacceptable Excavated Materials: In cases where over-excavation for the replacement of unacceptable soil materials is required, backfill the excavation to the required subgrade with select backfill material and thoroughly compacted.

3.7 COMPACTION

- A. General:
1. Compaction by inundation with water will not be permitted.
 2. Provide equipment capable of discing, aerating, and mixing the soil to ensure reasonable uniformity of moisture content throughout the material and to reduce the moisture content by air drying, if necessary.
 3. Perform compaction with equipment suitable for the type of fill material being placed. Select equipment that is capable of providing the minimum density required by these Specifications. Use hand-operated compacting equipment within a distance of 3 feet from the wall of any completed below grade structure. Between 3 feet and 12 feet adjacent to below grade structures, compaction may be completed with lightweight compaction equipment weighing less than 15,000 pounds. Beyond 12 feet adjacent to below grade structures, there are no equipment weight restrictions. Provide equipment that is capable of compacting in restricted areas next to structures and around piping.
- B. Compaction Density Requirements: The degree of compaction required for several types of fill is listed below. Moistened or aerated material as necessary to provide the moisture content specified, or if not specified, that will facilitate obtaining the specified compaction.

MATERIAL	Required Minimum Density (ASTM D 1557)	Maximum Uncompacted Lift*
Common Fill/Prepared Subgrade:	90%	8 inches
Select Fill/Trench Backfill above pipe:		
More than 2 feet below final grade	90%	8 inches
Less than 2 feet below final grade	95%	8 inches
Aggregate Base:	95%	8 inches
Granular Bedding	90%	6 inches
Sand	90%	6 inches
Gravel Surfacing	95%	6 inches

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*Where large areas of backfill allow for use of large, heavy equipment, ENGINEER may, at their option, allow uncompacted lifts up to 12 inches.

- C. Moisture Content: All fill and backfill shall be prepared and thoroughly mixed to achieve optimum moisture content, $\pm 3\%$, with the following exception: On site clayey soils optimum to $+3\%$.
- D. Testing: Testing will be as specified under Paragraph 3.10, "Field Quality Control".

3.8 GRADING

- A. General:
 - 1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
 - 2. Smooth subgrade surfaces within specified tolerances, and compact with uniform levels or slopes between points where elevations are shown or between such points and existing grades.
- B. Adjacent to Structures: Grade areas adjacent to structures to drain away from structures (including masonry fences) and to prevent ponding.
- C. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1 inch above or below the required subgrade elevation.
- D. Pavements: Shape surface of areas under pavement to line, and grade and cross-section with finish surface not more than $\frac{1}{2}$ inch above or below the required subgrade elevation.
- E. Under Building Slabs: Grade smooth and even, free of voids, compacted as specified and to required elevation. Provide final grades within a tolerance of $\frac{1}{2}$ inch when tested with a 10-foot straightedge.
- F. Special Areas: In turfed areas or areas covered with gravel, stone, wood chips, or other special cover, grade to within not more than 1 inch above or below the required subgrade elevations.
- G. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

Area	Required Minimum Density (ASTM D 1557)
Beneath Treatment Structures and Buildings	95%
Beneath Pavement	90%
Landscaped and other areas	85%

3.9 PAVEMENT BASE COURSE

- A. Shoulders:
 - 1. Place shoulders along edges of base course to prevent lateral movement.

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2. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each base course layer.
 3. Compact and roll at least a 12-inch width of shoulder simultaneously with compacting and rolling of each layer of base course.
- B. Placing:
1. Place base course material on prepared subgrade in layers of uniform thickness conforming to indicated cross-section and thickness.
 2. Maintain optimum moisture content for compacting base material during placement operations.

3.10 FIELD QUALITY CONTROL

- A. General: Testing by a testing laboratory of materials, testing for moisture content during placement and compaction of fill materials, and of compaction requirements for compliance with technical requirements of the Specifications.
- B. The CONTRACTOR shall retain one or more independent testing agencies to perform all quality control testing required for all materials except portland cement concrete. The required testing is for soil, aggregates, imported gravel, aggregate base, asphalt concrete, and CLSM. Each independent testing agency shall perform the testing under the supervision of an engineer registered in California. Technicians performing the testing shall be certified to operate the equipment and have at least 1 full year of experience in the type of tests being performed.
- C. A Quality Control Plan shall be submitted by the CONTRACTOR to the ENGINEER at least 30 days before field testing is required. It shall include the names, addresses, and phone number of the companies, the major personnel that will be involved, and resumes of the individuals that will be supervising and performing the tests. Copies of certificates held by the companies and the testing personnel shall be included.
- D. CONTRACTOR's independent testing agency shall perform all field and laboratory testing as described in these Specifications. Test shall include specific gravity, sand equivalent, durability, abrasion resistance, soundness, gradation, compaction curves, lab and field moisture contents, compressive strength, and field density. Other tests shall be performed by the CONTRACTOR's independent testing agency as may be required to meet the Specifications. Mix design testing for portland cement concrete, CLSM, and asphalt concrete shall also be performed by the CONTRACTOR. Field testing for portland cement concrete will be performed by the ENGINEER.
- E. CONTRACTOR shall schedule all lab testing so that materials arriving at the site have been approved by the ENGINEER for use on the Project.
- F. All lab tests shall be performed on Samples obtained from the source of actual material that will be used on the Project. No test results more than 90 days old shall be submitted for review.
- G. The location of field density tests shall be determined by the ENGINEER.
- H. Frequency of tests: Frequency will be not less than as follows:
 1. For trenches:

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- a. In open fields: 2 locations every 1,000 linear feet, for each layer
 - b. Along dirt, gravel, or paved roads or off traveled right-of-way: 2 locations every 500 linear feet, for each layer
 - c. Crossing roads: 2 locations along each crossing, for each layer
 - 2. For structural backfill: 1 every 50 cubic yards.
 - 3. In embankment or fill: 1 every 200 cubic yards.
 - 4. Base material: 1 every 50 cubic yards.
 - 5. Footing Subgrade: 1 every 50 linear feet, for each layer.
 - 6. Paved Areas and Building Slab Subgrade: 1 every 500 square feet, but in no case less than 3 tests, for each layer.
- I. The ENGINEER may modify the frequency or spacing of tests to provide for testing at specific structures or locations where the ENGINEER deems additional testing is required. The CONTRACTOR shall perform such additional testing up to 10% above the frequency and total number of tests specified at no additional cost to the CITY.
 - J. Verbal and hand-written test results shall be provided to the ENGINEER and CONTRACTOR immediately following the field testing. Written test data sheets shall be provided to the ENGINEER not more than 12 hours following completion of the field test. Typed lab test results shall be provided to the ENGINEER not more than 7 calendar days following completion of the tests. However, the results must be reviewed and approved by the ENGINEER prior to placing the material in the trenches or incorporating it in the Work.
 - A. Any location where a failing test occurs shall be recompacted and retested until a passing test is obtained. Specified testing values are minimums and no tests shall be accepted below the specified minimums. No material shall be placed over the failing test area until the failing material is recompacted and a passing test is obtained and the area is approved by the ENGINEER. The limits of the failing test shall be assumed to be halfway between the failing location and the nearest passing location. Additional tests may be taken to determine the limits of unsatisfactory compaction.
 - B. At the first of each month, the CONTRACTOR shall provide to the ENGINEER a typed summary of all tests performed for the previous month including test location by station, depth below finished grade, material tested, wet density, moisture content, dry density, maximum density curve used, and percent relative compaction. Lab test results shall also be included in the monthly report with clear description of material tested, intended use on the Project, and a statement of compliance or noncompliance with the Project Specifications.
 - C. Any material which does not meet the Specifications shall be removed from the site and replaced with material in compliance.
 - D. Material which has been softened or modified prior to placing the overlying lift shall be removed down to material which is in compliance.

3.11 DISPOSAL OF EXCAVATED MATERIALS

- A. Material removed from the excavations that does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away from the Work site

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and disposed of by CONTRACTOR in compliance with ordinances, codes, laws and regulations at no additional cost to the CITY.

B. Any uncontaminated material can be hauled to 1800 Booth Road.

++ END OF SECTION ++

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City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 31 11 03

SITE PREPARATION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.
- B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.
- C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 0.5 inch caliper to a depth of 6 inches below subgrade.
- D. Stripping: Removal of topsoil remaining after applicable scalping is completed.
- E. Project Limits: Areas, as shown or specified, within which Work is to be performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or site improvements within limits shown or specified.
- B. Do not injure or deface vegetation that is not designated for removal.

3.2 LIMITS

- A. As follows, but not to extend beyond Project limits.
 - 1. Excavation 5 feet beyond top of cut slopes.
 - 2. Trench Excavation: 4 feet from trench centerline, regardless of actual trench width.
 - 3. Waste Disposal:
 - a. Clearing: 5 feet beyond perimeter.
 - b. Scalping and Stripping: Not required.
 - c. Grubbing: Around perimeter as necessary for neat finished appearance.
 - 4. Structures: 5 feet outside of new structures.
 - 5. Roadways: Clearing , grubbing and stripping 50 feet from centerline.
 - 6. Overhead Utilities:
 - a. Clearing and Grubbing: Entire width of easements and rights-of-way.
 - b. Scalping and Stripping: Wherever grading is required.
 - 7. Other Areas: As shown.

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Site Preparation

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- B. Remove rubbish, trash, and junk from entire area within Project limits.

3.3 CLEARING

- A. Clear areas within limits shown or specified.
- B. Fell trees so that they fall away from facilities and vegetation not designated for removal.
- C. Cut stumps not designated for grubbing flush with ground surface.
- D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.4 GRUBBING

- A. Grub areas within limits shown or specified.

3.5 STRIPPING

- A. Do not remove topsoil until after scalping is completed.
- B. Strip areas within limits to minimum depths shown or specified. Do not remove subsoil with topsoil.

3.6 DISPOSAL

- A. Clearing and Grubbing Debris: Dispose of debris offsite.
- B. Strippings:
 - 1. Dispose of strippings that are unsuitable for topsoil or that exceed quantity required for topsoil offsite or approved by ENGINEER.
 - 2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess strippings as specified for clearing and grubbing.

++ END OF SECTION ++

SECTION 32 12 16

ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUBMITTALS

A. Information Submittals:

1. Asphalt Concrete Mix Formula:
 - a. Submit minimum of 15 days prior to start of production.
 - b. Submittal to include the following information:
 - 1) Gradation and portion for each aggregate constituent used in mixture to produce a single gradation of aggregate within specified limits.
 - 2) Bulk specific gravity for each aggregate constituent.
 - 3) Measured maximum specific gravity of mix at optimum asphalt content determined in accordance with ASTM D2041.
 - 4) Percent of asphalt lost due to absorption by aggregate.
 - 5) Percentage of asphalt cement, to nearest 0.1 percent, to be added to mixture.
 - 6) Optimum mixing temperature.
 - 7) Optimum compaction temperature.
 - 8) Temperature-viscosity curve of asphalt cement to be used.
2. Test Report for Asphalt Cement:
 - a. Submit minimum 10 days prior to start of production.
 - b. Show appropriate test method(s) for each material and the test results.
3. Statement of qualification for independent testing laboratory.
4. Test Results:
 - a. Mix design.
 - b. Asphalt concrete core.
 - c. Gradation and asphalt content of uncompacted mix.

1.2 QUALITY ASSURANCE

A. Qualifications:

1. Independent Testing Laboratory: In accordance with ASTM E329.
2. Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Temperature: Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 10 degrees C (50 degrees F) or air temperature is lower than 4 degrees C (40 degrees F). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces.
- B. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Asphalt Material: Conform to the following specification:
 - 1. Asphalt Material shall be a hot mix asphalt concrete, consisting of a mixture of mineral aggregate and paving asphalt conforming to Section 92 of the Caltrans Standard Specifications, PG 64-10.
- B. Seal Coat: Conform to the following specification:
 - 1. Seal coat material shall be conforming to Section 37 of the Caltrans Standard Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. Traffic Control:
 - 1. In accordance with all applicable specification sections and laws.
 - 2. Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.
- B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.2 LINE AND GRADE

- A. Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness.
- B. Shoulders: Construct to line, grade, and cross-section shown.

3.3 PREPARATION

- A. Prepare subgrade as specified.
- B. Thoroughly coat edges of contact surfaces with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

3.4 PAVEMENT APPLICATION

- A. General: Place asphalt concrete mixture on approved, prepared base in conformance with this section.
- B. Pavement Mix:
 - 1. Prior to Paving:
 - a. Sweep primed surface free of dirt, dust, or other foreign matter.
 - b. Patch holes in primed surface with asphalt concrete pavement mix.
 - 2. Place asphalt concrete pavement mix in one single lift.
 - 3. Total Compacted Thickness: 3 inches.

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Asphalt Concrete Pavement

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4. Apply such that meet lines are straight and edges are vertical.
 5. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
 6. After placement of pavement, seal meet line by painting a minimum of 150 millimeters (6 inches) on each side of joint with cut-back or emulsified asphalt. Cover immediately with sand.
- C. Compaction: Roll until roller marks are eliminated and density of 92 percent of measured maximum density determined in accordance with ASTM D2041.
- D. Tolerances:
1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
 2. Completed Surface or Wearing Layer Smoothness:
 - a. Uniform texture, smooth, and uniform to crown and grade.
 - b. Maximum Deviation: 1/8 inch from lower edge of a 3.6-meter (12-foot) straightedge, measured continuously parallel and at right angle to centerline.
 - c. If surface of completed pavement deviates by more than twice specified tolerances, remove and replace wearing surface.
 3. Transverse Slope Maximum Deviation: 1/4 inch.
- E. Seal Coat:
1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where asphalt concrete was placed by hand, patched surfaces, and other areas as directed by ENGINEER.
 2. Preparation:
 - a. Surfaces that are to be sealed shall be maintained free of holes, dry, and clean of dust and loose material.
 - b. Seal in dry weather and when temperature is above 2 degrees C (35 degrees F).
 3. Application:
 - a. Fill cracks over 1.5 millimeters (1/16 inch) in width with asphalt-sand slurry or approved crack sealer prior to sealing.
 - b. When sealing patched surfaces and joints with existing pavements, extend minimum 150 millimeters (6 inches) beyond edges of patches.

++ END OF SECTION ++

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Asphalt Concrete Pavement
Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
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SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Shop Drawings: Detailed information and specifications for materials, finishes, and dimensions.
- B. Samples: Approximately 6 inches square, or 6 inches long of posts, rails, braces, fabric, wire, ties, and fittings.
- C. Quality Control Submittals:
 - 1. Manufacturer's recommended installation instructions.
 - 2. Evidence of Supplier and installer qualifications.

1.2 SCHEDULING AND SEQUENCING

- A. Complete necessary site preparation and grading before installing chain link fence and gates.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Match style, finish, and color of each fence component with that of other fence components.

2.2 CHAIN LINK FENCE FABRIC

- A. PVC-coated galvanized fabric conforming to ASTM F668, Class 1 or 29.
 - 1. Color: Black.
 - 2. Manufacturers and Products:
 - a. Colorbond Corp., Raritan, NJ; Colorbond II.
 - b. Cyclone Fence, United States Steel, Chicago, IL; Cyclone Color Fence System.
- B. Height: 72 inches, unless otherwise shown.
- C. Wire Gauge: No. 9.
- D. Pattern: 2-inch diamond-mesh.
- E. Diamond Count: Manufacturer's standard and consistent for fabric furnished of same height.
- F. Loops of Knuckled Selvages: Closed or nearly closed with space not exceeding diameter of wire.

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Chain Link Fences and Gates

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- G. Wires of Twisted Selvages:
 - 1. Twisted in a closed helix three full turns.
 - 2. Cut at an angle to provide sharp barbs that extend minimum 1/4-inch beyond twist.
- H. Privacy Slats, if called for on Drawings:
 - 1. HDPE or PVC Top Lock slats sized for No. 9 gauge 2-inch mesh, approximately 1 3/32-inches wide.
 - 2. Length to match the fabric height minus 2 inches.
 - 3. Color selected by OWNER.

2.3 POSTS

- A. General:
 - 1. Strength and Stiffness Requirements: ASTM F669, Heavy Industrial Fence, except as modified in this section.
 - 2. Steel Pipe: ASTM F1083.
 - 3. Roll-Formed Steel Shapes: Roll-formed from ASTM A570, Grade 45, steel.
 - 4. Protective Coatings:
 - a. Zinc Coating: ASTM F1234, Type A external and internal coating.
 - 5. Color Coating: ASTM F1043, minimum 10 mils thickness over zinc coating to match color of chain link fabric.
- B. Line Posts:
 - 1. Steel Pipe:
 - a. Outside Diameter: 2.375-inch.
 - b. Weight: 3.65 pounds per foot.
 - 2. Roll-Formed Steel C Shape:
 - a. Outside Dimensions: 2.25-inch by 1.625-inch.
 - b. Weight: 2.70 pounds per foot.
 - 3. Steel H-Section:
 - a. Outside Dimensions: 2.25-inch by 1.70-inch.
 - b. Weight: 3.26 pounds per foot.
- C. End, Corner, Angle, and Pull Posts:
 - 1. Steel Pipe:
 - a. Outside Diameter: 2.875-inch.
 - b. Weight: 5.79 pounds per foot.
- D. Posts for Removable Fence Panels: As specified for end, corner, angle, and pull posts.
- E. Posts for Swing Gates:
 - 1. Material: ASTM F1043 Group IA ASTM F1083 schedule 40 pipe.
 - 2. Gate Post Size per ASTM F900:

For gate fabric height up to and including 6 feet	
Gate Leaf Width	Post Outside Diameter
Up to 4 feet	2.375-inch
Over 4 feet to 10 feet	2.875-inch
Over 10 feet to 18 feet	4.0-inch
For gate fabric height over 6 feet to 12 feet	
Up to 6 feet	2.875-inch

Over 6 feet to 12 feet	4.0-inch
Over 12 feet to 18 feet	6.625-inch
Over 18 feet to 24 feet	8.625-inch

- a. Roll-formed steel shapes may be substituted for steel pipe posts for gate leaf widths up to 6 feet and fabric heights up to 8 feet.
 - 1) Outside Dimensions: 3.5-inch by 3.5-inch.
 - 2) Weight: 4.85 pounds per foot.

2.4 TOP RAILS AND BRACE RAILS

- A. Galvanized steel pipe or roll-formed steel C shapes, color-coated.
- B. Protective Coatings: As specified for posts.
- C. Color Coating: ASTM F1043, minimum 10 mils thickness over zinc coating to match color of chain link fabric.
- D. Strength and Stiffness Requirements: ASTM F669, Top Rail, Heavy or Light Industrial Fence.
- E. Steel Pipe:
 - 1. ASTM F1083.
 - 2. Outside Diameter: 1.66-inch.
 - 3. Weight: 2.27 pounds per foot.
- F. Roll-Formed Steel C Shapes:
 - 1. Roll formed from ASTM A570, Grade 45.
 - 2. Outside Dimensions: 1.625-inch by 1.25-inch.
 - 3. Weight: 1.40 pounds per foot.

2.5 FENCE FITTINGS

- A. General: In conformance with ASTM F626, except as modified by this article.
- B. Post and Line Caps: Designed to accommodate passage of top rail through cap, where top rail required.
- C. Tension and Brace Bands: No exceptions to ASTM F626.
- D. Tension Bars:
 - 1. One-piece.
 - 2. Equal in length to full height of fabric.
- E. Truss Rod Assembly: 3/8-inch diameter.
- F. Barb Arms: 45-degree arms for supporting three strands of barbed wire.

2.6 TENSION WIRE

- A. Zinc-coated steel marcelled tension wire conforming to ASTM A824, Type II, Class 2.

2.7 GATES

- A. General:
 - 1. Gate Operation: Opened and closed easily by one person.
 - 2. Welded Steel Joints: Paint with zinc-based paint.
 - 3. Chain Link Fabric: Attached securely to gate frame at intervals not exceeding 15 inches.
- B. Swing Gates: ASTM F900.
 - 1. Hinges:
 - a. Furnished with large bearing surfaces for clamping in position.
 - b. Designed to swing either 180 degrees outward, 180 degrees inward, or 90 degrees in or out, as shown, and not twist or turn under action of gate.
 - 2. Latches: Plunger bar arranged to engage stop, except single gates of openings less than 10 feet wide may each have forked latch.
 - 3. Gate Stops: Mushroom type or flush plate with anchors, suitable for setting in concrete.
 - 4. Locking Device and Padlock Eyes: Integral part of latch, requiring one padlock for locking both gate leaves of double gates.
 - 5. Hold-Open Keepers: Designed to automatically engage gate leaf and hold it in open position until manually released.
- C. Fabric Salvage: Knuckled.
- D. Appurtenances and Framework: As specified.

2.8 REMOVABLE FENCE PANELS

- A. Panel Length:
 - 1. Equal division of total length of removable fence section.
 - 2. Maximum 10 feet.
- B. Frames: ASTM F1184, Type I.

2.9 CONCRETE

- A. Provide as specified in Section 03 30 03, Cast-in-Place Concrete.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install chain link fences and gates in accordance with ASTM F567, except as modified in this section, and in accordance with fence manufacturer's recommendations, as approved by ENGINEER. Erect fencing in straight lines between angle points.
- B. Provide all necessary hardware for a complete fence and gate installation.

3.2 PREPARATION

- A. Establish locations of fence lines, gates, and terminal posts.

3.3 POST SETTING

- A. Driven posts are not acceptable.
- B. Post Hole Depth:
 - 1. Minimum 3 feet below finished grade.
 - 2. 2 inches deeper than post embedment depth below finish grade.
- C. Backfill post holes with concrete to 2 inches above finished grade.
- D. Before concrete sets, crown and finish top of concrete to readily shed water.

3.4 BRACING

- A. Brace gate and corner posts diagonally to adjacent line posts to ensure stability.

3.5 TOP RAILS

- A. Install top rail sleeves with springs at 105 feet maximum spacing to permit expansion in rail.

3.6 CHAIN LINK FABRIC

- A. Do not install fabric until concrete has cured minimum 7 days.
- B. Install fabric with twisted and barbed selvage at top.

3.7 GATES

- A. Hang gates and adjust hardware so gates operate satisfactorily from open or closed position.
- B. Set gate stops in concrete to engage center drop rod or plunger bar.

3.8 ELECTRICAL GROUNDING

- A. Ground fences in accordance with applicable requirements of IEEE C2, National Electrical Safety Code.

3.9 FIELD QUALITY CONTROL

- A. Gate Tests: Prior to acceptance of installed gates and gate operator systems, demonstrate proper operation of gates under each possible open and close condition specified.

++ END OF SECTION ++

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Chain Link Fences and Gates

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Chain Link Fences and Gates

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City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 33 01 21

SEWER PIPELINE CLEANING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The intent of sewer pipeline cleaning is to remove foreign materials from the line prior to CCTV inspection and subsequent pipe bursting per Specification Section 33 05 26. Since the success of this phase of work depends a great deal on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there may be some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished some of which are noted in the Drawings or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the CONTRACTOR will notify the ENGINEER before finalizing the decision to not complete mechanical cleaning on the pertinent pipeline.

1.2 SUBMITTALS

- A. Submit for approval, prior to commencement of work, a list of sewer cleaning equipment to be used including manufacturers' specifications for each piece of equipment (e.g., truck) and its associated tools (e.g., nozzles).

1.3 QUALIFICATIONS

- A. Pre-qualification shall require that the contracting company and the job supervisor each have a minimum of three (3) years experience in the performance of the type of work specified and shall have specifically performed at least 100,000 feet of cleaning within the past three years. A company with less than three (3) years experience may pre-qualify if they can demonstrate to the satisfaction of the ENGINEER that they have the capabilities, overall experience, equipment, and expertise to satisfactorily complete the project in accordance with these specifications. Documentation supporting the minimum experience of the contracting company shall be submitted with the proposal.

PART 2 - PRODUCTS

2.1 CLEANING EQUIPMENT

- A. The equipment shall be capable of removing dirt, grease, rocks, sand, roots, and other materials and obstructions from sewer lines and manholes. Alternatives to equipment described herein require approval by ENGINEER prior to commencing work. The following requirements for the cleaning equipment must be met:
- B. High-velocity hydraulic equipment (hydroflusher) shall be truck or trailer mounted. The equipment shall carry a nominal 800 gallon minimum water tank and have a minimum

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Sewer Pipeline Cleaning

Pump Station 26 Improvement Project

of 650 feet of high-pressure hose with a selection of two or more cleaning nozzles. The equipment shall be capable of supplying water at minimum 30 gallons per minute at a minimum working pressure of 750 pounds per square inch (psi), and regulated to not exceed a maximum pressure of 1,500 psi. All controls shall be located so that the equipment can be operated above ground at minimal interference to existing traffic and/or danger to the operator.

1. The nozzles shall be capable of producing a scouring action for any pipeline size scheduled to be cleaned.
 2. Hydraulically propelled equipment such as root saws or rotating chain flails may be used upon approval by ENGINEER for each line segment.
 3. Hydraulically propelled equipment such as sewer balls or movable dams shall not be used.
 4. Due to possible accessibility constraints, additional lengths of high-pressure hose may be required.
 5. It shall be CONTRACTOR's responsibility to provide all equipment required to complete cleaning work.
- C. Vacuum truck shall be a minimum 27-inch mercury (high-vacuum unit) with a positive displacement blower, which produces a minimum of 3500 CFM air flow, 8-inch suction tubes, and 16 cubic yards of hauling capacity for debris and water mixture.

2.2 MECHANICAL CLEANING EQUIPMENT

- A. Alternative mechanically powered cleaning equipment proposed for use by CONTRACTOR shall require approval by CITY and/or CITY's Representative (e.g. ENGINEER) prior to commencing work. Examples include, but are not limited to, power rodding machines and bucket machines.
- B. CONTRACTOR shall be responsible for any damage to the sewer or any service connections as a result of using mechanically powered cleaning equipment, including rehabilitation and/or replacement of sewer pipeline to CITY's satisfaction.

PART 3 - EXECUTION

3.1 SAFETY

- A. Conduct operations during all phases of work to ensure public safety and in such a manner as to cause as little inconvenience as possible to the traveling public and abutting property owners. Convenient access to driveways, houses, and buildings along the line of work shall be maintained.
- B. Submit a site-specific Health and Safety Plan for the work to be performed in accordance with OSHA requirements.

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Sewer Pipeline Cleaning

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- C. CONTRACTOR shall follow all manufacturer's instructions/recommendations for operation and maintenance of cleaning equipment and related appurtenances.
- D. Precautions shall be taken to ensure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer.

3.2 CLEANING

- A. Flush and clean pipeline interiors to remove sludge, dirt, sand, grit, stone, grease, roots, and other materials from pipe such that successful CCTV inspection of the pipes outlined in the Drawings can be performed per Specification Section 33 01 31, Sewer Pipeline CCTV Inspection.
- B. A minimum of one operator and one laborer shall be at the job site at all times when cleaning is being performed.
- C. Selection of the equipment to be used shall be based on the conditions of the pipeline segment at the time the work commences and in accordance with the requirements within this specification.
- D. CONTRACTOR shall be responsible for and repair any damage caused by their operations at no additional cost to the CITY and to the CITY's satisfaction.
- E. High-velocity Hydraulic Cleaning:
 - 1. All hydraulic cleaning equipment shall be truck mounted. Water jet cleaning equipment shall include a water tank, auxiliary engine, pumps, and hydraulically driven hose reel. The CONTRACTOR shall provide a minimum of 650 feet of high-pressure hose.
 - 2. CONTRACTOR shall provide a selection of high velocity nozzles, each having a flow capacity and working pressure necessary to clean the pipe thoroughly while preventing sewer backups and impacts to nearby residences. Pressure to the nozzle shall be regulated by a relief valve to prevent backing up into existing structures.
 - 3. Nozzles shall be capable of producing a jet stream angle of 15 to 45 degrees from the horizontal. The CONTRACTOR shall also provide a high velocity gun with sufficient discharge and pressure to thoroughly clean manhole interiors.
 - 4. CONTRACTOR shall clean contiguous pipe segments in order from upstream to downstream.
 - 5. When hydraulic cleaning equipment is used for the purpose of completing scheduled cleaning, the CONTRACTOR shall clean the pipeline with as many passes of a high-velocity hydraulic cleaning machine as necessary until all debris is removed from the pipe.
 - a. CONTRACTOR shall subdivide individual manhole to manhole pipe segments into partial segments no more than 100-foot in length and clean downstream partial segment first then next upstream partial segment all the way to downstream

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Sewer Pipeline Cleaning

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manhole and continue this procedure until cleaning of entire manhole to manhole segment is complete.

6. CONTRACTOR shall be responsible to plan and control the cleaning operations to prevent flooding and/or damage of the sewers and manholes, and to prevent backflow into building structures through sewers and/or laterals.
- F. Whenever lines to be cleaned show evidence of being more than one-half filled with solids at the upstream or downstream manhole, and removal of said solids is not possible with handheld tools such as scoops, shovels, and/or clam shovels, bucket machines or power rodding machines shall be utilized to remove most of the materials before hydraulic equipment is brought into use for finishing the cleaning of the pipeline. As previously stated in Paragraph 2.2, the CONTRACTOR shall acquire approval by CITY or CITY's Representative prior to commencing work with bucket machines or power rodding machines.
1. If bucket or rodding machine is required and approved, that equipment shall be run the entire length of the manhole to manhole segment until CONTRACTOR deems solids level is low enough such that additional passes of a high velocity hydraulic cleaning machine will complete cleaning.
 2. Power rodding machines shall be a "continuous rod" type capable of rodding distances of up to 650 feet in one setup. Rodding machines shall have the ability to spin the rod either clockwise or counterclockwise and be able to be pushed straight out or pulled back without rotating the machine. It shall be capable of pulling pipe-size swabs or brushes back through the sewer for cleaning and flushing purposes. The rodding machine shall have a positive drive and shall be capable of producing a 2000-pound pull. The rod shall be specifically designed for use with the rodding machine.
 3. Whenever bucket machines are used, the bucketing process shall be done in one pipeline segment at a time. A bucket of proper size shall be placed in the downstream manhole and pulled at intervals toward the upstream manhole until the entire pipeline segment has been cleaned. Mechanically powered equipment such as bucket machines shall be provided in pairs and shall be belt-driven or employ an overload device.
 4. Upon completion of the bucketing/rodding operation, high-velocity sewer cleaning equipment shall be used to ensure that all sand, grease, and other fine materials have been removed. Satisfactory precautions shall be taken to protect the pipelines from damage that might be inflicted by the improper use of cleaning equipment.
- G. When the CONTRACTOR deems an adequate number of passes has been completed to remove all foreign materials, CONTRACTOR shall conduct CCTV inspection for confirmation of removal of foreign materials along entire pipe segment per Section 33 01 31.
- H. CONTRACTOR shall be responsible for water used for sewer cleaning operation. The CONTRACTOR may contact the CITY to obtain approval to use water and a water meter

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Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
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SECTION 33 01 31

SEWER PIPELINE CCTV INSPECTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The intent of Sewer Pipeline CCTV inspection is to verify existing sewer pipeline conditions prior to repair and rehabilitation techniques as well as verify successful application after the work is completed. These CCTV inspections will be designated "field verification CCTV inspection" and "post-installation CCTV inspection"

1.2 SUMMARY

- A. Technical Specification Section Includes:
 - 1. Pipeline flushing and cleaning.
 - 2. Closed circuit television (CCTV) inspection of sewer pipelines.
 - 3. Audio-video taping of pipeline interior.

1.3 REFERENCES

- A. Electronics Industries Association (EIA).
- B. National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP).

1.4 DEFINITIONS

- A. Field Verification CCTV Inspections:
 - 1. CCTV inspection for verifying the condition of the existing sewer pipeline prior to the Work including locating all service laterals. This shall include an inspection before and after any repairs that alter the condition of the pipe that has the potential to affect the Work to be done as specified in the Drawings and specifications.
- B. Post Installation CCTV Inspection:
 - 1. CCTV inspection for verifying the successful installation per section 3.8 of Specification 33 05 26, Gravity Sanitary Sewer Pipe Bursting

1.5 SUBMITTALS

- A. Submit to the ENGINEER a contact name and phone number for the CONTRACTOR's designated representative who will be on-site during cleaning and inspection work.

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Additionally, submit a secondary contact name and phone number for the designated representative's backup.

- B. Submit for approval, prior to commencement of work, a list of video camera equipment to be used including manufacturers' specifications for each camera type.
- C. Submit site-specific Health and Safety Plan.

1.6 QUALIFICATIONS

- A. Experienced and pre-qualified personnel utilizing equipment and materials meeting the requirements of these specifications shall perform all work.
- B. Pre-qualification shall require that the CCTV inspection company and the job supervisor each have a minimum of three (3) years experience in the performance of the type of work specified and shall have specifically performed at least 100,000 feet of television inspection within the past three years. A company with less than three (3) years experience may pre-qualify if they can demonstrate to the satisfaction of the ENGINEER that they have the capabilities, overall experience, equipment, and expertise to satisfactorily complete the project in accordance with these specifications. Documentation supporting the minimum experience of the contracting company shall be submitted to the CITY.
- C. Camera Operator must have current National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) certification.
 - 1. Camera operator must have a minimum two years experience and 50,000 linear feet of CCTV inspection work using the NASSCO PACP program.
 - 2. CONTRACTOR shall provide to ENGINEER written confirmation certifying Camera Operator:
 - a. Meets experience requirements; and
 - b. Possesses current PACP certification.

1.7 COORDINATION

- A. Coordinate on a daily basis and make provisions to ensure the ENGINEER is present whenever CCTV inspection work is being performed. While it is understood that the ENGINEER(s) may not always be present, the CONTRACTOR understands that the ENGINEER(s) may be present at various points during the work to verify that the quality requirements are adhered to throughout the Work.
- B. If CCTV inspection work reveals any defects or conditions that would prevent the rehabilitation work to be done that is not called out in the Drawings the CONTRACTOR will immediately contact the ENGINEER via telephone or person-to-person correspondence to make them aware of the condition. CONTRACTOR shall move on to other pipelines, continuing work uninterrupted.

- C. If for any reason the CONTRACTOR anticipates that a defect could result in a Sanitary Sewer Overflow (SSO) within twenty-four (24) hours, the CONTRACTOR will immediately contact the ENGINEER via telephone or person-to-person correspondence to make them aware of the condition.

PART 2 - PRODUCTS

2.1 CCTV INSPECTION EQUIPMENT

- A. The television camera used for the inspection shall be one specifically designed and constructed for operation in connection with sewer inspection and capable of operating in 100 percent humidity conditions.
- B. Cameras used for CCTV inspection of pipelines six inches (6") in diameter and larger shall be of the articulating head type. The camera head shall have a 360-degree radial view rotating head capable of rotating to view laterals, joints, and defects directly.
- C. The television camera used for the inspection shall be in color format specifically designed and constructed for such inspections. Lighting and video quality shall be suitable to allow a clear and focused picture clearly showing the entire inside periphery of the sanitary sewer pipeline for a minimum of six lineal feet ahead of the camera.
- D. The camera shall have a minimum capability of 600 lines of horizontal resolution at center; optimum imagery with minimum illumination; and meet requirements of EIA Standard Video Signal.
- E. The camera shall be equipped with a remote variable intensity control of the camera lights with remote control adjustments for focus and iris located at the monitoring station to ensure peak picture quality throughout all conditions encountered during the survey.
- F. Focal distance shall be adjustable for cameras used to inspect pipelines six inches (6") in diameter and larger.
- G. Camera monitors shall be located where the ENGINEER can view the monitor and make notes in addition to the operating technician. Monitors shall have a resolution capability of no less than 600 lines of horizontal resolution.
- H. Each CCTV inspection unit shall contain a means to transport the CCTV camera in a stable condition (e.g. mounted on skids, mounted on transporter, etc.) through the sewer under survey and/or inspection conditions. Such equipment shall ensure the maintained location of the CCTV camera when used independently on or near to the central axis of a circular shaped sewer pipe.

- I. Each CCTV inspection unit shall carry sufficient numbers of guides and rollers such that, when surveying or inspecting, all bonds are supported away from pipe and manhole structures and all CCTV cables and/or lines used to measure the CCTV camera's location within the sewer are maintained in a taut manner and set at right angles where possible, to run through or over the measuring equipment.
- J. The date of the survey, the identifying number (or location) of the beginning and ending manholes for the pipeline being surveyed, and a continuous forward and reverse read-out of the camera distance from the manhole of reference shall be continuously displayed on the monitors as part of the video presentation. The remote reading footage counter shall be accurate to within two-tenths of a foot.

PART 3 - EXECUTION

3.1 SEQUENCING

- A. Refer to Section 01 14 03, Special Project Constraints and Section 33 05 26, Gravity Sanitary Sewer Pipe Bursting regarding the required sequencing of Field Verification CCTV Inspections, pipeline cleaning, and Post-installation CCTV inspections.
- B. If there is a known spot-repair required based on the Drawings, conduct a CCTV inspection prior to initiating the repair to confirm the location and extent of repair required. Following completion of the spot repair, complete one more field verification CCTV inspection prior to the Work.
- C. If field verification CCTV inspection reveals any previously unknown required spot repairs, complete spot repairs, then re-CCTV the line prior to the Work. Any required spot repair work that was not shown on the Drawings shall be confirmed with the ENGINEER and CITY prior to completing and the work will be completed as a Change Order to the Contract.

3.2 SAFETY

- A. Conduct operations during all phases of work to ensure public safety and in such a manner as to cause as little inconvenience as possible to the traveling public and abutting property owners. Convenient access to driveways, houses, and buildings along the line of work shall be maintained.
- B. Submit a site-specific Health and Safety Plan for the work to be performed in accordance with OSHA requirements.

3.3 PREPARATION

- A. Verify location of sewer pipelines to be inspected. Due to potential site constraints, the CONTRACTOR shall review the project site locations for accessibility.

- B. Exercise caution when conducting work so as not to cause damage to private property. CONTRACTOR shall be solely responsible for any damage caused to private property and shall repair any such damage to a level approved by the ENGINEER at no additional cost.
- C. Upon completion of work, CONTRACTOR shall restore the area to pre-existing conditions and (if possible) notify the property owner when leaving the area.
- D. CONTRACTOR shall document pre-inspection and post-inspection conditions of private properties with digital photographs.
 - 1. Disputes with property owners will be settled through the use of photos that will document pre-inspection conditions. In the event that the Contractor fails to adequately document pre-construction conditions, the Contractor will be obligated to restore disputed landscaping, yards, improvements, etc. to the satisfaction of the ENGINEER.

3.4 PIPELINE CLEANING

- A. All pipelines are to be cleaned per Specification 33 01 21 and Section 33 05 26 prior to the Work. Sequencing of the cleaning with respect to the completion of CCTV inspection work shall be left to the means and methods of the CONTRACTOR.

3.5 INSPECTION – PIPELINE

- A. Furnish all materials, labor, equipment, power, and maintenance to complete CCTV inspection of the scheduled pipeline segments.
- B. Televiser all pipeline segments completely from starting manhole to ending manhole on the same video in a continuous run. Partial televising on one video and then completing the run on another is unacceptable unless an impassible condition is encountered and properly documented, and a "reverse set-up" completed. The camera shall travel in the direction of the flow in the pipeline segment (i.e., downstream) unless there is no access to the upstream manhole or when a flushing inlet exists at the upstream end of the pipeline or when completing a "reverse set-up". "Reverse set-ups" for convenience are not acceptable, unless pre-approved by ENGINEER at the ENGINEER's discretion. Cost of "reverse set-up" shall be included within CONTRACTOR's bid. No additional payment shall be made for a line requiring a "reverse set-up".
- C. If, during the inspection, the television camera will not pass through the entire line segment as a result of offset joints, broken pipe, protruding taps, or other obstructions, the CONTRACTOR shall set up his equipment so that the inspection can be performed from the destination manhole or other access points (i.e., a "reverse set-up").
- D. If, during the inspection, the viewable portion of the pipe is reduced to less than 80% of the interior pipe diameter due to submerged lines or sags, the CONTRACTOR shall

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vacuum clean or jet flush the line to remove or lower the standing water level and proceed concurrently with the television inspection. In the event the CONTRACTOR is still unable to televise the entire line and has demonstrated to the ENGINEER that every reasonable effort has been made to dewater the pipeline, the CONTRACTOR will complete the inspection to the best of their ability in the reduced viewable pipe diameter condition and move on to the next setup.

- E. The travel speed of the camera shall be uniform and shall not exceed 30 feet per minute. Any means of propelling the camera through the pipeline that would exceed this rate of speed or produce non-uniform or jerky movements shall not be acceptable. The camera shall be stopped and/or backed up to view and analyze apparent defects and unusual or uncommon conditions within the pipeline.
 - 1. Self-propelled cameras, manual winches, power winches, cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the pipeline segment.
 - 2. In no case shall the hose of a high-velocity water cleaning machine be allowed for use as a tow cable.
- F. Stop the camera a minimum of five (5) seconds at every lateral to look up the center of the lateral and see any apparent defects, such as broken pipes, root intrusions, or other defects that would inhibit the rehabilitation work to be done. The lens and lighting shall be readjusted, if necessary, in order to ensure a clear, distinct, and properly lighted feature.
- G. Minimize the amount of recorded video beyond the required time at each observation when the camera is stationary. Utilize a pause feature (or similar) within the video recording device to limit the amount of recorded video resulting from non-inspection related activities (e.g., adjustment of camera/lighting settings, equipment monitoring/adjustment).
- H. Take still digital photos of all laterals, defects, and observations noted on the CCTV inspection report.

3.6 FIELD QUALITY CONTROL

- A. Provide an acceptable picture that is in focus, distinct, clear, and properly illuminated, with good contrast and without distortion. The picture shall be of true and adequate color and tint, free from interference and distortion.
- B. The picture shall show at least 80% of the pipe periphery above the waterline. All recording shall be in color achieving and maintaining proper balance of tint and brightness.
- C. The picture shall have adequate light to clearly ascertain any pipeline defects like cracks and their severity in addition to clearly seeing other features like laterals and joints.

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- D. The camera lens shall be kept clean and clear of any fogging due to oil, grease, or other material or debris. Material that obscures the lens shall be cleaned off before proceeding with the recording operation.
- E. If debris or other obstructions cause reduced visibility, or if the image is obscured, the CONTRACTOR shall make reasonable attempts to clear the lens of the camera before continuing inspection.
- F. The importance of accurate distance measurement is emphasized. The accuracy of the remote reading footage counter shall be verified by use of a walking meter, roll-a-tape, or other suitable device to the approval of the ENGINEER prior to the commencement of the Work.
- G. Other unacceptable conditions that shall serve as a cause for rejection of submitted videos include, but are not necessarily limited to:
 - 1. The loss of color or severe redness due to equipment malfunction and black-and-white pictures irrespective of quality.
 - 2. Loss of vertical hold which impacts the ability to read and interpret the video.
 - 3. Incorrect manhole identifications, or if it is not clear which line has been televised.
 - 4. Inaccurate footage readings during any portion of the inspection.
 - 5. Any other unidentifiable defect such as equipment interference, equipment malfunction, and blurred or obscured images from an unknown source that detracts from the ability to read the video with reliable accuracy.

3.7 RETRIEVAL OF EQUIPMENT

- A. CONTRACTOR shall retrieve television camera equipment stuck or lost in mains immediately at the time of incident. CITY personnel and equipment are not available to assist the CONTRACTOR in the retrieval of equipment. Following the retrieval of the camera equipment, the pipeline shall be restored according to current applicable standards and to the approval of the ENGINEER. CONTRACTOR shall be responsible for all private and public property restoration to the satisfaction of the ENGINEER. No additional compensation will be made for any costs associated with retrieval of equipment.

3.8 CCTV INSPECTION REPORTS

- A. CCTV inspections shall be evaluated against the video for accuracy and completeness, prior to submittal to ENGINEER for acceptance.
- B. BUSlink USB 2.0 External Hard Drive (or ENGINEER approved equal) containing the following shall be submitted to the ENGINEER within two (2) weeks of the inspection. ENGINEER shall return the external hard drive within one week of submittal:

1. Video imagery with audio track containing simultaneously recorded narrative commentary describing in detail condition of pipeline interior.
 - a. Video shall be captured in MPEG (.mpg) format.
 2. Digital still photography of every observation.
 - a. Digital photos shall be in JPEG (.jpg) format.
- C. All submitted data shall become the property of the CITY upon completion of the project.

+ + END OF SECTION + +

SECTION 33 05 13

HYBRID PVC SANITARY SEWER MANHOLE

PART 1 - GENERAL

1.1 SCOPE

This specification shall govern for the furnishing of all work necessary to accomplish and complete the installation of a PVC Sanitary Sewer Manhole (SSMH), comprising fiberglass reinforced plastic lined concrete sanitary sewer maintenance access base and top sections, a polyvinyl chloride riser section and all appurtenances. The PVC SSMH shall be corrosion, abrasion, inflow and infiltration resistant.

The PVC Sanitary Sewer Manhole shall be modular and shall include the following main components:

Fiberglass Reinforced Plastic (FRP) concrete protective liners for SSMH base and top sections, including all appurtenances. Liners shall be non-structural units, constructed of fiberglass reinforced unsaturated polyester resin, third-party certified for wastewater infrastructure use, designed to provide a gastight and watertight homogenous barrier that protects the concrete SSMH base and top sections from corrosion, abrasion, inflow and infiltration. FRP liners shall be manufactured by Predl Systems North America Inc., Burnaby, BC.

Concrete SSMH base and top sections, cast around the FRP concrete protective liners. Concrete base and top sections shall be ASTM C478 compliant and manufactured by Diamond Precast Concrete Ltd., Burnaby, BC or a Predl Systems certified precast facility.

PVC riser section shall be AWWA C900 compliant, DR-51 pressure class PVC pipe, manufactured by Diamond Plastics Corp., Grand Island, NE.

ASTM C990 compliant elastomeric sealant and ASTM C877 compliant external joint wrap, for the purpose of joining the lined concrete base, PVC riser and lined concrete top SSMH sections, supplied by others.

1.2 GENERAL DESCRIPTION

A. Configuration:

The SSMH base section shall include an FRP Baseline and the SSMH top section will include an FRP Top Liner with integral Access Collar and Gasket, to accept and an FRP Telescoping access Tube. Each prefabricated FRP liner component shall be constructed from one piece homogenous composite and/or thermoplastic with minimum thickness of 3 mm (1/8"). FRP concrete protective liners shall be non-structural elements.

1. FRP Baseline: Each SSMH Baseline shall include:

- a) Full flow channels with side walls to the crown of the pipe(s) or above;
- b) A non-skid pattern on inner bench surfaces;
- c) Gasketed, flexible and watertight, bell type, pipe connections for specific pipe types to receive the collection pipes at the exact angles and slopes as specified on Contract Documents.

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Hybrid PVC Sewer Manhole

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The Bells shall be monolithically attached to the SSMH base liner channels, be integral to the Baseline and have a water stop on the outside and a pipe stop on the inside that matches the diameter and wall thickness of the collection pipe and ensure that the flow line from the pipe stop to the inside channels are smooth and without obstruction. The Bells shall conform to the outside and inside curve of the SSMH walls.

The Baseline shall have a spigot or bell type joint facing the PVC riser tube and connecting to the inside or outside of the PVC riser, respectively. An ASTM C990 compliant butyl rubber sealant, such as ConSeal CS-102, shall be used in the joint interface. An ASTM C877 compliant external joint wrap, such as ConSeal CS-212, shall be used to seal the joint from the outside.

2. **FRP Top Liner with integral Access Collar and Gasket:** The FRP Top Liner component shall provide concrete protection from corrosion, abrasion, inflow and infiltration for the SSMH cone section and shall feature an integral FRP Access Collar and Gasket at the manway opening, to receive an FRP Telescoping Access Tube.

The FRP Top Liner shall either have cone or flat top configuration depending on the requirements of Contract Documents.

The Top Liner shall have a spigot or bell type joint facing the PVC riser tube and connecting to the inside or outside of the PVC riser, respectively. An ASTM C990 compliant butyl rubber sealant, such as ConSeal CS-102, shall be used in the joint interface. An ASTM C877 compliant external joint wrap, such as ConSeal CS-212, shall be used to seal the joint from the outside.

3. **Telescoping Access Tube:** The FRP Telescoping Access Tube shall provide concrete protection from corrosion, abrasion, inflow and infiltration for the manway entry section, between the casting at the finished grade and top of the SSMH top section. The Telescoping Access Tube shall accommodate grading adjustments up to 12" of height.

B. **Dimensions:**

1. FRP Baselines and Top Liners shall have outside diameters of 51", 58" and 61.75", corresponding substantially to the outside diameters of 48", 54" and 60" C900 DR-51 PVC pressure pipes. Tolerance on the outside diameter shall be +/- 1%. Other diameters, as agreed upon between purchaser and the manufacturer, are covered by this specification.
2. FRP Baselines and Top Liners shall have spigot joint diameters of 48.80", 55.30" and 59.19", corresponding to the inside diameters of 48", 54" and 60" C900 DR-51 PVC pressure pipes. Tolerance on the spigot joint diameter shall be +0/-0.125". Other diameters, as agreed upon between purchaser and the manufacturer, are covered by this specification.
3. Allowable tolerance for Baseline invert elevations shall be 0.125" and 2% for pipe slope.

4. Access Collars and Telescopic Access Tube shall accommodate manway openings of 24", 27", 32" or 36". Telescopic Access Tube shall have a nominal height of 15". Access Collars can be either eccentric or concentric.

C. Marking and Identification

Baseliner shall be marked with the following information:

- 1) Manufacturer's identification
- 2) Nominal diameter
- 3) Sanitary Sewer Maintenance Access (SSMH) identification
- 4) Detailed invert configuration
- 5) Installation assist marks molded into the Baseliner

All other components shall be marked with the following information:

- 1) Manufacturers Identification
- 2) Nominal Diameter
- 3) Installation assist marks, if applicable

1.3 HANDLING AND STORAGE

FRP SSMH liners must not be dropped or impacted. When stored for extended periods (more than a few days) Baseliners shall be stored on a flat surface, upside down to minimize deformation. Baseliners shall not be exposed to direct sunlight for extended periods.

PART 2 - REFERENCES

2.1 REFERENCES

Sanitary Sewer Maintenance Access liners shall conform to the following design criteria:

- A. ASTM D395: Standard Test Methods for Rubber Property-Compression Set
- B. ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
- C. ASTM D471: Standard Test Method for Rubber Property-Effect of Liquids
- D. ASTM D543: Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents
- E. ASTM D573: Standard Test Method for Rubber- Deterioration in an Air Oven
- F. ASTM D624: Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- G. ASTM D638: Standard Test Method for Tensile Properties of Plastics
- H. ASTM D695: Test Methods for Compressive Properties of Rigid Plastics
- I. ASTM D790: Test Metho for Flexural Properties of Unreinforced and Reinforced Plastics and electrical Insulating Materials
- J. ASTM D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- K. ASTM D1149: Standard Test Methods for Rubber Deterioration- Cracking in an Ozone Controlled Environment
- L. ASTM D2137: Standard Test Methods for Rubber Property – Brittleness Point of Flexible Polymers and Coated Fabrics
- M. ASTM D2240: Standard Test Method for Rubber Property – Durometer Hardness

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- N. ASTM D2584: Test Method for Ignition Loss of Cured Reinforced Resins
- O. ASTM D4060: Standard Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- P. Greenbook 2009 (or later): Standard Specifications for Public Works Construction, Chemical Resistance Test (Pickle Jar Test)

2.1 SUBMITTALS

- A. Conform to bid document requirements
- B. Submit manufacturer's data and details of following items for approval:
 - 1. Shop drawings of SSMH sections, base units and construction details, jointing methods, materials, and dimensions
 - 2. Summary of criteria used in SSMH design including, as minimum, material properties, loading criteria, and dimensions assumed. Include certification from manufacturer that polymer concrete SSMH design meets or exceeds the load and strength requirements of ASTM C 478 and ASTM C 857, reinforced in accordance with ACI 440.1R-15. Include current ISO 9001:2008 certification
 - 3. Frames, grates, rings, and covers
 - 4. Materials to be used in fabricating pipe drop connections
 - 5. Materials to be used for pipe connections
 - 6. Materials to be used for stubs and stub plugs, if required
 - 7. Proof of independent Chemical Resistance testing conducted in accordance with the Standard Specifications for Public Works Construction (California Greenbook) Section 211-2
 - 8. Submitted sealed drawings by a registered Professional Engineer

PART 3 - PRODUCTS

3.1 FRP LINERS, BELLS, GASKETS, MECHANICAL DEVICES, CONCRETE, AND THIRD-PARTY ACCESSORIES

- A. **FRP liner body:** The resins used shall be unsaturated, supplier certified, commercial grade polyester resins. Mixing lots of resins from different manufacturers or "odd-lotting" of resins shall not be permitted. Quality-assurance records on the resin shall be maintained.

The reinforcing materials shall be commercial grade "E-CR" type glass, specially formulated for corrosive environments, in the form of mat, chopped roving, continuous roving, continuous roving, roving fabric or a combination of the above, having a coupling agent that will provide a suitable bond between the glass reinforcement and resin. Fiberglass and/or polypropylene ribs and/or structural members may be utilized to meet the design criteria.

No inert fillers shall be used. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used to meet the requirements of this standard.

The laminate shall consist of multiple layers of glass matting and resin. The surface exposed to the sewer/chemical environment shall be resin rich and shall have no exposed fibers.

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- B. **Bells:** Bell shall be manufactured from the same unsaturated, supplier certified, commercial grade polyester resins as the main FRP Baseline body. If available, polypropylene injection molded bells are also allowed.
- C. **Gaskets:** Resilient materials for connectors and filler rings shall be manufactured from natural rubber, polyisoprene, neoprene, nitrile, or ethylene propylene diene monomer (EPDM) synthetic rubber and shall conform to the material requirements prescribed in this specification. If a splice is used in the manufacture of the seal, its strength shall be such that the seal shall with-stand a 180° bend with no visible separation.
- D. **Mechanical devices:** Expansion rings, tension bands, and take-up devices used for mechanically compressing the resilient portion of the connector against the pipe or SSMH shall be made from a material or materials in combination that will ensure durability, strength, resistance to corrosion, and have properties that will ensure continued resistance to leakage. All metallic mechanical devices and bolt assemblies used to mechanically deform resilient materials shall be constructed of corrosion resistant materials meeting the physical properties and chemical composition requirements of ASTM A493 and A666, Type 302 through Type 316.
- E. **Third party accessories:** Third party accessories integral to the PVC SSMH System or the FRP SSMH Liner (flow control devices, valves, gates, inside drop assembly, man entry ladder, etc.) shall be governed by the respective manufacturers' materials specifications.
- F. **Concrete:** Concrete shall be wet-cast, conforming to the requirements of the most recent versions of ASTM C478, CSA A23.1, and CSA A23.4. Concrete shall have an A-3 exposure class, unless otherwise specified by the project engineer.

3.2 DESIGN

- A. **Exterior Surface:** The exterior surface shall be finished with embedded aggregates and FRP bonding bridges to allow for adequate bonding with the surrounding concrete once cast. The exterior surface shall be free of blisters larger than 0.5" in diameter, delamination and fiber show, except in the vicinity of FRP bonding bridges where fiber show is acceptable. Gel-coat or paint or other coatings are not allowed.
- B. **Interior Surface:** The interior surfaces shall be resin rich with no exposed fibers. Interior flow surfaces shall be smooth for improved corrosion resistance and reduced sludge build-up. The surface shall be free of crazing, delamination, blisters larger than 0.25" in diameter, and wrinkles of 0.125" or greater in depth. Gel-coat shall be permitted on interior surfaces, no paint or other coatings are allowed.
- C. **Repairs:** Any SSMH liner repair is required to meet all requirements of this specification. All repair must all be preapproved by the manufacturer.
- D. **Chemical Resistance:** FRP SSMH liners must demonstrate having sufficient corrosion resistance by passing the "Greenbook" 2009 edition (or later), Standard Specifications for Public Works Construction, Chemical Resistance Test (Pickle Jar Test), per third-party accredited laboratory test results.

E. Physical Properties:

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All FRP liner material shall have the following physical properties when tested at 77 °F ± 5 degrees:

Property	Standard	Units	Value
Density	ASTM D792	g/cm ³	1.02
Thickness	--	Mm	3 min.
Tensile Strength	ASTM D638	psi	6,500 min.
Hardness (Shore "A")	ASTM D2240		95-97
Weight change	--	--	--
Flexural Strength	ASTM D790	lbf/in ²	8050 min
Compressive Strength	ASTM D695	psi	6,500 min
Ignition Loss	ASTM D2584	%	52 avg.
Taber abrasion test (weight loss)	ASTM D4060	%	0.075

Tensile specimens shall be prepared and tested in accordance with ASTM D412 using Die B. Weight change specimens shall be 1 IN by 3 IN samples.

All gaskets shall have the following physical properties:

Property	Standard	Units	Requirement
Chemical resistance: 1N sulfuric acid 1N hydrochloric acid	ASTM D543 (at 24°C for 48 hr.)	% %	No weight loss No weight loss
Tensile Strength	ASTM D412	psi	1,200 min.
Elongation at Break	ASTM D412	%	350 min.
Hardness (Shore A)	ASTM D2240	--	±5 from the connector manufacturer's specified hardness
Accelerated oven aging	ASTM D573 (at 70°C for 7 days)	%	Max 15% decrease in tensile strength; Max 20% decrease in elongation
Compression set	ASTM D 395, Method B (at 70°C for 22 hr.)	%	Max 25% decrease of original deflection
Water absorption	ASTM D471 (at 70°C for 48hr.)	%	Increase of max 10% of original weight (19 by 25mm specimen)
Ozone Resistance	ASTM D1149	--	Rating 0
Low temperature brittle point	ASTM D2137	--	No fracture at -40°C
Tear resistance	ASTM D624, Die B	kN/m	34

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Upon request, the manufacturer shall provide written certification that the FRP liners and gaskets used meets or exceeds the requirement of this specification.

F. Chemical Resistance

After conditioning to constant weight at 110 °F, FRP liner specimens shall be exposed to the following solutions for a period of 112 days at 77 °F ± 5 degrees, as prescribed in Standard Specifications for Public Works Construction, section 211-2 (Pickle Jar Test).

At 28-day intervals, tensile specimens and weight change specimens shall be removed from each of the chemical solutions and tested. If any specimen fails to meet the 112-day requirement before completion of the 112-day exposure, the material will be subject to rejection.

Chemical Solution	Concentration
Sulfuric acid	20%*
Sodium hydroxide	5%
Ammonium hydroxide	5%*
Nitric acid	1%*
Ferric chloride	1%
Sodium hypochlorite	1%
Soap	0.1%
Detergent (linear alkyl benzyl sulfonate or LAS)	0.1%
Bacteriological	BOD not less than 700 ppm

* Volumetric percentages of concentrated C.P. grade reagents.

3.2 MANUFACTURER

- A. Manufacturer shall have 25 years of FRP concrete protective liner manufacturing experience and shall have fabricated and delivered at least 20,000 FRP concrete protective liners for wastewater applications.
- B. Precaster shall be certified by the National Precast Concrete Association.

PART 4 - EXECUTION

4.1 MATERIALS TEST METHODS

- A. All test methods shall be performed per corresponding ASTM standard and per "Greenbook" 2009 edition (or later), Standard Specifications for Public Works Construction, Chemical Resistance Test (Pickle Jar Test).

4.2 QUALITY ASSURANCE/QUALITY CONTROL

- A. **Examination:** Each SSMH liner shall be examined for dimensional requirements and workmanship.

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- B. **Composition Control:** Controls on glass and resin content shall be maintained for all manufacturing processes and for each portion of SSMH liner fabrication. Records shall be maintained for these control checks. Proper glass content may be shown by glass usage checks or glass and resin application rate checks.
- C. **Certified facility:** The SSMH liners shall be designed and manufactured in an ISO 9001 and 14001 certified manufacturing facility.

4.3 PRECASTING

- A. **Casting:** FRP SSMH liners are non-structural components. Liners must be monolithically cast within a concrete SSMH section using a wet cast method. Custom pouring supports shall be provided with FRP liners to fully support the liners during the concrete pouring process against the vertical and horizontal forces created by the concrete during casting. The poured SSMH base must not be moved until adequate hydration has occurred. Lifting devices must not penetrate any surface of the liner. No liner may have holes or openings which will permit the intrusion of liquids or gases through the liner wall and into the concrete.
- B. **Installation:** The PVC SSMH installation should strictly follow the Predl Systems' recommended installation procedures to ensure long-term corrosion resistant service.

4.4 FIELD INSTALLATION

- A. **Base:** Base shall be place on a compacted, graded bedding meeting the requirements of the contract documents. Base shall be level, with the invert elevations conforming to the contract documents.
 - a. Connect pipes to the SSMH base, using integral bell connectors, with gaskets supplied by the manufacturer
- B. **Riser:** Clean the joint surface of the base, ensuring no foreign material remains. Place ASTM C990 compliant butyl rubber sealant along the joint, ensuring no gaps remain.
 - a. Lower PVC riser onto joint, ensuring the butyl rubber sealant is engaged and compressed. Riser shall be set plumb.
 - b. Backfill approximately 6"-12" below the top of the riser. Compact backfill per contract documents and standard practices.
 - c. Clean the top of the PVC riser, ensuring no foreign material remains. Place ASTM C990 compliant butyl rubber sealant along top of the riser, ensuring no gaps remain.
- C. **Flat top:** Lower flat top on to PVC riser, ensuring the butyl rubber sealant is engaged and compressed. Place Telescopic Access Collar gasket in gasket seat of SSMH opening. Stack grade rings to the desired height. Place Telescopic Access Collar into grade ring opening, exert a downward force on the collar to engage the collar with the gasket, while ensuring no concentrated point loads are applied to the TAC. Ensure the gasket is fully engaged and no rolling occurred. Place butyl rubber sealant on top of collar flange, then set casting. Backfill and pave.

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4.5 FINAL TESTING AND ACCEPTANCE

- A. Hydrostatic Testing: Hydrostatic testing shall be conducted, as required, by plugging with approved plugs all influent and effluent pipes in the SSMH and filling the SSMH to the top of the SSMH cone with water. Additional water may be added over a 24-hour period to compensate for evaporate losses. At the conclusion of the 24-hour saturation period the SSMH shall be filled to the top of the SSMH cone and observed. A loss within a 30-minute period shall be considered an unsuccessful test.
- B. Vacuum Testing: Sanitary Sewer Maintenance Access Structures shall be tested, as required, after installation and prior to backfilling with all connections (existing and proposed) in place, in general accordance with ASTM C1244.

The lines entering the SSMH shall be temporarily plugged with the plugs braced to prevent them from being drawn into the SSMH. The plugs shall be installed in the lines beyond drop connections, gas sealing connections, etc. The test head shall be inflated in accordance with the manufacturer's recommendations. A vacuum of 10 inches of mercury shall be drawn, and the vacuum pump will be turned off. With the valve closed, the level vacuum shall be read after the required test time. If the drop in the level is less than 1-inch of mercury (final vacuum greater than 9-inches of mercury), the SSMH will have passed the vacuum test. The required test time is determined from the table below:

Depth (ft)	Nominal Diameter (in)								
	30	33	36	42	48	54	60	66	72
	Time (seconds)								
<4	6	7	7	9	10	12	13	15	16
6	9	10	11	13	15	18	20	22	25
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	29	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	64	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

- C. Acceptance: SSMHs will be accepted with relation to the hydrostatic test requirements and the vacuum test requirements if they meet the criteria above. Any SSMH which fails the initial test must be repaired or replaced prior to backfilling. The SSMH shall be

retested as described above until successful tests have been made. After the successful tests, the temporary plugs will be removed.

4.6 WARRANTY

A 10-year Warranty against corrosion shall be issued.

+ + END OF SECTION + +

SECTION 33 05 26

GRAVITY SANITARY SEWER PIPE BURSTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section covers the work necessary to completely replace gravity sanitary sewer pipe via pipe bursting techniques. The work shall consist of furnishing all labor, materials, equipment, and supervision necessary to replace certain sanitary sewer lines identified on the Contract Drawings. The Work shall consist of upsizing the existing specified 8" and 10" sewer pipes with 10" and 12" high density polyethylene (HDPE) standard dimension ratio (SDR) 17 pipe respectively. Complete replacement of the specified sanitary sewer lines shall consist of, but not necessarily limited to:
1. Sewage flow bypassing during the pipe bursting operations.
 2. Identification, disconnection, and reconnection of all existing live laterals if applicable.
 3. Excavation, backfill, and surface restoration of access pits.
 4. Television inspection and testing of completed pipe system.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
1. ASTM C923, Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
 2. ASTM D638, Standard Test Method for Tensile Properties of Plastics
 3. ASTM D1238, Measuring Flow Rates of Thermoplastics by Extrusion Plastometer
 4. ASTM D1248, Polyethylene Plastics Molding and Extrusion Materials
 5. ASTM D1505, Density of Plastics by the Density-Gradient Technique
 6. ASTM D1599, Test for Short Term Rupture Strength of Plastic Pipe, Tubing and Fittings
 7. ASTM D1693, Test for Environmental Stress-Cracking of Ethylene Plastics
 8. ASTM D1928, Preparation of Compression Molded Polyethylene Test Samples
 9. ASTM D2122, Determining Dimensions of Thermoplastic Pipe and Fittings
 10. ASTM D2321, Underground Installation of Thermoplastic Flexible Sewer Pipe
 11. ASTM D2657, Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings
 12. ASTM D2837, Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials
 13. ASTM D3035, Polyethylene Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter
 14. ASTM D3261, Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
 15. ASTM D3350, Polyethylene Plastic Pipe and Fittings Materials
 16. ASTM F585, Insertion of Flexible Polyethylene Pipe in Existing Sewers
 17. ASTM F714, Standard Specification for Polyethylene Plastic Pipe Based on Outside Diameter
 18. ASTM F1055, Electrofusion Type Polyethylene Fittings for OD Controlled PE Pipe and Fittings
- B. Occupational Safety and Health Administration (OSHA)

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1. Title 29, Code of Federal Regulations, Part 1926

1.3 QUALITY ASSURANCE

- A. Quality assurance procedures shall be performed by the pipe manufacturer fully in accordance with the requirements of this specification. The certification shall include certified laboratory data confirming that said tests have been performed on a sample of the pipe to be provided under this contract, or pipe from that production run, and that satisfactory results were obtained.
- B. Fusion joining and other procedures necessary for correct assembly of the polyethylene/PVC pipe shall be done only by personnel trained in those skills to the satisfaction of the ENGINEER and the pipe supplier.
- C. Only those tools designed for the aforementioned procedures, and approved by the pipe manufacturer or supplier and the ENGINEER, shall be used for assembly of pipe fittings to ensure proper installation. The heater plate shall be equipped with suitable means to measure the temperature of plate surface and to assure uniform heating such as thermometers or pyrometers.
- D. The CONTRACTOR performing the pipe installation shall be certified by the pipe bursting system manufacturer that the CONTRACTOR is a licensed installer of the manufacturer's system (if applicable).

1.4 QUALIFICATIONS

- A. The CONTRACTOR will have actively engaged in the installation of pipe using pipe bursting for a minimum of five (5) years and have installed, as a company, a minimum of 50,000 feet in similar conditions. Field Supervisory Personnel employed by the Pipe Bursting CONTRACTOR will have at least five (5) years of documented experience in the performance of the work and tasks as stated in the contract documents.
- B. Fusion equipment shall be operated only by technicians who have been certified by the pipe manufacturer or supplier and who have a minimum of three (3) years of experience fusion welding similarly sized pipe. The technicians experience shall be documented in the pipe submittal.

1.5 PERMITS

- A. Permits and Regulations:
 - 1. Perform excavation Work in compliance with applicable requirements of governing authorities having jurisdiction.
 - 2. Obtain all necessary permits for Work in roads, rights-of-way, etc. Also obtain permits as required by local, state and federal agencies for discharging water from excavations, for erosion control, and for prevention of air and water pollution.

1.6 SUBMITTALS

- A. CONTRACTOR shall submit a Pipe Bursting Work Plan and Construction Schedule as required by the CITY and ENGINEER in accordance with the requirements of 01 32 13, Progress Schedule.

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- B. CONTRACTOR shall submit a sewage bypass pumping and/or diversion plan for review and approval by the CITY and ENGINEER in accordance with the requirements of 01 57 03, Sewage Bypass Pumping.
- C. CONTRACTOR shall submit an Excavation Support plan for review and approval by the CITY and ENGINEER in accordance with the requirements of section 3.2.B.7 and 31 05 03, Earthwork.
- D. The CONTRACTOR shall perform trial fusion welds and submit samples to the ENGINEER for review prior to installation of the pipe. Full penetration welds shall provide a homogeneous material across the cross-section of the weld. The fusion machine employed for the trial welds shall be the same machine to be utilized for the installation work.
- E. CONTRACTOR shall submit details of insertion pit dimensions as required for safe bending of the pipe and straight-line insertion of the bursting head, pipe burst tooling, and pipe into the host pipe. CONTRACTOR shall also submit details of insertion pit and reception pit shoring and dewatering.
- F. Shop Drawings:
 - 1. The CONTRACTOR shall submit catalog cuts, specifications, dimensioned drawings, and installation details/sketches and other pertinent information for the pipe installation work. All materials provided shall be fully in accordance with the requirements of the reference specifications specified above.
 - 2. The CONTRACTOR shall verify with the pipe manufacturer all connection details.
 - 3. The CONTRACTOR shall furnish, prior to use of the materials, a certified affidavit of compliance for all materials and conformance with the methods of the manufacturer and ASTM requirements

1.7 EXISTING SEWER SYSTEM

- A. Active Sewers: CONTRACTOR shall manage active flows from all sewer lines and sewer laterals as indicated on the Drawings and the Specifications.
- B. Connections to Existing Sewers and Manholes: The CONTRACTOR shall make all required connections to existing sewers, laterals, and manholes and carry out such work in accordance with local standards and requirements and as directed by the ENGINEER. Extreme care to prevent debris from flowing into downstream sewer lines shall be exercised.

1.8 PROTECTION OF PROPERTY

- A. The CONTRACTOR shall contact the appropriate regional notification center such as Underground Service Alert (USA) at 800-227-2600 at least two (2) working days before beginning construction. The CONTRACTOR shall request that the utility owners conduct a utility survey and mark clearly the location of their services.
- B. It is CONTRACTOR's responsibility to determine the exact location and depth of all existing utilities, including service connections, which have been marked by the utility owners, which are shown on contract drawings and which the CONTRACTOR believes may be impacted by the Work.

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- C. The CONTRACTOR is cautioned that unknown utilities may be encountered or that the exact location of known utilities may be different than marked on the surface. If unknown utilities are encountered, work in that area must not proceed without CITY and ENGINEER's approval.
- D. The CONTRACTOR shall take necessary precautions to prevent damage to existing structures and hardscapes whether on the surface, aboveground, or underground. The CITY and ENGINEER shall be satisfied with the hardscape conditions removed and replaced by the CONTRACTOR. The following are the property protection requirements for the CONTRACTOR to follow:
 - 1. An attempt has been made to show major structures on the Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented as a guide to avoid possible difficulties.
 - 2. The CONTRACTOR shall protect all existing structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.
 - 3. Where existing fences, gates, buildings, hardscaping, landscaping, trees, shrubs or any other structure must be removed to properly carry out the Work, or are damaged during the work, they shall be restored at the CONTRACTOR's expense to their original condition or better.
 - 4. Without additional compensation, the CONTRACTOR may remove and replace in a condition as good as or better than original, any small structures such as fences, landscaping and others that interfere with the CONTRACTOR's operations.

1.9 SAFETY

- A. The CONTRACTOR agrees that they shall assume sole and complete responsibility for job site conditions with respect to his specific work during the course of pipe bursting.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. High Density Polyethylene (HDPE) Pipe
 - 1. Pipe shall be high molecular weight, high density polyethylene pipe with a SDR of 17. The material shall be listed by the Plastic Pipe Institute (PPI) with a designation of PE 4710 and have a minimum cell classification of 445574E (for Gray Pipe) as described in ASTM D3350. The pipe material shall meet the requirements for Type III, Class B, Category 5, Grade P34 material as described in ASTM D1248. The pipe shall contain no recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material pipe. Pipe (excluding black colored pipe) stored outside shall not be recycled. Pipe and fittings shall be made in conformance with ASTM F714 and ASTM D3261 as modified for the specified material. The pipe shall be homogenous throughout and free of visible cracks, holes, foreign inclusions, or other injurious defects. It shall be uniform in density and other physical properties. Any pipe not measuring these criteria shall be rejected.
 - 2. Pipe Color. Pipe shall conform to the following:
 - a. Inside. The inner wall shall be light green or gray

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- b. Outside. The outer wall shall be light green or gray
 - c. Both the inside and outside may be the same color
- 3. Markings: Pipe materials shall be legibly marked by the pipe manufacturer. The following shall be printed on the pipe:
 - a. Name and trademark of manufacturer
 - b. Nominal pipe size
 - c. Dimension Ratio
 - d. The letters PE followed by the polyethylene grade per ASTM D1248, followed by the Hydrostatic Design Basis in hundreds of psi.
 - e. Manufacturing Standard Reference
 - f. A production code from which the date and place of manufacture can be determined
- 4. Joints:
 - a. Polyethylene pipe shall be joined by butt fusion welding, as specified in Part 3.4.
- 5. Coupling:
 - a. CONTRACTOR shall use electrofusion HDPE coupling with a designation of PE 4710 and have a minimum cell classification of 445574C as described in ASTM D3350, and a Hydrostatic Design Basis of 1600 psi @ 73°F.
 - b. PE4710 electrofusion couplings shall have a pressure rating of 200 psi for water @ 73°F.
 - c. Electrofusion coupling shall be black in color.
- 6. Lateral Connections:
 - a. Laterals shall be connected to the main line by use of heat fused saddle as approved by the ENGINEER.

PART 3 - EXECUTION

3.1 GENERAL

- A. This section is intended to provide the CONTRACTOR with general guidance on the methods to be used to install the sewer pipe using the pipe bursting method. Nothing contained herein shall relieve the CONTRACTOR from completing the pipe bursting operation in the most feasible, efficient, and safe manner, using required materials to the lines and grades shown on the plans and to the requirements of these specifications.
- B. The CONTRACTOR shall protect pavements, improvements, utilities, and nearby structures from damage by forces, vibrations and ground movements generated by the pipe bursting equipment/process per section 1.8.
- C. All work shall be performed as specified herein and supervised by personnel experienced in the installation of pipe by the pipe bursting method per section 1.4.

3.2 PREPARATION

- A. Preliminary Site Investigation
 - 1. Prior to the pipe bursting operation, the CONTRACTOR shall perform a careful site investigation to locate and record (via high quality full-color photographs) possible surface obstructions, locate and mark active and inactive sewer laterals (if applicable); and formulate and submit plans to replace the pipe, to reconstruct all sewer laterals, and to restore all structures and plants that would be damaged by the

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Work. Photographs will be subject to the requirements of 01 33 03, Submittal Procedures in addition to the requirements below.

- a. Preliminary site photographs shall document the entirety of the proposed alignment prior to the Work.
- b. Photographs will be used to compare surface features after Work is completed to assess if damage has been done to existing features including but not limited to Asbestos cement paving and concrete.
2. Provide ENGINEER with sufficient notice and with means to examine the areas and conditions under which excavating, filling, and grading are to be performed.
3. An internal closed-circuit television (CCTV) inspection per specification 33 01 31 shall be performed by the CONTRACTOR after the sewer has been cleaned by the CONTRACTOR per specification 33 01 21, to determine the condition of each manhole-to-manhole segment of the existing sewer to be replaced by pipe bursting including evidence of cracks, past repairs, couplings, collars, pipe sags or changes in pipe direction that may represent obstructions to pipe bursting and requiring advance excavation and to locate sewer lateral service connections. The television inspection shall be completed in the same direction each in conformance with CITY's requirements. A copy of the television inspection video and logs from all televising operations shall be provided to the CITY and ENGINEER for review prior to construction.
4. ENGINEER will notify CONTRACTOR if conditions are found that may be detrimental to the proper and timely completion of the Work.
5. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

B. Preliminary Site Work

1. General
 - a. The CONTRACTOR shall contact USA North811 (USA) service alert a minimum of forty-eight (48) hours in advance of any excavation or trenching work. USA may be contacted either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811.
 - b. The CONTRACTOR shall excavate and backfill, in advance of the construction, test pits to determine conditions and locations of the existing utilities and subsurface structures.
 - c. The CONTRACTOR shall define the location of each existing facility involved within the area of their Work under this Contract.
2. Existing Sewer Lateral Connections
 - a. Upon completion by the CONTRACTOR of the CCTV inspection, the CONTRACTOR shall mark in the field the location of the existing sewer lateral connection(s).
3. Handling and Storage
 - a. The CONTRACTOR shall exercise special care during the unloading, handling, and storage of all pipe to ensure that the pipe is not cut, gouged, scored, or otherwise damaged. Any pipe segment which has cuts in the pipe wall exceeding 10 percent of the wall thickness shall be cut out and removed from the site at the CONTRACTOR's expense.
 - b. The pipe shall be stored so that it is not deformed axially or circumferentially which may hinder pipe installation. CONTRACTOR shall test all pipe for ovality prior to installation. Pipe not meeting specified requirements shall be replaced with new material.

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- c. All polyethylene and PVC pipes shall have an ultraviolet inhibitor and shall also be stored in a covered area on blocks, such that no individual pipes weight shall bear on another pipe segment. Pipes shall be supported so as not to allow the pipe to sag along its length between blocks during storage.
 - d. Allowed work areas are delineated on the Drawings.
- 4. Temporary Fencing
 - a. CONTRACTOR shall furnish and install temporary fencing surrounding excavations, entry and exit pits and work area, including the stockpile and storage areas.
 - b. CONTRACTOR shall provide fence openings only at vehicular, equipment and worker access points.
- 5. Environmental Controls
 - a. CONTRACTOR shall implement the construction procedures outlined herein to assure minimum damage to the environment during construction. Take all additional measures required to conform to the requirements of applicable codes and regulations.
 - 1) Erosion:
 - a) CONTRACTOR shall implement the construction procedures outlined herein to assure minimum damage to the environment during construction.
 - 1. Whenever possible, locate and construct access and temporary roads to avoid environmental damage. Make provisions to regulate drainage, avoid erosion and minimize damage to vegetation.
 - 2. Where areas must be cleared for storage of materials or temporary structures, provisions will be made for regulating drainage and controlling erosion, subject to the ENGINEER'S approval.
 - 3. Remove only those shrubs and grasses that must be removed for construction. Protect the remainder to preserve their erosion-control value.
 - 4. Apply measures to control erosion and to minimize the siltation of the existing waterways, and natural ponding areas. Such measures include, but are not limited to, the use of berms, baled straw silt barriers, gravel or crushed stone, mulch, slope drains and other methods.
 - 5. In the event CONTRACTOR repeatedly fails to satisfactorily control erosion and siltation, the CITY reserves the right to employ outside assistance or to use its own forces to provide the corrective measures indicated. The cost of such work, plus engineering costs, will be deducted from monies due CONTRACTOR.
 - 2) Dust:
 - a) Prevent blowing and movement of dust from exposed soil surfaces and access roads to reduce on- and off-site damage and health hazards.
 - b) Control may be achieved by irrigation in which the site is sprinkled with water until the surface is moist.
 - c) Repeat the process as needed.
 - 3) Noise:
 - a) All noise-generating construction activity shall occur within the hours permitted by the Municipal Code, or as otherwise specified by the hours permitted by the ENGINEER. All construction activities shall comply with the CITY's Noise Ordinance.
- 6. Sewer Bypass Pumping

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- a. The CONTRACTOR shall provide bypass pumping and/or flow diversion in accordance with Section 01 57 03.
- 7. Excavation Support Systems
 - a. Below Grade Structure Excavation Support
 - 1) Provide, install, and maintain excavation support systems for all structural excavations where excavation support is required (at a minimum, as required by OSHA).
 - 2) Follow all OSHA guidelines and other applicable laws and ordinances.
 - 3) Prepare excavation support plan addressing the following topics:
 - a) Details of shoring, bracing, sloping or other provisions for worker protection from the hazards of caving ground
 - b) Design assumptions and calculations
 - c) Methods and sequencing of installing excavation support
 - d) Proposed locations of stockpiled excavated materials
 - e) Minimum lateral distance from the excavations for vehicles, equipment, and materials
 - f) Location of vertical and horizontal monitoring points on structures and recommended frequency of monitoring for excavation support system stability and performance
 - 4) Design of excavation support systems and excavation support plan shall be prepared by a civil or structural engineer registered in the state in which the system is installed.
 - 5) CONTRACTOR shall be made aware of Temporary excavation and groundwater management recommendations in the Geotechnical Report.
- 8. Vibration
 - a. The CONTRACTOR shall address the potential for vibration impacts to residences during construction activities by preparing a detailed monitoring and notification plan, subject to review and approval by the ENGINEER and the CITY. The plan shall include, at a minimum, the following items:
 - 1) Public Notification. The CONTRACTOR shall notify property owners and residents located within 100 feet of pipe bursting activities at least one week prior to construction.
 - 2) Vibration Monitoring. The CONTRACTOR shall perform vibration monitoring to establish the level produced by high impact activities during construction. Monitoring should be conducted continuously whenever pipe bursting is done within 25 feet of any structure. Monitoring shall be conducted using a portable vibration monitoring instrument that provides a calibrated record of local ground movement/accelerations. If construction vibration exceeds 2.0 in./sec at the nearest exterior wall during vibration monitoring, construction activities shall immediately stop, and alternative work methods shall be used. The monitoring protocol and all monitoring results shall be submitted to the ENGINEER and CITY for review and approval.

3.3 PIPE BURSTING EQUIPMENT

- A. Should it become necessary to temporarily stop bursting operations, provisions shall be made to remotely start and stop the bursting head.
- B. Winch or Pulling Unit

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1. The winch or pulling unit shall be operated to provide constant pull to the bursting unit in order that it may operate in an efficient manner with a minimum of recoil. It shall ensure directional stability in keeping the bursting unit in line.
2. The winch shall be of the constant load type and shall be fitted with a direct reading load gauge to measure the winching load. It shall also be fitted with a device to automatically disengage when loading exceeds a preset maximum load.
3. Contractor shall supply sufficient cable in one (1) continuous length so that the pull may be continuous between winching points.
4. The winch cable and cable drum shall be provided with safety cage and supports.
5. The CONTRACTOR shall also provide a system of guide pulleys and bracing at each manhole to minimize contact of cable with the existing sewer between manholes.
6. A nose cone shall be fixed to the first pipe or the head of the bursting unit and shall be fitted with a swivel attachment to reduce the twist transmission between the winch cable and nose cone.
7. Excavation supports in the insertion pit shall remain completely separate from the pipe support system and shall be so designed that neither the pipe nor the winch cable shall be in contact with them at any time.

C. Pneumatic Pipe Bursting

1. This section is intended to provide the CONTRACTOR with general guidance on the methods and equipment to be used to install the sewer pipe using the pneumatic pipe bursting method. Nothing contained herein shall relieve the CONTRACTOR from completing the pipe bursting operation in the most feasible, efficient, and safe manner, using required materials to the lines and grades shown on the plans and to the requirements of these specifications.
2. Pneumatic pipe bursting shall only be implemented for replacing fracturable pipe such as:
 - a. Asbestos Cement Pipe
 - b. Cast iron Pipe
 - c. Clay lined Concrete Pipe
 - d. Non-reinforced Concrete Pipe
 - e. Galvanized Steel Pipe
 - f. Polymer Concrete Pipe
 - g. PVC Pipe
 - h. Vitrified Clay Pipe
3. Only HDPE pipe shall be used for the pneumatic pipe bursting method.
4. The Pneumatic bursting unit shall consist of the following components at minimum:
 - a. Displacement hammer with an expander head fitted to the front or rear designed to force its way through the existing pipe bursting it as it progresses. The hammer may include components to allow reversible methods.
 - b. Constant tension winch designed to keep the hammer in contact with the existing pipe keeping the hammer in alignment with the existing pipe.
 - c. Air compressor to supply the adequate force necessary to power the pneumatic hammer and fracture and displace the existing pipe and surrounding soil.

D. Static Pipe Bursting

1. This section is intended to provide the CONTRACTOR with general guidance on the methods and equipment to be used to install the sewer pipe using the static pipe bursting method. Nothing contained herein shall relieve the CONTRACTOR from completing the pipe bursting operation in the most feasible, efficient, and safe manner, using required materials to the lines and grades shown on the plans and to the requirements of these specifications.
2. Static pipe bursting shall only be implemented for replacing fracturable pipe unless a series of cutters, splitters, or other assemblies are attached to the bursting head.

3. The Static Pipe Bursting unit shall consist of the following components at minimum:
 - a. An Expander head designed to force its way through the existing pipe, bursting it as it progresses. The expander head may include cutting or splitting assemblies to allow the bursting of non-fracturable pipe.
 - b. A rod, cable, or chain to be inserted into the existing pipe to align and guide the expander head and the new pipe. The rod, cable, or chain are attached to a static pipe bursting machine placed in an excavated pit at one end of the existing pipe.
 - c. A hydraulic power pack to provide the necessary power to apply a large pull force on the expander head and fracture and displace the existing pipe and surrounding soil.

3.4 PIPE JOINING

A. Continuous Pipe:

1. For purposes of pipe storage on the job site above ground, sections of HDPE/fPVC pipe shall be joined into continuous lengths of no more than 50' unless otherwise authorized by the ENGINEER. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. Fusion equipment used in the joining procedure shall be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, fusion temperature, alignment, and fusion pressure. CONTRACTOR shall keep a quality control log for every joint and pipe segment, certifying that all meet manufacturer requirements.
2. A fire-retardant bag or suitable enclosure shall be used with the heater plate to protect the heater plate surfaces from dirt and other debris when not in use. The heater plate surfaces shall be cleaned regularly as needed to prevent accumulation of fusion welding residues or other substances that may result in faulty pipe joining.
3. Butt fusion shall conform to ASTM D2657 and pipe manufacturer's criteria for the type of joining. Joint strength shall be equal to that of the adjacent pipe.
4. The inside and outside of the pipe ends shall be cleaned with a cotton or non-synthetic cloth to remove dirt, water, grease, and other foreign materials. The pipe ends shall be cut square and carefully aligned just prior to heating.
5. After achieving the proper melt pattern, the pipe ends shall be brought together in a firm, rapid motion applying sufficient pressure to form a pipe bead (1/8 inch to 3/16 inch in height) around and inside the entire circumference of the pipe.
6. The inside weld bead shall be removed by cutting the bead away without scoring the inside wall of the pipe. The CONTRACTOR shall submit to the ENGINEER, for review as part of the submittal requirements, a de-beading process for use in removing the internal bead for the newly joined HDPE/fPVC pipe sections.
7. A single electrofusion coupling may be used to complete the new pipe connection to each existing manhole.

3.5 PIPE INSTALLATION

- A. The Contractor shall install the pipe by utilizing a constant tension system with a hydraulic, pneumatic, or static bursting device that breaks apart the existing pipe. The void created by the bursting device shall be sufficient in size to accommodate the new pipe which shall be installed immediately after the void has been formed.
- B. The CONTRACTOR shall bear full responsibility for completing the pipe installation regardless of selected method. CONTRACTOR shall have no right to claim additional costs

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Gravity Sanitary Sewer Pipe Bursting

Pump Station 26 Improvement Project

for the failure of the selected method to result in successful pipe installation. Failure of the CONTRACTOR's submitted installation method shall not be an acceptable delay or idle time claim.

- C. CONTRACTOR shall be aware that the geotechnical report lists recommendations for mitigation measures for ground deformation and provides methods for estimating whether impingement into existing, adjacent utility trenches might occur, based upon the diameter and depth of the existing utility.
- D. CONTRACTOR shall submit for approval by ENGINEER detailed calculations showing how the selected method of construction will develop the forces required to successfully complete the pipe installation including the pipe bursting head expander configuration and outside diameter, the annular space created between the expander head and the new pipe outside diameter.
- E. The CONTRACTOR shall excavate by hand or hand-operated mechanical equipment and expose potential obstructions to pipe bursting (e.g., past repairs, couplings, pipe collars or changes in pipe direction that may stop the bursting head) and remove obstructions prior to bursting. There will be no additional compensation for removal of pipe bursting obstructions, either known by the CONTRACTOR in advance of bursting or encountered during bursting.
- F. The CONTRACTOR shall excavate by hand or hand-operated mechanical equipment and expose pipelines within two diameters of the pipe to be burst to reduce stresses on the those pipelines during construction.
- G. The CONTRACTOR shall excavate by hand or hand-operated mechanical equipment and expose all building sewer lateral connections prior to replacing the existing sewer. The existing connections may be encased in mortar, concrete, or reinforced concrete. There will be no additional compensation for demolition of this concrete.
- H. The CONTRACTOR shall excavate pits at each end of the sewer segment to be burst. Pits shall be of sufficient size to allow access for bursting equipment and installation of new pipeline. All excavation shall be fully braced and supported in accordance with Section 3.2.b.7. Pits shall be centered over the existing sewer. Prior to conducting the work, the CONTRACTOR shall submit a plan to the ENGINEER showing the size and location of the proposed pits. All excavations shall be covered and securely fenced during non-working hours.
- I. The CONTRACTOR shall record the general progress i.e., insertion rates in feet per minute, reasons for stoppages, signs of failure of equipment and road or other surface damage. Contact by radio shall be always maintained between key positions so that slowing down, stopping and starting can be affected when necessary.
- J. The CONTRACTOR shall anchor the pipe to manholes after the pipe has been installed along the length of the sewer replaced. The CONTRACTOR shall use a modular seal, as specified and shown on the Drawings that is firmly seated perpendicular to the pipe axis, around the pipe exterior and cast into the structure base or near the structure wall center and conforms to ASTM C923. The structure or manhole connection shall be made a minimum of 48 hours after pipe insertion, but no sooner than the pipe has stopped

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moving in response to temperature changes. All cutting and sealing of the new pipe at manhole connections shall provide watertight pipe and manhole trough seals.

K. Continuous Pipe Installation Specific Requirements

1. The CONTRACTOR shall fuse together the full length of HDPE/fPVC pipeline to be installed prior to the start of pipe bursting. The above grade pipe shall be protected from scratching and gouging using pipe rollers or other suitable means.

3.6 FIELD QUALITY CONTROL

A. General: Field acceptance of the new pipeline shall be based on the CITY's testing methods as required under "SANITARY SEWER CONSTRUCTION CRITERIA" of Construction Standards.

1. CONTRACTOR shall perform all Work in the presence of the CITY's representative.

B. Manhole Inspection:

1. Manholes will be inspected after completion and within the guarantee period. Leakage and other defects that were a result of the CONTRACTOR's work shall be eliminated and repaired by the CONTRACTOR as required by the ENGINEER, at the CONTRACTOR's expense.

3.7 EXCAVATION BACKFILL

- A. Refer to Section 31 05 03, Earthwork and standard details as shown on the drawings.

3.8 FINAL CLEANING AND CCTV INSPECTION

- A. Prior to final acceptance and final inspection of the pipe by the ENGINEER, the CONTRACTOR shall flush and clean all parts of the system by removing all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the pipe.
- B. After completion of the pipe installation, finish work at the manholes and final cleaning, the CONTRACTOR shall televise the sewer in accordance with CITY's requirements or section 33 01 31, Sewer Pipeline CCTV Inspection. The original video, stills, and electronic logs shall be provided to the ENGINEER and CITY.
- C. Upon completion of all work, CONTRACTOR shall remove all surplus materials and rubbish, shall repair all damages caused by his workers and shall leave the premises in a clean and orderly condition.

3.9 DISPOSAL OF EXCAVATED MATERIALS

- A. Material removed from the excavations that does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away from the Work site and disposed of by the CONTRACTOR in compliance with ordinances, codes, laws and regulations at no additional cost to the CITY.
- B. A site is not available to dispose of excess material.

3.10 RESTORATION OF EXISTING SURFACES

A. Refer to Section 32 12 16 and 03 01 03 or CITY Standard Details

++ END OF SECTION ++

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Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 40 05 06

PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Shop Drawings:
 - 1. Manufacturer's data on materials, construction, end connections, ratings, overall lengths, etc.

PART 2 - PRODUCTS

2.1

2.1 RESTRAINED MECHANICAL JOINT GLANDS (RMJ)

- A. Features:
 - 1. Pressure Rating:
 - a. Minimum Working Pressure Rating: Not less than 150 psi.
 - b. Safety Factor: Not less than two times working pressure and shall be supported by manufacturer's proof testing.
 - 2. RMJ gland shall be designed for use with standard mechanical joint pipe. Pipe restraint products designed for use with push-on joints will not be acceptable.
 - 3. Thrust Restraint:
 - a. Provide hardened steel wedges that bear against and engage outer pipe surface, and allow articulation of pipe joint after assembly while wedges remain in their original setting position on pipe surface.
 - b. Products employing set screws that bear directly on pipe will not be acceptable.
- B. Manufacturers and Products:
 - 1. Ductile Iron Pipe Only
 - a. EBAA Iron Sales Co.; Megalug.
 - b. Romac Industries Inc.: RomaGrip
 - c. Or Equal.

2.2 MODULAR MECHANICAL SEALS

- A. Features:
 - 1. Type: Interconnecting synthetic rubber links shaped and sized to continuously fill annular space between pipe and sleeve, blockout, or core-drilled opening in concrete slabs or walls.
 - 2. Links: EPDM
 - 3. Bolts and nuts: Type 316 stainless steel
 - 4. Pressure plates: composite
 - 5. Temperature range: -40 to 250 degrees Fahrenheit
 - 6. Pressure rating: guaranteed by the manufacturer to provide a water-tight seal with a differential hydrostatic head of 40-feet of water

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Piping Specialties

Pump Station No. 26 Improvements

- B. Manufacturers and Products:
 - 1. PSI-Thunderline; Link-seal, Type S-316
 - 2. Or equal

2.3 PIPE TO MANHOLE CONNECTORS

- A. Features:
 - 1. Type: Resilient rubber male-to-female wedge-style flexible connector between a circular gravity pipe and a circular opening core-drilled into a precast or cast-in-place concrete structure.
 - 2. Performance Requirements:
 - a. Able to hold 10 psi head pressure for 10 minutes with no leakage
 - b. Load Rating: 150 lbs per inch pipe diameter
 - 3. Materials:
 - a. Body: resilient rubber material conforming to ASTM C923
 - b. Hardware: 300 Series Stainless Steel conforming to ASTM C923, ASTM A666 and ASTM A240
- B. Manufacturers and Products:
 - 1. Trelleborg Pipe Seals Milford, Inc., Model Kor-N-Seal I – 106 Series for pipes up to 18" diameter and Kor-N-Seal II – 206 Series for pipes from 20" to 54" in diameter.
 - 2. Or Equal

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General
 - 1. Follow all manufacturer's directions
- B. Restrained Mechanical Joint Glands
 - 1. Follow all manufacturer's directions
 - 2. Tighten mechanical joint gland bolts before tightening restraint lugs
 - 3. Tighten restraint lugs until torque head breaks off
 - 4. In buried installations, wrap joint with plastic fastened to pipe to protect bolts and coupling from backfill material

++ END OF SECTION ++

SECTION 40 05 10
PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Shop Drawings:
 - 1. Product data sheets for each piping system.
 - a. Include information on pipe, fittings and joint systems.
 - 2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
 - 3. Complete descriptions and data for all coatings and linings.
 - 4. Tests and inspection data for pipe and coatings/linings.
 - 5. Qualifications for welders and/or technicians performing joining processes that requires specialized equipment to perform the work or as specifically identified herein.
- B. Operation and Maintenance Data as specified in Submittal Procedures section of these specifications.

1.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. In accordance with manufacturer's directions.

PART 2 - PRODUCTS

2.1 PIPING SYSTEM DATA SHEETS

- A. Piping system data sheets (PSDS) have been attached to this Specification and are incorporated herein by reference. Provide piping systems in accordance with piping system data sheets.

2.2 THRUST RESTRAINT

- A. Provide rigid or restrained joints and fittings for all piping systems specified with a test pressure in the Pipe Schedule.
- B. Unless otherwise specified in the Pipe Schedule or shown on the Drawings, thrust blocks shall not be used.

PART 3 - EXECUTION

3.1 PIPE SCHEDULE

- A. A Pipe Schedule is included in the Specifications and is incorporated herein by reference. Install piping systems in accordance with Pipe Schedule.

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Pipe and Fittings

Pump Station No. 26 Improvements

- B. For pipe which is shown on the Drawings, but not referenced in the Pipe Schedule, CONTRACTOR to provide pipe material and fittings which are appropriate for the intended service and acceptable to the ENGINEER.

3.2 PREPARATION

- A. Inspect pipe and fittings before installation, clean ends thoroughly, and remove foreign matter and dirt from inside.
- B. Repair any coatings or linings which were damaged during shipping and handling using manufacturer-approved coating and lining repair materials in accordance with manufacturer's instructions.

3.3 INSTALLATION

- A. General:
 - 1. Join pipe and fittings in accordance with manufacturer's instructions, unless otherwise shown or specified.
- B. Joint Assembly:
 - 1. Flanged Joints (FLG):
 - a. Bolt Holes: Straddle vertical centerlines, aligned with connecting equipment flanges or as shown.
 - b. Follow a bolt tightening pattern which produces uniform bearing pressure.
 - c. Do not over-tighten bolts. Follow manufacturer's recommendation for bolt torque.
 - d. Provide gasket at every flanged joint.
 - e. Provide insulating flange kit where indicated on Drawings and required in this Specification.
 - 2. Thermally butt fused (BF) HDPE joints
 - a. In general, the individual performing thermal butt fusion and electrofusion and the equipment used shall meet the requirements of the Plastic Pipe Institute (PPI), Technical Note (TN) 42, Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators and the requirements of Title 49, CFR Subpart F, 192.282 and 192.285.
 - b. Specific requirements that apply when joining HDPE pipe using butt fusion shall be as follows:
 - 1) Submit documentation that the fusion technician has been qualified and trained by the fusion equipment manufacturer or pipe manufacturer in the operation and procedures of the butt fusion process. All qualifications and training shall have been received within 1-year from the date of submitting the information. If acceptable documentation cannot be provided, sample joints shall be made and tested in accordance with TN-42. If pipe wall thickness is greater than 1-inch, submit an acceptable method recommended by the pipe manufacturer that will be used to test the sample joint. All costs associated with the sample joint testing and any retesting shall be borne by the CONTRACTOR.
 - 2) Each 2" NPS and larger butt fusion joint shall be documented using a data logging device or written log that records the following minimum parameters per completed joint:
 - a) Date and time
 - b) OWNER's project number and/or name

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Pipe and Fittings

Pump Station No. 26 Improvements

- c) Fusion Machine model
 - d) Pipe size, rating and PE type code (i.e. PE4710)
 - e) Heater plate surface temperature (minimum 2 values for each side of the heater plate per joint)
 - f) Recorded drag pressure
 - g) Gauge pressure and associated interfacial pressure (psi)
 - h) Heating time
 - i) Transfer time between heater plate being removed from the face of the opposing pipe ends and when the pipe ends are butted together
 - j) Cooling time
- 3) Provide log records at the end of each day in hardcopy format or as agreed upon with the OWNER and/or ENGINEER. Submit one (1) copy as a minimum to the OWNER's Representative or ENGINEER.
 - 4) At the completion of the work, submit all data log records on a compact disc that can be accessed using the data log manufacturer's software or if using written logs, all individual written daily logs are transferred into a pdf format and identified by day as a separate file.
- c. All joints that are determined to be defective visually or as a result of pressure testing shall be repaired using a thermal fusion method unless otherwise approved by the OWNER's Representative or ENGINEER.
 - d. Install buried HDPE pipe in accordance with ASTM D2774 and the pipe manufacturer's specific recommendations.
- 3. Insulating Flanges, Couplings, and Dielectric Unions:
 - a. Applications: Provide insulating flange, coupling or di-electric union for all joints at the following locations:
 - 1) Dissimilar metal piping connections.
 - 2) Cathodically protected piping penetration to buildings.
 - 3) Submerged to unsubmerged metallic piping connections.
 - 4) Where required for electrically insulated connection.
 - b. Installation:
 - 1) Insulating joints connecting immersed piping to non-immersed piping shall be installed above maximum water surface elevation.
 - 2) Align and install insulating joints according to manufacturer's recommendations to avoid damaging insulating materials.
- C. Exposed Piping Installation:
 - 1. Piping Runs:
 - a. Parallel to building or column lines and perpendicular to floor, unless shown otherwise.
 - b. Piping upstream and downstream of flow measuring devices shall provide straight lengths as required for accurate flow measurement.
 - 2. Supports: As specified in Piping Support Systems section of these specifications.
 - 3. Group piping wherever practical at common elevations; install to conserve building space and not interfere with use of space and other work.
 - 4. Provide unions or flanges at each piping connection to equipment or instrumentation on equipment side of each block valve to facilitate installation and removal.
 - 5. Install piping so that no load or movement in excess of that stipulated by equipment manufacturer will be imposed upon equipment connection;
 - 6. Install piping to allow for contraction and expansion without stressing pipe, joints, or connected equipment.

7. Piping clearance, unless otherwise shown:
 - a. Over Walkway and Stairs: Minimum of 7 feet 6 inches, measured from walking surface or stair tread to lowest extremity of piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
 - b. Between Equipment or Equipment Piping and Adjacent Piping: Minimum 3 feet 0 inch, measured from equipment extremity and extremity of piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
 - c. From Adjacent Work: Minimum 1 inch from nearest extremity of completed piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
 - d. Do not route piping in front of or to interfere with access ways, ladders, stairs, platforms, walkways, openings, doors, or windows.
 - e. Headroom in front of openings, doors, and windows shall not be less than the top of the opening.
 - f. Do not install piping containing liquids or liquid vapors in transformer vaults or electrical equipment rooms.
 - g. Do not route piping over, around, in front of, in back of, or below electrical equipment including controls, panels, switches, terminals, boxes, or other similar electrical work.
- D. Buried Pipe Installation:
 1. Pipe Placement:
 - a. Keep trench dry until pipe laying and joining are completed.
 - b. Exercise care when lowering pipe into trench to prevent twisting or damage to pipe.
 - c. Prevent foreign material from entering pipe during placement.
 - 1) Close and block open end of last laid pipe section when placement operations are not in progress and at close of day's work.
 - d. Lay pipe upgrade with bell ends pointing in direction of laying.
 - e. Deflect pipe at joints for pipelines laid on a curve using unsymmetrical closure of spigot into bell. Utilize a maximum of 75 percent of manufacturer's recommended allowable joint deflection.
 - 1) If joint deflection of standard pipe lengths will not accommodate horizontal or vertical curves in alignment, provide:
 - a) Shorter pipe lengths.
 - b) Fittings/bends.
 - f. Secure pipe which has been placed from movement or damage while placing the next section of pipe.
 - g. Prevent uplift and floating of pipe prior to backfilling.
- E. Cleaning:
 1. Following assembly and testing, and prior to disinfection and final acceptance, flush pipelines with water at 2.5 fps minimum flushing velocity until foreign matter is removed. At a minimum, flush for a period of time which will flush the entire pipeline volume three times.
 - a. If impractical to flush large diameter pipe at 2.5 fps, clean in-place from inside by brushing and sweeping, then flush line at lower velocity. If lower velocity is used, flush the entire pipeline volume five times.
 2. Provide temporary means of removing flushing water from pipeline during flushing.

3. Provide means for removal/screening of debris from the flushing water, disposal of debris and disposal of flushing water.

3.4 TESTING

- A. Pressure test piping in accordance with the Pipe Schedule, Testing of Pressure Piping Systems section of these specifications.

3.5 SUPPLEMENTS

- A. The following supplements are attached to this Specification section and incorporated herein by reference:
 1. 40 05 23.03 – Piping System Data Sheet - Welded Stainless Steel Pipe (WSSTP)
 2. 40 05 33.12 – Piping System Data Sheet - HDPE Pressure Pipe (HDPE)
 3. 40 05 41 – Piping System Data Sheet - Vitrified Clay Gravity Sewer Pipe (VCP)

++ END OF SECTION ++

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Pipe and Fittings

Pump Station No. 26 Improvements

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40 05 10-6
Pipe and Fittings

Pump Station No. 26 Improvements

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 40 05 10.01

PIPE SCHEDULE

1.1 DESCRIPTION

A. General:

1. This schedule is provided for the convenience of the CONTRACTOR. Some flow streams may be shown on the drawings, but not listed here.

B. Flow Stream IDs:

1. SS - Sanitary Sewer
2. SSFM - Sanitary Sewer Forcemain

C. Pipe Materials:

1. Ductile Iron Process Pipe (DIP)
2. Welded Stainless Steel Pipe (WSSTP)
3. Fusible HDPE Pressure Pipe
4. Vitrified Clay Gravity Sewer Pipe (VCP)

D. Joint Types:

1. FLG – Flanged
2. MJ – Mechanical JointPO – Push On
3. WLD – Butt Welded

E. Lining Systems:

1. CE – Ceramic Epoxy

F. Coating Systems:

1. System numbers as described in Section 09 91 03, Painting.

40 05 10.01-1
Pipe Schedule

Pump Station No. 26 Improvements

1.2 PIPE SCHEDULE

Contractor shall install piping systems in accordance with the following pipe schedule:

Contractor shall install piping systems in accordance with the following pipe schedule:

SERVICE	DESCRIPTION	EXPOSURE	SIZE RANGE	MATERIAL	JOINT TYPE	TEST PRESSURE	LINING	COATING SYSTEM/ COLOR	NOTES
SS	Sanitary Sewer	Buried (Pipe Burst)	10" and 12"	HDPE	WLD	5 psi	N/A	SEE PSDS	
SS	Sanitary Sewer	Buried (Open Cut)	10" and 12"	VCP	PO	5 psi	N/A	SEE PSDS	
SSFM	Sanitary Sewer	Exposed (Wet Well)	8"	DIP	FLG, MJ	150 psi	Ceramic Epoxy	SEE PSDS	
SSFM	Sanitary Sewer	Exposed (Wet Well)	8"	WSSTP	FLG	150 psi	N/A	SEE PSDS	

++ END OF SECTION ++

SECTION 40 05 03.19**PIPING SYSTEM DATA SHEET – DUCTILE IRON PIPE (DIP)**

ITEM	DESCRIPTION
Pipe	Buried Piping: Pressure class as indicated in the pipe schedule. If not indicated: • All pipe 12" diameter and smaller shall be pressure class 350. • All pipe 14" through 20" shall be pressure class 250. • All pipe larger than 20" shall be pressure class 200. Flanged Piping: Special Thickness Class 53 Pressure class shall be per AWWA C150/A21.50 and AWWA C151/A21.51
Lining	Wastewater: Ceramic epoxy as follows: 1. Amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment. 2. Permeability rating of 0.00 when tested per Method A of ASTM E 96, Procedure A with a test duration of 30 days. 3. Minimum lining thickness: 40 mils nominal dry film thickness. 4. The following tests must be run on coupons from factory lined Ductile Iron pipe: a. ASTM B 117 Salt Spray (scribed panel). Results to equal 0.0 undercutting after two years. b. ASTM G 95 Cathodic Disbondment (1.5 volts at 77°F). Results to equal no more than 0.5 mm undercutting after 30 days. c. Immersion Testing rated using ASTM D 714. i. 20% Sulfuric Acid: No effect after two years. ii. 140°F 25% Sodium Hydroxide: No effect after two years. iii. 160°F Distilled Water (scribed panel): No effect after two years. iv. 120°F Tap Water (scribed panel): 0.0 undercutting after two years with no effect. v. Abrasion Resistance: Less than .075 mm (3 mils) loss after one million cycles on a $\pm 22.5^\circ$ sliding aggregate slurry abrasion tester using a sharp natural siliceous gravel with a particle size between 2mm and 10 mm (European Standard SN598). 5. Manufacturer and Product: a. Protecto 401 Ceramic Epoxy Lining; Or Equal.

40 05 03.19-1

Piping System Data Sheet – Ductile Iron Pipe (DIP)

Pump Station No. 26 Improvements

ITEM	DESCRIPTION
	a.
Coating	Unless otherwise specified in the Pipe Schedule, piping shall be coated as follows: Buried Piping: • AWWA C151/A21.51: Minimum 1-mil asphaltic coating. • AWWA C105/A21.5: Polyethylene encasement, 4-mil high-density cross laminated or 8-mil linear-low density, color as required by local/state regulations. Exposed/Immersed Piping: • Primer Coating: Where shop primer is applied to protect pipe during shipping, storage and handling, primer shall be compatible with pipe coating requirements of Section 09 91 03, Painting.
Fittings	Lined and coated same as pipe. Push-On (PO): AWWA C110/A21.10 and C111/A21.11, gray or ductile iron, 250 psi minimum working pressure. American Cast Iron Pipe Co., Fastite Joint; U.S. Pipe and Foundry, Tyton Joint. Mechanical Joint (MJ): AWWA C110/A21.10, C111/A21.11, and C153/A21.53 gray or ductile iron, 250 psi minimum working pressure. Follower glands shall be ductile iron. Flange (FLG): AWWA C110/A21.10 ductile iron, faced and drilled, 125-pound flat face. Gray cast iron will not be allowed.
Joints	Push-On (PO): 250 psi minimum working pressure, AWWA C110/A21.10 and C111/A21.11. American Cast Iron Pipe Co., Fastite Joint; U.S. Pipe and Foundry, Tyton Joint. Mechanical Joint (MJ): 250 psi minimum working pressure. Flange (FLG): 125-pound flat face, ductile iron, threaded conforming to AWWA C115/A21.15. Gray cast iron will not be allowed. Branch connections 3 inches and smaller, shall be made with service saddles as specified in Section 40 05 06, Piping Specialties.
Bolting	T-Bolts and other specialty bolts: Type 304 stainless steel Hex Bolts: ASTM A193 B8, Type 304 stainless steel Nuts: ASTM A194 Grade 8, Type 304 stainless steel

ITEM	DESCRIPTION
Gaskets	Push-On, Mechanical, and Proprietary Restrained Joints: Red Rubber (SBR) conforming to ANSI/AWWA C111/A21.11. Flanged, Water and Sewage Service: 1/8 inch-thick, red rubber (SBR), hardness 80 (Shore A), rated to 200 degrees F, conforming to ANSI B16.21, AWWA C207, and ASTM D1330, Grades 1 and 2. Full face for 125-pound flat-faced flanges, flat-ring type for 250-pound raised-face flanges. Blind flanges shall be gasketed covering the entire inside face with the gasket cemented to the blind flange. Gasket pressure rating to equal or exceed the system hydrostatic test pressure.
Joint Lubricant	Manufacturer's standard.

++ END OF SECTION ++

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40 05 03.19-4

Piping System Data Sheet – Ductile Iron Pipe (DIP)

Pump Station No. 26 Improvements

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 40 05 23.03**PIPING SYSTEM DATA SHEET – WELDED STAINLESS STEEL PIPE (WSSTP)**

ITEM	DESCRIPTION
Pipe	ANSI/AWWA C220, Standard for Stainless Steel Pipe, 1/2-inch diameter and larger, latest revision. Pressure class to accommodate test pressure listed in Pipe Schedule. Type as indicated in the Piping Schedule. Minimum Schedule 10.
Linings/Coatings	Factory Finish: 1. All pipe and fittings shall be pickled after manufacture by immersion in acid bath until all weld discoloration and iron pickup is removed. 2. Passivate all piping welds after fabrication. 3. Thoroughly wash all pipe and fittings with clear water after pickling.
Joints	Full penetration butt-welded, flanged, rolled grooved end, or threaded where shown and/or required. Field welded pipe joints are prohibited unless approved by ENGINEER. Where approved, field welds shall be pickled, passivated and cleaned.
Fittings	All fittings 6" and smaller shall be forged. Buried fittings 8" to 24" may be fabricated or forged. Buried fittings larger than 24" shall be fabricated. Exposed fittings 24" and smaller shall be forged. Exposed fittings 30" to 48" may be fabricated or forged. All fittings larger than 48" shall be fabricated. Fabricated: Type 304 stainless steel fabricated in accordance with AWWA C208; elbows to have a 22.5 degree maximum miter section angle and a radius of 2.5 times the diameter, unless shown otherwise; wyes, tees, crosses, and outlets to be reinforced in accordance with AWWA M 11. Fitting wall thickness shall be equal to or greater than adjoining pipe. Forged: Butt-welding fittings, ASTM A403M, type 304 stainless steel. Fitting wall thickness to match adjoining pipe. Threaded: Piping 4" and less, threaded per ANSI B1.20.1, pressure class to accommodate test pressure, stainless grade to match pipe grade (ASTM A351 CF8 for grade 304 pipe and CF8M for grade 316 pipe).
Flanges	AWWA C207, Class D (150 psi), Class E (250 psi), or Class F (275 psi) hub or ring type, flat-face. Type 304 stainless steel, pressure class to match pipe.
Bolting	Hex Bolts: ASTM A320/A320M, Type 304 stainless steel, grade 5 Nuts: ASTM F594, Type 304 stainless steel, grade 5.
Gaskets	1/8-inch thick, cloth-inserted rubber, corrosive acid and alkali free for intended service conforming to ANSI B16.21 and AWWA C207; full-face gaskets for flat-face flanges; flat ring gaskets for raised-

40 05 23.03-1

Piping System Data Sheet – Welded Stainless Steel Pipe (WSSTP)

Pump Station No. 26 Improvements

ITEM	DESCRIPTION
	face flanges. Gaskets for rolled grooved ends shall be as recommended by manufacturer for intended service.
Thread Lubricant	Non-seizing, industrial grade thread sealing compound that is insoluble in water

++ END OF SECTION ++

40 05 23.03-2

Piping System Data Sheet – Welded Stainless Steel Pipe (WSSTP)

Pump Station No. 26 Improvements

City of Roseville
WWE Project: 21-060

December 2022
BID SET

SECTION 40 05 33.12

FUSIBLE HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

A. SCOPE

1. This section specifies high density polyethylene (HDPE) pressure pipe and fittings for water and wastewater applications, including standards for dimensionality, testing, quality, acceptable fusion practice, safe handling and storage.
2. Furnish all labor, materials, equipment and incidentals required and install and test HDPE pipe and fittings, complete as shown on the Drawings and as specified herein.
3. Each offsite pipeline system shall utilize a single continuous length of the same pipe material, size, and pressure class unless otherwise noted on the Contract Drawings.
4. Pipe shall conform to the following dimensionality and general characteristics table:

PIPE DESCRIPTION	NOMINAL DIAMETER (IN.)	DR (IPS)	COLOR	PRESSURE CLASS (PSI)	REQD INNER DIAMETER (IN.)
12" SS	12	17	Grey/Black with green stripe	125	11.16
10" SS	10	17	Grey/Black with green stripe	125	9.41

*Reference hydraulic grade line drawings for maximum working head depictions. Maximum working head is defined as the maximum hydraulic grade line to be used in CONTRACTOR calculations for test pressures as specified in Section 15990.

1.2 REFERENCES

- A. Work performed under this section shall conform to the Contract Drawings and Specifications and shall comply with all standards, rules and regulations, laws and ordinances of the OWNER and all other authorities having jurisdiction, as amended. That which is necessary to make the work comply with the above requirements shall be provided without additional cost to the OWNER.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced

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Fusible High Density Polyethylene (HDPE) Pipe

Pump Station No. 26 Improvements

documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

- C. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.
- D. American Society for Testing and Materials (ASTM) International, most recent version:
1. ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
 2. ASTM D 2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing
 3. ASTM D 2737 Standard Specification for Polyethylene (PE) Plastic Tubing
 4. ASTM D 2774 Standard Practice for Underground Installation of Thermoplastic Pressure Piping
 5. ASTM F 2880 Standard Specification for Lap-Joint Type Flange Adapters for Polyethylene Pressure
 6. Pipe in Nominal Pipe Sizes 3/4 in. to 65 in.
 7. ASTM D 3035 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
 8. ASTM D 3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
 9. ASTM D 3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
 10. ASTM F 585 Standard Guide for Insertion of Flexible Polyethylene Pipe Into Existing Sewers
 11. ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
 12. ASTM F 905 Standard Practice for Qualification of Polyethylene Saddle-Fused Joints
 13. ASTM F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe
 14. ASTM F 1290 Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings
 15. ASTM F1417 Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air
 16. ASTM F 1962 Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit under Obstacles, Including River Crossings
 17. ASTM F 2164 Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure
 18. ASTM F 2206 Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock

19. ASTM F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
 20. ASTM F 3124 Standard Practice for Data Recording the Procedure Used to Produce Heat Butt Fusion Joints
 21. ASTM F 3183 Standard Practice for Guided Side Bend Evaluation of Polyethylene Pipe Butt Fusion Joint
 22. ASTM F 3190 Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on Polyethylene (PE) and Polyamide (PA) Pipe and Fitting
- E. American Water Works Association (AWWA), most recent version:
1. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances
 2. AWWA C901 - Polyethylene (PE) Pressure Pipe and Fittings, 1/2-in Through 3-in, for Water Distribution and Transmission
 3. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4-in Through 63-in, for Water Distribution and Transmission
 4. ANSI/AWWA C651 Standard For Disinfecting Water Mains
 5. AWWA M55 – PE Pipe – Design and Installation
- F. American National Standards Institute (ANSI), most recent version:
1. ANSI B16.1 - Cast Iron Flanges and Flanged Fittings.
 2. ANSI B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges.
 3. ANSI/NSF 61- Drinking Water System Components-Health Effects
- G. Plastic Pipe Institute, PPI
1. PPI Handbook of Polyethylene Pipe – 2009 (2nd Edition)
 2. PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe 15XXX-2 (Section 15XXX – HDPE Pipe) (12/12/17)
 3. PPI Material Handling Guide for HDPE Pipe and Fittings
 4. PPI TR-34 Disinfection of Newly Constructed Polyethylene Water Mains
 5. PPI TR-38 Bolt Torque for Polyethylene Flanged Joints
 6. PPI TN-42 Recommended Minimum Training Guidelines for PE Pipe Butt Fusion Joining Operators for Municipal and Industrial Projects

1.3 SUBMITTALS

- A. The name of the pipe and fitting manufacturers and a list of materials to be furnished by each manufacturer. Also, include information on the supplier and distributor.
- B. The name and qualifications of each technician proposed to perform fusion of pipe joints (including sidewall saddle fusion and electro fusion).
- C. Shop Drawings including piping layouts and schedules shall include dimensioning, fittings, types and locations of valves and appurtenances, joint details, methods and location of supports, anchorage, gasket material, grade of material and all other pertinent technical information for all items to be furnished.
- D. Pipe manufacturer and Fusion services provider shall include the following:

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Fusible High Density Polyethylene (HDPE) Pipe

Pump Station No. 26 Improvements

1. Minimum Bending Radius
 2. Maximum Safe Pull Force
- E. Submit certification that the stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacturing of the pipe for this contract in accordance with ASTM D2837.
- F. Prior to each shipment, submit certified test reports that the pipe and fittings for this contract were manufactured and tested in accordance with the ASTM and AWWA Standards specified herein.
- G. After pipe installation, the following AS-RECORDED DATA is required from the contractor and/or fusion provider to the OWNER upon request:
1. Surveyed point and vertical elevation of each butt fused joint, electrofusion coupling, and saddle.
 2. Approved datalogger device reports
 3. Pipe Size and Thickness
 4. Machine Size
 5. Fusion Technician Identification
 6. Job Identification
 7. Fusion Joint Number
 8. Fusion, Heating, and Drag Pressure Settings
 9. Heat Plate Temperature
 10. Time Stamp
 11. Heating and Cool Down Time of Fusion
 12. Ambient Temperature

1.4 QUALITY ASSURANCE

- A. A representative of the pipe supplier shall witness and inspect the fusion of the first 20 joints installed by each fusion technician.
- B. All HDPE pipe to be installed under this Contract may be inspected at the factory for compliance with this Section by an independent testing laboratory provided by the OWNER. The manufacturer's cooperation shall be required in these inspections. The cost of these plant inspections of all pipe approved for this Contract will be borne by the OWNER.
- C. Inspection of the pipe may also be made by the ENGINEER or other representatives of the OWNER after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the specified requirements, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the jobsite.

1.5 WARRANTY

- A. The pipe and pipe installation via fusion services shall be warranted for a minimum of one year per the pipe supplier's standard terms.

PART 2 - PRODUCTS

2.1 GENERAL

- A. High Density Polyethylene (HDPE) Pipe Materials
1. All material shall be manufactured from a PE 4710 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material shall meet the specifications of ASTM D 3350 with a minimum cell classification of 445474C. HDPE pipe and fittings shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.
 2. Pipe carrying fluids with disinfection residuals such as potable water, recycled water, or purified water, shall include Chlorine Class III Oxidative Resistance as defined by PPI TN-44, ASTM F2263, and ASTM D3350.
 3. Pipe shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification as noted above. The polyethylene compound shall be suitably protected against degradation by ultraviolet light by means of carbon black of not less than 2 percent. The manufacture of the HDPE resin shall certify the cell classification indicated.
 4. Pipe sizes 3" and large shall have a manufacturing standard of ASTM F 714, while pipe smaller than 3" shall be manufactured to the dimensional requirements listed in ASTM D 3035. Dimension Ratio (DR) and Outside Diameter (IPS/DIPS) shall be as specified on plans.
 5. Pipe shall meet AWWA C901 (1/2" to 3") or AWWA C906 (4" to 63"), and shall be listed as meeting NSF-61.
 6. Pipe shall be manufactured by an ISO 9001 certified manufacturer. The pipe manufacturer shall have an ongoing Quality Control program for incoming and outgoing materials and shall assure that the pipe will meet the material requirements of this specification. HDPE resins for manufacturing of pipe shall be checked for density, melt flow rate, and contamination. The facility shall have the necessary testing equipment to verify that pipe meets the AWWA and NSF standards. Pipe shall be checked for outside diameter, wall thickness, length, and surface finish on the inside and outside. The Manufacturer's production facilities shall be open for inspection by the OWNER or ENGINEER.
 7. HDPE pipe is a flexible conduit and shall be designed to transfer imposed loads to the surrounding embedment medium. The pipe and fittings shall be homogeneous throughout and free of all defects including but not limited to, holes, foreign inclusions, voids, indentations, delaminations, cracks, bubbles and pinholes, which due to their nature, degree, or extent, detrimentally affect the strength and serviceability of the pipe. Any pipe or fittings with such defects which, in the judgement of the ENGINEER, will affect the strength and serviceability shall be repaired or rejected.
 8. Pipe shall be furnished in standard laying lengths not exceeding 50-ft.

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Fusible High Density Polyethylene (HDPE) Pipe

Pump Station No. 26 Improvements

B. HDPE FITTINGS

1. All polyethylene pipe fittings shall be HDPE PE4710 and meet the requirements of ASTM F714. Fittings shall be made of HDPE material with a minimum material designation code of PE4710 and with a minimum Cell Classification 445474C. Fittings shall have a minimum pressure rating equal to or greater than the pipe to which they are joined unless otherwise specified on the plans or accepted by ENGINEER. All fittings shall meet the requirements of AWWA C901 or C906
2. HDPE fittings carrying fluids with disinfection residuals such as potable water, recycled water, or purified water, shall include Chlorine Class III Oxidative Resistance as defined by PPI TN-44, ASTM F2263, and ASTM D3350.
3. HDPE fittings shall be joined using fully self-restrained butt fusion and electrofusion. Adhesives, solvents, cements, socket fittings, push-on-joints, grooved joints, and mechanical compression joints shall not be permitted. All joints shall be made in strict compliance with the manufacturer's recommendations and ASTM 2657.
4. Butt Fusion Fittings
 - a. Molded fittings shall comply with the requirements of ASTM D 3261.
5. Electrofusion HDPE Fittings
 - a. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. For potable water systems, all electrofusion fittings shall have AWWA approval.
6. Elbow fittings shall be long radius and may not exceed 90 degrees.

C. MECHANICAL FITTINGS

1. The use of self-restrained and unrestrained mechanical couplings are not permitted.

D. SADDLE SIDEWALL FUSION CONNECTION

1. Mechanical saddle connections to HDPE carrier pipe are not permitted
2. Electrofusion saddles are not permitted.
3. Saddle connections to host HDPE pipe shall be made via saddle sidewall fusion.

E. PIPE IDENTIFICATION

1. At 5-ft intervals along the pipe, the pipe shall be marked with the name of the manufacturer, size and class (pressure and DR), and manufacturing reference to ASTM F714.
2. All pipe shall be color coded for the intended service. The color coding shall be permanently coextruded stripes on the pipe outside surface as part of the pipe's manufacturing process. Painting HDPE pipe to accomplish color coding is not permitted. Color coding shall be as follows:
 - a. Communications or Power - orange
 - b. Sewer - green
 - c. Potable Water - blue
 - d. Non Potable Water, Recycled Water, or Purified Water - purple.

F. CONNECTION HARDWARE

1. Bolts, nuts, and washers for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.
- G. All ductile iron mechanical and flanged fittings shall be lined and coated with Tnemec 431 or Protecto 401 and as per manufacturer recommendation.

2.2 CONNECTIONS TO SANITARY SEWER MANHOLES AND STRUCTURES

- A. HDPE pipe shall be connected to manholes and other structures to provide a leakfree, properly graded flow into or out of the manhole or structure shall be as indicated in the Contract Documents.

PART 3 - EXECUTION

3.1 GENERAL

- A. All HDPE pipe and fittings shall be cut, joined, and installed in accordance with the manufacturer's recommendations. Joining, laying, and pulling of polyethylene pipe shall be accomplished by personnel experienced in working with polyethylene pipe systems.

3.2 TRANSPORTATION, UNLOADING, HANDLING, AND STORAGE

- A. The manufacturer shall package product in a manner designed to deliver the pipe and fittings to the project neatly, intact and without physical damage. During transportation each pipe shall rest on suitable pads, strips skids, or blocks securely wedged or tied in place.
- B. During loading, transportation, and unloading, every precaution shall be taken to prevent damage to the pipe. The handling of the pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Cuts or gouges that reduce the wall thickness by more than 10% are not acceptable and must be cut out and discarded.
- C. Handle the pipe in accordance with the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 2. All pipe and accessories shall be loaded and unloaded by lifting with hoists or by skidding in order to avoid shock or damage. Under no circumstances shall materials be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or interior of the pipe. All pipe and fittings shall be subjected to visual inspection at time of delivery and before they are lowered into the trench to be laid.

- D. Materials, if stored, shall be kept safe from damage and shall not be stacked higher than the limits recommended by the manufacturer. The bottom tiers shall be kept off the ground on timbers, rails, or concrete. Pipe shall not be stored close to heat sources.
- E. The interior of the pipe as well as all sealing surfaces of mating components (i.e. flange faces) shall be kept free from dirt or foreign matter at all times. The open ends of all sections of joined and/or installed pipe (not in service) shall be plugged to prevent insects, animals, or foreign material from entering the pipe line or pipe section. The practice of stuffing cloth or paper in the open ends of the pipe will not be permitted. Use waterproof nightcaps to prevent the entrance of any type of natural precipitation into the carrier or containment pipe and will be secured to the pipe in such a manner that the wind cannot blow them loose. Where possible, the pipe shall be raised and supported at a suitable distance from the open end such that the open end will be below the level of the pipe at the point of support.
- F. All pipe and fittings shall be subjected to visual inspection at time of delivery and before they are installed or lowered into the trench to be laid. Defective, damaged, or unsound pipe will be rejected. Cuts, punctures, or gouges that penetrate or reduce the wall thickness by 10% or more are not acceptable and must be removed and discarded.

3.3 INSTALLATION

- A. Cutting pipe shall be done per the manufacturer's recommendations. No machine oil shall be imparted upon the cut surface. The cut shall leave a smooth cut at right angles to the axis of the pipe.
- B. HDPE pipe shall be pulled into place. Prior to pulling the pipeline, Contractor shall place rollers or other approved devices beneath the pipe to avoid unnecessary damage and to reduce pipe drag. Dragging the pipe on concrete or asphaltic pavement is not permitted.
- C. Per ASTM F1804, the Contractor shall determine and document the maximum proposed pull-in length and pull-in force for the pressure class and pipe diameter to be pulled. Pull-in lengths may not exceed the maximum lengths for the class and diameter pipe.
- D. Contractor shall install HDPE for horizontal directional drilling (HDD) trenchless construction pursuant to ASTM F1962, PPI TR-46, and PPI PE Handbook at a minimum.
- E. Contractor shall slipline HDPE inside a host pipe pursuant to ASTM F585 and PPI PE Handbook. A minimum 24-hour pipe relaxation period is required for sliplining operations prior to final connection to and installation of fittings.
- F. Fusible HDPE PE4710 pipelines maximum radius of curvature shall not exceed 100 x pipe outer diameter as installed. A maximum of 75% of manufacturer-permitted

minimum long-term cold bending radii shall only be permitted by the ENGINEER in special circumstances where fittings or flanges are not present or as designed by ENGINEER.

3.4 FUSION AND JOINING

A. GENERAL

1. All HDPE pipe segments shall be joined via butt fusion or electrofusion couplings. Smaller diameter connections to the HDPE pipe shall be made via sidewall fusion saddles or a butt fused reducing tee. The Contractor shall make every effort to reduce the use of electrofusion couplings as much as feasible and limit it to connecting separate testing runs, different classes of pipes, or repaired sections. Alternatives shall not be permitted for intermediate joints connecting two HDPE pipe segments unless permitted by ENGINEER on an individual basis.

B. BUTT FUSION REQUIREMENTS

1. The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42. A record or certificate of training for the fusion operator must be provided that documents training to the fundamentals of ASTM F 2620.
2. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.
3. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:
 - a. HEAT PLATE - Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.
 - b. CARRIAGE - Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
 - c. GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - d. DATA LOGGING DEVICE - An approved datalogging device with the current version of the pipe supplier's recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
4. Other equipment specifically required for the fusion process shall include the following:
 - a. Pipe rollers shall be used for support of pipe to either side of the machine.
 - b. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement,

extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.

- c. An infrared (IR) pyrometer for checking pipe and heat plate temperatures shall be used.
- d. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
- e. Facing blades specifically designed for cutting HDPE pipe shall be used.

C. ELECTROFUSION REQUIREMENTS

- 1. Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F 1290, PPI TN 34, and PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe. The process of electrofusion requires an electric source, commonly called an electrofusion processor that has wire leads and a method to read electronically (by laser) or otherwise input the barcode of the fitting. The electrofusion processor must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.

D. SADDLE SIDEWALL FUSION CONNECTION

- 1. Saddle sidewall fusion shall be done in accordance with ASTM F 2620 or TR-41 or the fitting manufacturer's recommendations and PPI TR-41.
- 2. Saddle sidewall fusion joints shall be made by qualified fusion technicians. Qualification of the fusion technician shall be demonstrated by evidence of fusion training within the past year on the equipment to be utilized on this project.
- 3. Saddle sidewall fusion is used to fuse branch saddles, tapping tees, and other HDPE constructs onto the wall of the main pipe (ASTM F905).

E. FUSION OPERATORS

- 1. The employer of the fusion machine operator is responsible for the fusion joint quality of the fusion weld made by that individual. The employer is responsible for documenting all training and qualification records for that individual, including compliance to any code requirements for fusion/bonder operators.
- 2. All HDPE fusion equipment operators shall be qualified to the procedure used to perform pipe joining. Fusion equipment operators shall have current, formal training on all fusion equipment employed on the project. Training received more than two years prior to operation with no evidence of activity within the past 6 months shall not be considered current.
- 3. Fusion operators must have a current fusion training certificate McElroy Fusion Training Certificate for the equipment to be used on the project
- 4. When the fusion machine operator is employed by the HDPE pipe and fusion machine supplier, the supplier shall maintain an ISO 9001 Certified Quality Management System

F. FUSION DATA RECORDING

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Fusible High Density Polyethylene (HDPE) Pipe

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1. McElroy DataLogger or equivalent fusion data recorder shall be used to record all fusion welds on hydraulically operated fusion machines. The device shall be capable of meeting the requirements of ASTM F 3124, "Standard Practice for Data Recording the Procedure used to Produce Heat Butt Fusion Joints in Plastic Piping Systems or Fittings". The device, or combination of devices, shall record the following variables of each fused joint:
 - a. Heater surface temperature- immediately before inserting the heater plate, measure with a pyrometer and manually enter into the weld record.
 - b. Gauge pressure during the initial heat cycle
 - c. Gauge pressure and elapsed time during the heat-soak cycle
 - d. Heater removal (dwell) time v. Gauge pressure and elapsed time during the fusing/cool cycle
 - e. Drag pressure
 - f. Pipe diameter and wall thickness
 - g. Type of HDPE material (Specification and Classification) and manufacturer
 - h. Fusion Machine Identification
2. The device shall record the operator name and a unique operator ID number, along with the date and time of each weld.
3. Records showing the device is up to date on all required calibration should be available for presentation when requested.
4. All fusion welds should be traceable to the report (via operator and weld ID) with an indentation weld stamp or by permanent paint marker/pen next to fusion weld.

G. INSTALLATION AND FUSION WEATHER CONDITIONS

1. The CONTRACTOR shall note that HDPE expands/contracts 1" for every 100-ft of pipe for every 10°F change. CONTRACTOR shall consider and make provisions for thermal expansion of HDPE during placement so as undue stresses do not develop at connection points to fittings from compression (cold pipe heating up) or tension (hot pipe cooling down). In addition, the CONTRACTOR shall make every effort to reduce snaking of the pipeline from thermal expansion prior to placement of fill material to the satisfaction of the ENGINEER. The CONTRACTOR shall base final lengths and make final connections to fittings when the outer temperature of the HDPE pipe is within 10°F of the monthly annual average temperature or within 10°F of the temperature of groundwater or if the CONTRACTOR has mitigated thermal expansion effects to the satisfaction of the ENGINEER.
2. Considerations shall be given to and provisions made to mitigate adverse weather conditions, such as temperatures below freezing, precipitation, heavy fog and mist, or wind.

3.5 TESTING

A. Butt Fusion Examinations and Testing

1. Visual: For pipe sections, examine the full exterior circumference for bead uniformity before cutting. After cutting the pipe section, review the interior bead. All beads should have visually acceptable bead formation as shown in Fig 4 and Appendix X2 of ASTM F 2620. In addition, the following characteristics are expected:
 - a. There shall be no evidence of cracks or incomplete fusing

- b. There shall be no evidence of captured objects (e.g., pipe shavings, facer ribbons) between bonded surfaces.
 - c. Variations in upset bead heights on opposite sides of the cleavage and around the circumference of fused pipe joints are acceptable
 - d. The apex of the cleavage between the upset beads of the fused joint shall remain above the base material surface
 - e. Fused joints shall not display visible angular misalignment, and outside diameter mismatch shall be less than 10% of the nominal wall thickness
 - f. Fusion data record review that meet criteria of section 3.04.D.1 can be used as additional verification of visual indicators.
2. Fusion Data Record Review
- a. The fusion date record for each fused joint shall be compared to the approved fusion procedure. The reviewer shall verify the following:
 - 1) That all data required herein was recorded
 - 2) Interfacial pressure was within the acceptable range
 - 3) Heater surface temperature was within the acceptable range
 - 4) Butt fusion pressure applied during the fusing/cool cycle was correctly calculated to include drag pressure, fell within the acceptable range for the applicable size and agrees with the recorded hydraulic fusing pressure.
 - 5) Butt fusing pressure was reduced to a value less than or equal to drag pressure at the beginning of the heat soak cycle.
 - 6) Fusing machine was opened at the end of the heat soak cycle, the heater was removed, and the end were brought together at the fusion pressure with the acceptable time range
 - 7) Cooling time at butt fusing pressure met the minimum time specified
 - b. If the recorded data is outside the limits of the acceptable range, the joint is unacceptable, and must be removed and replaced.
 - c. Frequency. Records for test fusion joints should be reviewed immediately after the joint is completed. Fusion joints for jobsite fusions should be reviewed daily or before being covered with backfill.
3. Mechanical Test
- a. Contractor shall mechanically test the first fusion of each operator and each machine used on the project. Installation shall not continue until a fusion test has passed the test. Additional mechanical test are not required as long as the fusion are reviewed with the frequency specified herein.
 - b. Testing of fusion joints with no fusion data record review shall be at a frequency specified by the Owner or Engineer.
 - c. The fusion shall be allowed to cool completely, then fusion test straps shall be cut out.
 - d. All samples shall be labeled with operator information. Testing must be done at 73 degrees F plus or minus 5 degrees. The test temperature and sample size are critical to testing. Testing performed at cold or elevated temperatures may not give similar results to tests performed at ambient temperatures.
 - e. Each pipe sample weld shall be subjected to testing at two locations 180 degrees apart from each other in the joint weld. All specimens shall be tested by one of the following methods:
 - 1) Reverse Bend Test are allowed for pipe sizes 4" IPS or smaller. The

specimens shall be prepared and tested in accordance with ASTM F 2620, Appendix X4.

- 2) Guided Side Bend Test are allowed for all wall thicknesses of 1" or greater. The specimens shall be removed and tested in accordance with ASTM F 3183.
3. Hydrostatic Burst Test is allowed for pipe sizes 2"-24". The specimen length should measure 6 times pipe diameter with the butt fusion joint in the center of the specimen. The specimen should be tested in a tank filled with water, and testing conditions monitored and recorded with computerized equipment. The specimen will be tested at 4 times pipe rated pressure for 5 minutes with no failure of joint allowed.
- f. Results of any mechanical test should be documented. Information on the weld and operator should be transferred from the sample to the testing record.

3.6 PIGGING, FLUSHING, CLEANING, AND DISINFECTING

- A. All mains shall be pigged, cleaned and flushed to remove all dirt, sand, debris, cuttings, and other foreign matter. The Contractor shall be responsible for developing a pigging and flushing plan to be submitted to the Engineer for approval prior to pigging and flushing.
- B. Disinfection:
 1. Cleaning and disinfecting of potable water systems shall be in accordance with AWWA C651 and AWWA M55 Chapter 10, and PPI Handbook of Polyethylene Pipe Chapter 2 (2nd Edition).
 2. The liquid disinfection chemical solution should be limited to less than 12% active chlorine. The time-duration of the disinfection should not exceed 24 hours. Chlorine tablets or powders are not permitted.
 3. Upon completion, the system should be thoroughly flushed with fresh water, and retested to verify the disinfectant chlorine level has been reduced to potable drinking water concentrations in all service water tubing and branch lateral pipes

+ + END OF SECTION + +

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SECTION 40 05 41

PIPING SYSTEM DATA SHEET – VITRIFIED CLAY GRAVITY SEWER PIPE (VCP)

ITEM	DESCRIPTION
Pipe	Conform to the requirements of ASTM C700 (4 to 42-inch) with unglazed extra strength vitrified clay pipe (VCP). The crushing strength (3-edge bearing method) shall be as set forth in the National Clay Pipe Institute (NCPI) Specification ER 4-67 for VCP.
Fittings	Conform to the requirements of ASTM C700 (4 to 42-inch) with watertight preformed joints used with VCP.
Joints	Two part polyurethane mixture joint with bell and spigot conforming to ASTM C425. Joints shall have resilient properties.
Gaskets	Conform to the requirements of ASTM C700.
Joint Lubricant	Vegetable based soap lubricant and as per Manufacturer's standard.

++ END OF SECTION ++

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Piping System Data Sheet – Vitrified Clay Gravity Sewer Pipe (VCP)

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Piping System Data Sheet – Vitrified Clay Gravity Sewer Pipe (VCP)

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SECTION 40 05 58

FABRICATED SLIDE GATES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: This Section describes the design, fabrication, and supply of fabricated stainless steel slide gates, including wall thimbles (if applicable), pipe adapters (if applicable), discs, guide frames, stem guides, seats, operating stem, operator, and anchorage. Gate supplier shall provide all materials, equipment, and accessories necessary to furnish and install slide gates as described herein and as shown on Drawings.

1.2 QUALITY ASSURANCE

- A. Reference Standards: Comply with requirements and recommendations of the following references, except as otherwise specified:
1. AWWA C561-12, Fabricated Stainless Steel Slide Gates
 2. NSF/ANSI 61, Drinking Water System Components Health Effects
 3. ASTM A 276, Specification for Stainless Steel Bars and Shapes
 4. American Gear Manufacturers Association (AGMA)
 5. Anti-Friction Bearing Manufacturers Association (ABMA)
- B. Manufacturer's Qualifications: Gate manufacturer shall have a minimum of five years of experience of producing substantially similar equipment and shall be able to show evidence of at least ten installations in satisfactory operation for at least five years.
- C. Unit Responsibility: All equipment specified herein shall be coordinated and provided by a single gate manufacturer. Manufacturer assumes full responsibility for coordination of all components.
- D. Source Quality Control:
1. Shop Tests:
 - a. Test each slide gate fully assembled for proper seating, operation, and for leakage.
 - b. Fully open and close gate disc in its guide system to ensure that it operates freely.
- E. Warranty: Provide a 1-year warranty on all equipment from date of start-up. Warranty shall cover defects in workmanship, design, and materials. If any component should fail during the warranty period, it shall be corrected and the unit restored to service at no expense to the OWNER.

1.3 SUBMITTALS

- A. Shop Drawings:

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1. Detailed drawings showing component and assembly dimensions, location of mechanical connections, weights of all equipment, installation details, and accessory details.
 2. Drawings, templates and directions for installation of anchor bolts and stem couplings.
- B. Product Data:
1. Descriptive literature, specifications, and engineering data.
 2. Materials of construction for all components and accessories.
 3. Force calculations for gate operator and stem, including seismic loading calculations.
 4. Shipping, storage, protection and handling instructions.
 5. Installation directions.
 6. Operation and Maintenance Manual.
- C. Shop Test Results:
1. Submit results of the required shop tests.
- D. Field Test Results:
1. Submit a written report giving the results of the field tests required.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Gate manufacturer shall provide any special unloading, storage and handling instructions.

PART 2 - PRODUCTS

2.1 PRODUCT AND MANUFACTURER:

- A. Golden Harvest, GH-46NRS
- B. Or equal

2.2 GOVERNING STANDARD

- A. Except as modified or supplemented herein, fabricated slide gates and their appurtenances shall conform to the applicable requirements of AWWA C561.

2.3 SERVICE CONDITIONS AND PERFORMANCE

- A. Gate Schedule:

Tag	G-01
Location	Wier Manhole
Service	Raw Wastewater
Operation	Open-Close
Size (W x H)	Coordinate with Hybrid PVC Manhole Manufacturer for 12" VCP inlet pipe

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Tag	G-01
Self-Contained	No
Seating Head	~14 feet
Unseating Head	12 inches
Inv. Elevation	194
Embedded Inv.	
Operating Floor Elevation	
Mounting	Wall
Closure	J-Bulb Seal
Top Seal	No
Actuator	Nut
Gate Opening Direction	Upward
Stem Movement	Non-Rising
Stem Cover Type	None
Limit Switches	No

B. Performance:

1. Closed leakage shall not exceed 0.05 gallons per minute (GPM) per foot of gate periphery under seating or unseating head conditions.

2.4 COMPONENTS

A. General:

1. Slide gates and all appurtenances shall be provided by one gate manufacturer.
2. All components of the gates shall have a minimum thickness of ¼-inch.
3. Gates shall be either self-contained or non self-contained of the rising stem or non-rising configuration as indicated on the gate schedule.

B. Frame:

1. Frame Material: ASTM A-276 Type 316L SS.
2. Designed for maximum rigidity as column to take the thrust developed during the slide gate operation under maximum head.
3. Bolt-together guide frames are allowed.
4. Guide frame corners shall be factory welded.
5. The guides shall extend above or beneath the opening a sufficient amount to support the disc in the fully open or closed position.
6. The frame configuration shall be of the flush-bottom type and shall allow the replacement of the top and side seals without removing the gate frame from the wall.
7. Provide bolt holes in upper portion of sides of frame for connection to supporting angle.

C. Disc:

1. Material: ASTM A-240 Type 316L SS.
2. Disc shall be reinforced as necessary to limit deflection under the design operating head to less than 1/360 of the gate span.
3. Reinforcing members shall be 316L SS angle or channels welded to the plate.

D. Guides and Seals:

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1. The guides shall be provided with frame mounted ASTM D-4020 ultra high molecular weight polyethylene (UHMWPE) seals that contact both sides of the slide disc and shall be of such length as to retain and support two thirds of the vertical height of the slide in the fully open position.
 2. Side and top seals shall be neoprene ASTM D-2000 or ASTM D-4020 UHMWPE, and shall be mechanical and fully adjustable in the field, or shall be self-adjusting type with a continuous compression cord.
 3. Lower seals shall be flush bottom resilient neoprene, mounted to the bottom of the disc or to the frame.
- E. Yoke and Pedestal (For Self-Contained Gates):
1. Self-contained gates shall be provided with a yoke to support the operating bench stand. The yoke shall be formed by two structural members welded at the top of the guides to provide a one piece rigid frame. The maximum deflection of the yoke shall be 1/360 of the gate's span.
- F. Pedestal (For Non Self-Contained Gates):
1. Non-self contained gates shall be provided with pedestal mounted lifts. Pedestal shall be stainless steel and provided with shop coating.
- G. Stem:
1. Material: ASTM A-276 Type 316L SS.
 2. Diameter shall be 1-1/2 inch minimum, and be sized as necessary to withstand two times the compressive force when 40 pounds of force are applied at the operator.
 3. Stem shall be supported such that the L/r ratio for unsupported lengths does not exceed 200.
 4. Threaded portions of the stem shall be full-depth ACME type cold rolled threads with a maximum surface roughness of 0.000016 inches. Machine cut threads will not be accepted.
 5. Join stems of more than one section by stainless steel or silicon bronze couplings threaded and keyed to the stems. All threaded and keyed couplings of the same size shall be interchangeable.
 6. Provide rising stems with an adjustable stop collar on the stem on all gates with manual operators.
 7. Connect the stem to the disc by means of a bolted connection with a minimum of two bolts.
- H. Stem Guides:
1. Provide Type 316 stainless steel stem guides when necessary to ensure that the maximum L/R ratio for the unsupported part of the stem is 200 or less per AWWA C561 standards. Maximum stem spacing allowed is 10 feet.
 2. Guides shall consist of collar with UHMWPE bushings, and bracket with slotted holes for adjustment in two directions.
 3. Inside diameter of the collar and bushings shall be slightly larger than the gate stem to prevent binding.
- I. Manual Actuator:
1. Crank Type:
 - a. Each crank-operated manual actuator shall be provided with a removable crank having a revolving grip.

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- b. Crank handles shall have an overall length of not less than 6 inches and not more than 15 inches.
 - c. Crank handles shall be made of corrosion resistant material.
 - d. Maximum effort required to open the gate shall not be more than 40 pounds, and shall be able to withstand, without damage, an effort of 80 pounds.
 - e. Crank shall have fully enclosed single or double gear reducer as required for lifting capacity.
 - 1) Gears shall be machine cut.
 - 2) Arrow marked "open" shall be cast on the housing to indicate direction of rotation to open the gate.
 - 3) All bearings and gears shall be totally enclosed in a cast steel weather tight housing.
 - 4) Provide anti-friction bearings to properly support both opening and closing thrusts. Ball or roller bearings shall be used to support the stainless steel pinion shaft on crank-operated gearboxes.
 - 5) Lubrication fitting shall be provided in gear housing to permit lubrication of all gears and bearings.
- 2. Handwheel Type:
 - a. Direct Drive without reduction gearing
 - 1) Maximum handwheel diameter shall be 30 inches.
- 3. Furnish threaded bronze lift nut to engage threaded portion of stem.
 - a. Lift nut shall be flanged and supported on roller bearings.
 - b. Lift nut shall be capable of thrust developed during opening and closing of the gate without damage.
 - c. Provide adjustable bronze stop collar for OPEN and CLOSED position limitation.
 - d. Distance from center of radius of crank arm or center of handwheel to ground shall be less than 48 inches.
- J. Fasteners and Anchor Bolts:
 - 1. All fasteners necessary for installation and operation shall be furnished by the gate manufacturer.
 - 2. Fasteners shall be Type 316 stainless steel
 - 3. Fasteners shall be 1/2-inch diameter minimum, and adequately sized to withstand all operational stresses.
 - 4. Provide Type 316 stainless steel anchor bolts as required for stem guides, floorstands, and all equipment or appurtenances which must be secured to concrete walls or floors. Anchor bolts shall be of ample size and strength for the purpose intended, and shall be furnished by the gate manufacturer. Anchor bolts shall have a minimum diameter of 1/2-inch. Anchor bolts shall conform to the requirements of Specification Section 05 05 06, Anchors, Inserts, and Epoxy Dowels.
- K. Spare Parts: Provide the following spare parts:
 - 1. Bronze lift nuts:
 - a. One for each stem diameter provided
 - 2. Special tools required for servicing operator
- L. Identification:

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1. Identify each slide gate with gate manufacturer's nameplate stamped with the approved designation as shown in the Gate Schedule. Manufacturer's nameplate shall be permanently fastened to the gate at the factory.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be as shown on the Drawings and in accordance with gate manufacturer's written instructions.

3.2 FIELD QUALITY CONTROL

- A. Conduct functional and performance tests under approved simulated operating conditions.
- B. Functional Tests:
 1. Each slide gate with appurtenances shall be field tested. Tests shall demonstrate to ENGINEER that each part and all parts together function in the manner intended. All necessary testing equipment and manpower shall be provided by CONTRACTOR at his expense. OWNER will furnish all power, and incidental material and labor required for the tests.
- C. Leakage Tests:
 1. Maximum permissible leakage shall be in accordance with the requirements of Sub-Section 2.2, above. Excess leakage shall be reduced to meet specified requirements by adjusting the gate, or replacement will be required.
- D. In the event that the gate manufacturer is unable to demonstrate to ENGINEER that his equipment meets the requirements of the tests, the deficient equipment will be rejected, and adjustments and/or modifications shall be made. Retest the equipment as often as necessary to meet the specified requirements. No separate payments shall be made for adjustments and/or modifications.

3.3 MANUFACTURER'S FIELD SERVICES:

1. Minimum 2 trips for Manufacturer's Field Services:
 - a. 1 person-day for installation assistance
 - b. 1 person-day for inspection, testing, alignment, and training

++ END OF SECTION ++

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Fabricated Slide Gate

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SECTION 40 66 33
FIBER OPTIC CABLING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. The minimum requirements for product quality and performance, including preparation and installation of fiber optic cabling.

1.2 SUMMARY

- A. All fiber optic, instrumentation and control equipment and materials, including installation and testing, shall conform to the following Codes and Standards, where applicable:
1. ANSI/TIA/EIA-568-B and B.3, Commercial Building Telecommunications Cabling Standards
 2. ISO/IEC 11801, Generic Cabling for Customer Premises
 3. IEEE 802.3, Ethernet, Fast Ethernet, Gigabit Ethernet, 10 Gigabit Ethernet
 4. ITU-T G.652.D
 5. ATM Forum, User Network Interface (UNI)
 6. ANSI X3T9.5, FDDI
 7. EIA/TIA 492CAAB and ITU G.652.C
 8. EIA-455-41, Crush Resistance Standards
 9. EIA-455-25, Impact Resistance Standards
 10. EIA-455-104, Flexure Standards
 11. EIA/TIA-598, Color Coding of Fiber Optic Cables
 12. NFPA - National Fire Protection Agency
 13. OSHA - Occupational Safety and Health Act Standards
 14. UL - Underwriters Laboratories, Inc.
- B. The revisions of these Codes and Standards in effect on the date of issuance of the Contract Documents shall apply. Codes and Standards referenced shall be considered minimum acceptable work. In instances where two or more Codes are at variance, the most restrictive requirements shall apply.

1.3 SUBMITTALS

- A. Fiber Optic Submittal:
1. All shop drawings shall be submitted on 11 x 17-inch or 24 x 36-inch sheets at one time. Drawings prepared on 8 1/2 x 11-inch sheets will not be accepted. Shop drawings shall be drawn to scale or completely dimensioned and shall include all information required to completely describe the contents. Drawings shall show front views, plan views, elementary wiring diagrams and numbered connection points.
 2. Product Submittals:
 - a. Product submittals shall be submitted within 20 work days after the Notice to Proceed. Any products that are purchased, fabricated or shipped before the product submittals have been favorably reviewed by the Engineer shall be done solely at the Contractor's risk.
 - b. Furnish to the Engineer detailed specifications of the material, shop drawings including product dimensions, catalog cuts, fiber optic diagrams, wiring diagrams, bill of material, and other descriptive material as required to fully describe the equipment being furnished under these Specifications Sections.
 - c. Furnish 10 one-meter lengths of the submitted fiber optic cable with the Product Submittal.

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3. Fiber Optic Routing Diagram:
 - a. The Fiber Optic Routing Diagram shall show all connections, splices and fiber optic devices. All cables shall be numbered consecutively on the diagrams. Cable identification shall be unique. "Typical" diagrams are not acceptable.
 - b. The Fiber Optic Routing Diagram shall show the connections and physical relationship of fiber optic devices and apparatus in pairs or groups by functionality or use within each location. Identify each fiber by its size and color on the Fiber Optic Routing Diagrams according to the fiber numbers shown on the Fiber Optic Routing Diagrams. Fiber identification on adapter plates shall be as shown on the Fiber Optic Routing Diagrams.
 4. Cable Pulling Calculations:
 - a. Submit Pulling Calculations including distance, lubrication amounts, maximum and expected pulling tensions per segment(s). Pulling Calculations shall be submitted and approved prior to cable installations.
 - b. The Contractor may perform calculations on the worst case or typical segment(s) as an overall guideline. These may be submitted in place of each segment if desired.
 - c. Submit a Pulling Plan that describes how the fiber optic cables will be installed. This plan shall include sequence of installation steps, such as those described in Part 3, order of installation and quantity of cables, including cable name and cable number. The approved plan is required prior to cable installation. Note: Interduct cleaning and proofing may occur in advance of this plan's approval.
 5. Fiber Optic Link Loss Calculations: Submit Fiber Optic Link Loss Calculations as described in this section prior to fiber link testing.
- B. Certificate
1. Submit certification of supplier qualifications as detailed below.
 2. Submit certification of installed qualifications as detailed below.
- C. Field Quality Control
1. Items listed under Part 3, 3.2 of this specification sections.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

2.2 FIBER OPTICS:

A. QUALITY

1. All products specified in these Specifications and shown on the Contract Drawings are intended to be of the highest quality. All equipment and materials shall be new and the products shall be from reputable suppliers with adequate experience in the manufacturing of these products. For uniformity, provide only one manufacturer for each type of product. Provide the manufacturer's latest product that conforms to these Specifications.
2. All equipment shall be designed for the service intended. The equipment shall be rugged and have ample strength to withstand all stresses that may occur during fabrication, transportation, erection, and continuous or intermittent operation.
3. All individual parts making up the product shall be adequately braced, anchored, and installed in a neat and workmanlike manner. All components and devices installed shall be standard items of industrial grade, unless otherwise noted in the Contract Documents, and shall be of sturdy and durable construction. Light duty, fragile, and competitive grade devices of doubtful durability shall not be used. Utility, as well as appearance and safety, shall be given consideration in the design of products.

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4. All products shall be Underwriters Laboratories (UL) listed, unless this requirement is waived by the Engineer or specified otherwise.
5. Products that are specified in these Specifications establish a standard of quality and do not prohibit the use of equal products of other manufacturers. However, all products furnished, whether specified or not, shall be favorably reviewed by the Engineer prior to purchase, delivery and installation.
6. When required by the Specifications or requested by the Engineer, the Contractor shall submit equipment or material samples for test or evaluation. The samples shall be furnished with information as to their source and prepared in such quantities and sizes as may be required for proper examination and testing, with all freight and charges prepaid by the Contractor. All samples shall be submitted before shipment of the equipment or material to the job site and in ample time to permit the making of proper tests, analyses, examinations, rejections, and resubmissions before incorporation into the work.
7. All fiber optic materials shall be new and free from defects. All fiber optic materials shall conform, where applicable, to the Standards listed in this Section, unless otherwise noted.

B. SUBSTITUTIONS

1. Substitution requests shall be submitted for review and approval prior to purchasing. Substitution submittals shall include, at minimum, the following:
 - a. Complete product specification including mechanical and electrical.
 - b. Name and contact information of manufacturer or supplier.
 - c. Trade or brand name.
 - d. Type, model, style, and/or catalog number.
2. The Contractor assumes full responsibility for including complete, correct data in the submittal and shall include complete diagrams and descriptive technical data sheets for the Engineer's determination of equality or suitability for any substitution. Only one such request may be submitted. The rejection of any substitution shall automatically require the Contractor to furnish the specified item without further discussion or delay.

C. NAMEPLATES

1. All fiber optic equipment and devices including all pull boxes shall be properly identified with a descriptive nameplate.
2. Pull Boxes and Vaults:
 - a. An industry standard 4 inch orange or yellow label marked "CAUTION FIBER OPTIC CABLE" in black font shall be attached to each fiber optic cable in each pull box.
 - b. Provide stainless steel nameplates with machine engraved or stamped letters. Size of letters shall be 1/2-inch high, minimum. Letters shall be machine engraved. All nameplates shall be screw mounted with stainless pan head machine screws tapped into the front of the pull box collar. Adhesive material shall not be used.
3. Devices: All devices shall be identified as to function and shall bear ZONE7 in the top line of the Nameplate.

D. SINGLE-MODE FIBER OPTIC CABLE

1. Manufacturers:
 - a. Corning Altos All-Dielectric cable.
 - b. Approved equal.
2. Description: Outdoor rated, single-mode, dual window dielectric, single jacketed, water blocking yarn (or gel filled) fiber optic cable.
3. General Fiber Specifications:
 - a. The fiber optic cable described below shall be a dielectric, single jacketed, water blocking yarn or gel filled, with loose tube construction optimally protected from water infiltration. The cable shall contain multiple fibers and shall meet or exceed the specifications listed below.

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Fiber Optic Cabling and Equipment

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- b. All optical fibers must be usable and meet specifications.
 - c. Each optical fiber shall be proof tested by the fiber manufacturer at a minimum of 100 kpsi.
 - d. The attenuation specification shall be a maximum value for each cabled fiber at 23 +5 OC.
4. Single-Mode Cable Specifications:
- a. The fiber cable shall be single -mode with a low water peak cable that meets or exceeds EIA/TIA 492CAAB and ITU G.652.C.
 - b. The cable shall meet all requirements stated in the ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable, ANSI/ICEA S-87-640-1999.
 - c. The cable shall be an all-dielectric single jacket cable.
 - d. The cable shall have a glass-reinforced plastic (GRP) dielectric central member, loose tube and a single MDPE jacket. The jacket material shall have a low coefficient of friction that is sufficiently low enough to allow free movement of the fibers.
 - e. The fiber cable shall contain 6 as indicated on the drawings.
 - f. Individual fibers shall be color coded per EIA/TIA-598 standards.
 - g. The cable shall contain a buffer tube filling that is either a water-blocking yarn or homogenous hydrocarbon-based gel with anti-oxidant additives to prevent water intrusion and migration. If gel filled, the gel chemical shall be chemically and mechanically compatible with all cable components, non-nutritive to fungus, non-hygroscopic and electrically non-conductive. The filling shall be clean, free of dirt and foreign matter and shall be readily removable with conventional non-toxic solvents.
5. The cable shall have manufacturer rating of at least 600 pounds maximum tensile strength loading during installation (loading).
6. The cable shall have manufacturer rating of at least 130 pounds maximum tensile strength for unloaded application (in-service).
- E. Fiber Characteristics:
- 1. Each optical fiber shall consist of a germania-doped silica core surrounded by a concentric glass cladding. The fiber shall be a matched clad design.
 - 2. Single-mode fibers within the finished cable shall meet the following requirements:
 - a. Fiber Category: 50 μ m MM (OM3)
 - b. Central Element: Central Element
 - c. Fiber Count: 12
 - d. Core Diameter 8.3 μ m (nominal)
 - e. Proof/Tensile 100 kpsi, minimum
 - f. Attenuation:
 - 1) 3.0 dB/km / 1.0 dB/km
 - g. Label cables according to the plans and special specifications at the time of installation. Label cable at each end, at each pull box or junction box along the run. Cable label lettering shall be at least 0.25 inches in height and be black lettering with a white sleeve.
 - 3. Shipping:
 - a. Cables shall be shipped on a strongly constructed reel. The reel shall be designed to prevent damage to the cable during both shipment and cable installation.
 - b. Both cable ends shall be sealed to prevent moisture from entering or gel filling compound from escaping.
 - c. The outer cable shall be wrapped in protective wrap over the outer turns of the cable.
 - d. Both fiber optic cable ends shall be equipped with flexible pulling eyes.
 - e. Factory Testing shall be favorably completed and submitted to the Engineer prior to installing the fiber optic cable.
 - f. OTDR Testing of each cable shall accompany each reel.

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4. Testing: Factory Testing requirements are covered in Part 3.3 of this specification and covers both factory and field tests.

F. SINGLE-MODE LC CONNECTORS

1. Manufacturers:
 - a. Corning
 - b. Approved equal.
2. Fiber Optic connectors shall be a ceramic ferrule LC type for single-mode fiber. The connectors shall use an Anaerobic or Unicam connection to the fiber strands.
3. The connector shall comply with the following standards:
 - a. ANSI/TIA/EIA-568-B.3
 - b. TIA/EIA 604-2
4. The connectors shall comply to the following characteristics:
 - a. Fiber Category: 50 μ m MM (OM3)
 - b. Keyed: No
 - c. Product Type (FOJP): Field-Installable Connectors
 - d. Technology: Field Polish (anaerobic)
 - e. Boot Color: Aqua
 - f. Connector Ferrule Material: Ceramic
 - g. Connector Housing Color: Metal
 - h. Connector Housing Material: Metal
 - i. Design - Connector Type: LC Compatible
 - j. Temperature Cycling: = 0.3 dB IL, -40 to +75C, 21 cycles
 - k. Insertion Loss, Max_ (Connector): = 0.75 dB
 - l. Insertion Loss, Typical (Connector): = 0.2 dB
 - m. Reflectance (Connector): = -26 dB

G. FIBER OPTIC TERMINATION PANELS

1. Enclosure:
 - a. Manufacturer:
 - 1) Dinspace SNAP-12LC-SM or SNAP-12LC-MM.
 - 2) Approved equal.
2. The enclosure shall be installed and fully loaded with six 6-port (SM-ST) adapter plates.
3. The enclosure shall have top and bottom grommets as well as swing-out doors and latches.
4. The enclosure shall have strain-relief hardware and routing guides to help maintain minimum bend radius.
5. At locations shown on the plans, provide a fiber optic patch panel that shall have a connection port per fiber strand. If future requirements are stated, this capability shall be provided within this contract.
6. The patch panels shall be constructed of 16-gauge powder coated steel. The patch panel shall be modular and shall be capable of housing up to 12 LC fibers, either three 4-fiber cables or two 6-fiber cables.
7. Adapter Plates:
 - a. Manufacturers:
 - 1) Corning CCH-CP06-19T.
 - 2) Approved equal.
8. Adapter plates shall have 6 LC single-mode female to female connection points.
9. Provide space for up to four adapter plates.

H. SPLICES – FUSION

1. The field splices shall connect to fiber cables together for the purpose of a permanent splice in the cables.

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2. If these splices are necessary to support the pulling plan of the fibers, these splices and enclosures shall be provided and installed at no additional cost to the City.
3. Typical field splice loss shall be <0.05 dB for single-mode fibers. The maximum installed loss may not exceed 0.30 dB (per TIA-568) for any splice.
4. The splice enclosure shall meet the following requirements:
 - a. Manufacturer:
 - 1) Corning.
 - 2) Approved equal.
 - b. The cable splice enclosure shall be a complete kit including the following:
 - 1) Connection brackets.
 - c. Stand-off studs with locking nuts.
 - d. Ground clamps.
 - e. Outer shell (typically 2 halves).
 - f. Inner shell assembled in 2 parts.
 - g. End caps as required.
 - h. Inner shell supports for splice trays shall be provided.
 - i. Outer shell clamp assemblies.
 - j. Cable entry through the ends of the enclosure.
 - k. Insulation/sealing tape.
5. The splices shall be encased in an outdoor rated splice enclosure at a mutually agreed pull box location or as specified on the plans. All changes shall be marked on the field set of drawings at the time of construction.
6. The splice enclosure shall be air and water tight, corrosion resistant, rodent-proof and re-entenable.
7. The splice enclosure shall be manufacturer certified for below ground, junction (pull box) installation.
8. The splice case shall be no larger than 5.5 inches in diameter by 22.5 inches in length (nominal). The splice case shall be designed and equipped with the necessary mounting hardware to be attached to the side of the pull box, and to be suspended vertically with sufficient clearance at each end for acceptable cable bends.
9. All fusion splices shall be made with a fusion splicer. The unit shall be portable and capable of both AC and battery powered operation. The unit shall be capable of splicing the cable specified and supplied under this contract. The fusion splicer shall have the following characteristics:
 - a. Splice protection sleeve heater.
 - b. Battery charging unit.
 - c. Spare electrodes, fuses and lamps.
 - d. Power meter/ light source and carrying case(s).
10. Splice construction shall be per splice and cable manufacturer's guidelines. A copy of the procedure shall be submitted and approved prior to performance of fusion splicing.
11. Mechanical Splices are not permitted.
12. The accepted procedure shall be on site and with the fusion installer at the time of the splice. The Engineer shall be informed of when splicing operations will take place and may witness the splicing operations. Failure to strictly adhere to these specifications will result in the Contractor having to re-splice the connection at no additional cost to the City.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install telemetry system as shown on Drawings in accordance with manufacturer's written instruction.

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- B. Provide documentation verifying the data communication rate (actual throughput), signal strength and signal quality for each radio.

3.2 FIELD QUALITY CONTROL

- A. Conduct startup of equipment and perform operational checks.
- B. Maintain and submit an accurate daily or weekly log of all commissioning and startup functions.
 - 1. All commissioning/startup functions may be witnessed by the Engineer.
 - 2. All reports shall be signed and dated by the Contractor.
- C. Provide City with a written statement that equipment has been installed properly, started up, and is ready for operation by City's personnel.

3.3 FIBER INSTALLATION

- A. General
 - 1. All work in this Section shall conform to the Codes and Standards outlined herein.
 - 2. Employ personnel that are skilled and experienced in the installation and connection of all elements, equipment, devices, instruments, accessories, and assemblies. All installation labor shall be performed by qualified personnel who have had experience on similar projects. Provide experienced workmanship for all installations.
 - 3. All work shall be performed in a workmanlike manner by craftsmen skilled in the particular trade. Work shall be performed in accordance with the Plans, Specifications, manufacturers' recommendations, and the best practice of the trade. Completed work shall present a neat and finished appearance.
 - 4. The Contractor shall be responsible for, and shall correct by repair or replacement, at his sole expense, equipment that in the opinion of the Engineer, is malfunctioning caused by faulty mechanical or electrical assembly by the Contractor. Necessary tests to demonstrate that the electrical and mechanical operation of the equipment is satisfactory and meets the requirements of these Specifications shall be made by the Contractor at no additional cost to the City.
 - 5. Ensure that all equipment and materials fit properly in the installations and locations for which they are intended. Perform any required work to correct improper installations at no additional expense to the City.
 - 6. The Engineer reserves the right to halt any work that is found to be substandard or being installed by unqualified personnel.
 - 7. All cutting, trimming and notching shall be laid out in advance. Notching or cutting of any structural member or building surface shall not proceed without specific approval from the Engineer. Cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, paving, or other surfaces required for the installation, support, or anchorage of conduit, raceways, or other electrical materials and equipment shall be carefully conducted. The Contractor shall restore surfaces neatly to new condition using skilled craftsmen of the trades involved at no additional cost to the City.
 - 8. Maintain the premises free from accumulation of waste material or rubbish on a daily basis. Upon daily completion of work, remove materials, scraps, and debris from the premises and from the interior and exterior of all devices and equipment.
 - 9. Follow and adhere to all manufacturers' instructions for handling, receiving, installation, and commissioning requirements prior to energizing the equipment. After energizing the equipment, the Contractor shall provide qualified technicians or manufacturer's services for troubleshooting, re-programming, and calibration of equipment.
 - 10. Vacuum clean the interior of all motor control centers, panelboards, junction boxes and other enclosures supplied under this project containing fiber optic equipment to remove all dirt, metal chips, stripped insulation, etc., from the enclosure. This cleaning shall be done prior to

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energizing the device initially and a second time immediately prior to the final acceptance inspection.

11. After all other work has been accomplished, all work areas and all other fiber optic equipment shall be cleaned of all dust, dirt, grease, plaster, paint or other marks, by the Contractor.

B. Material and Equipment Installation:

1. Follow the manufacturer's installation recommendations unless otherwise indicated on the Contract Drawings. Keep a copy of the manufacturer's installation instructions available at the job site for review at all times.
2. All fiber optic equipment and appurtenance facilities that are separately mounted or anchored shall be so installed as to be in conformance to all requirements of the Uniform Building Code both for vertical and seismic loading.
3. Locate and install all equipment such that it can be readily accessible for operation and maintenance. The City reserves the right to require minor changes in location of panels or equipment, prior to roughing in, without incurring any additional costs or charges.
4. Equipment supports/anchors and restrainers shall meet the seismic requirements specified in these specifications.

C. Cable Installation:

1. The cable shall be installed by licensed electricians using industry standard practices for fiber optic installation. The following are minimal generic guidelines that must be observed and performed.
2. The interduct (installed by others) shall be blown down with compressed air for 5 minutes per segment (between pull boxes) or until the run is clear, whichever is longer.
3. All interduct segments shall be "proofed" by passing a rigid mandrel, 90 percent of the size for the interduct or conduit, (typically 1.8 inches for a 2-inch PVC interduct) through the interduct or conduit. The proofing shall be performed by pushing a mandrel through the interduct (or conduit) segment. The Contractor shall record the distance of any obstructions prior to fiber optic installation. These records shall be submitted prior to cable installation. No compensation for cable damage will be considered or approved unless the segment was proofed prior to installation. If an obstruction is detected and unable to be cleared, the Contractor shall perform a subsequent re-test under observation of the Engineer. The Contractor shall allow up to three of these observed re-tests under this contract. During the mandrel operations, a table of distances from pull box to pull box shall be noted to allow for cable installation planning.
4. Pulling Calculations including distance, lubrication amounts, maximum and expected pulling tensions per segment(s) shall be submitted and approved prior to cable installation.
5. Upon completion of the mandrel testing and collection of pull distances, the Contractor shall set up a meeting between the Contractor, Engineer and the City to review results and present the installation plan. At this meeting, any issues or traffic control shall be discussed and resolved.
6. Fiber Optic Cables shall be pulled in by hand from pull box to pull box. Cable lubricants shall be used in pulling the cables. The lubricant shall be approved by the fiber optic cable manufacturer. Typically on large runs, the fiber will be pulled from the center of the run.
7. At the pull box before and after any point of intersection (or spurs) of interduct runs and approximately every 1500 feet of the interduct run, the contractor shall coil 50 feet of additional cable at these pull boxes. All pull boxes shall have at least one loop to prevent micro or macro bends by exceeding minimal bend radiuses.
8. The cable shall be kept on the factory roll, clean and away from foot or vehicular traffic. Cones, blockades and personnel shall be used to protect the cable from damage. Any cable that is run over by vehicular traffic shall be replaced by the contractor at no additional cost to the City.

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9. All pull boxes shall be kept closed when not in use. Any open pull boxes must be barricaded or marked with cones or other acceptable means. No open pull boxes will be allowed to be left overnight without expressed City approval.
 10. Unless specified otherwise on the plans, 6 feet of copper and/or 15 feet of fiber optic cable slack shall be provided in each pull box. 50 feet of copper and/or 100 feet of fiber optic cable slack for each signal interconnect cable run shall be provided in the dedicated communications Home Run pull box in front of each signal controller or the last pull box before the controller if a dedicated communications Home Run pull box is not available.
- D. Connections:
1. Install LC connectors per manufacturer's standard instructions. A copy of these instructions shall be onsite with the installer and available for inspection when onsite. If these instructions are not onsite, all connections made during that time will be removed and then re-installed after the instructions are onsite. This additional work shall be performed at no cost to the City.
- E. Fusion Splices:
1. All fusion splices shall be witnessed by the Engineer or City's representative. A copy of the splice instructions shall be onsite with the installer and available for inspection. If these instructions are not onsite, all splices made during this time will be removed and then re-installed after the instructions are onsite. This additional work shall be performed at no cost to the City.
- F. Testing:
1. General Requirements:
 - a. Perform a complete test of the installed project to demonstrate that the fiber optic system is functional as shown on the Contract Drawings.
 - b. Provide labor, instruments, and other material to complete the tests.
 - c. Submit a test report including the tests that were performed and the results.
 - d. Perform all tests, excluding Factory Testing, in the presence of the City's representative.
 - e. The tests shall include Factory Tests, Fiber Loss Tests and Optical Time Domain Reflectometer (OTDR) Testing.
 - f. All instruments shall be NIST certified within one year of the test being conducted. These certifications shall be included in the submittal for the test procedures and again with the actual test reports.
 - g. At least 2 weeks prior to the start of field testing, submit a test procedure for each type of test, sample test forms, and NIST calibration or Certifications for each instrument.
 2. Factory Tests (FT):
 - a. Factory tests shall be performed to demonstrate that the cables have been fabricated properly and are working correctly. Submit a test report indicating that the Factory Test was performed for Engineer's review. No cables shall be released for installation until the FT has been reviewed and approved by the Engineer.
 - b. All cabled optical fibers shall be 100 percent attenuation tested using an OTDR. The attenuation of each fiber shall be shipped along with the reel in a cable packet.
 3. Fiber Optic Link Loss Budget:
 - a. Prepare a fiber optic link loss budget based on actual cable used and distances, connectors and splices on each fiber run. This budget information shall be in an excel spreadsheet format similar to the Fiber Optic Link Loss Budget form shown in Appendix A.
 - b. The fiber optic link loss budget must be submitted and approved prior to performing OTDR testing.
 4. Fiber Loss Tests (FL):

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- a. Upon completion of a fiber cable run in which the cable has been installed in a fiber termination enclosure and connectors terminated, the individual fibers will be tested using a fiber loss kit with a 1310-nm laser source.
- b. Testing shall be performed with both 1310 and 1550-nm laser light sources at one end and an optical loss meter at the other end of each fiber. Record results for each cable. If any cables are outside expected loss results, this shall be recorded including steps taken to correct these issues. Final fiber loss results shall be indicated on the test form. If unable to correct, the cable shall be replaced at no expense to the City.
- c. The FL includes testing of all fibers installed under this contract including fibers that are for future splicing or future use.
- d. Loss Testing shall be conducted from each end of a fiber and all results recorded on a form similar to the Fiber Loss Test Form shown in Appendix A.
- 5. Optical Time Domain Reflectometer Testing (OTDR):
 - a. The Contractor shall perform the Optical Time Domain Reflectometer (OTDR) Testing after he has delivered written notice to the Engineer that the Fiber Loss Tests has been successfully completed. This notice shall be in the form of the Fiber Loss Test Report.
 - b. The Contractor shall inform the Engineer at least one week prior to the OTDR so that the Engineer may witness the test.
 - c. The OTDR includes testing of all fibers installed under this contract including fibers that are for future use and spares.
 - d. If any equipment or cable fails the OTDR, the Contractor shall correct the problem and shall repeat the test until it is successful. If unable to correct, the cable shall be replaced at no expense to the City.
 - e. The OTDR shall be performed in the presence of the Engineer.
 - f. Any OTDR testing without the Engineer or City personnel shall not be accepted. Any re-testing of un-witnessed testing shall be performed solely at the Contractors expense. No time extensions or additions will be accepted for this work.
 - g. The OTDR test unit shall be designed for use on single-mode fiber at 1310 and 1550 nm wavelength and shall be a field unit with the following characteristics:
 - h. Dead zone: 49.2 feet or better
 - i. Attenuation range: 15 decibels or better
 - j. Distance range: 32,808.4 feet or better
 - k. Accuracy: + 6.6 feet
 - l. Printer: must be capable of printer or file output.
 - m. The OTDR test unit shall be capable of downloading the results to a PC and this file shall be provided to the City. Test results shall be readable via one of the following formats: pdf, xls, doc, or txt.
- 6. Test Reports:
 - a. Sample test forms and procedures for each type of test (Factory, Fiber Optic Link Loss, Fiber Loss and OTDR Summary) shall be submitted and approved prior to fiber shipment or installation as applicable.
 - b. Submit test results for review and approval immediately (within 1 week) after each test is completed.
 - c. Submit a copy of the approved test results with the O&M manual.
- 7. Damage:
 - a. Fiber Optic Cable and related facilities damaged during construction shall be replaced/repared to current City standards and as specified below at the contractor's cost. This work shall include fiber optic cable, conduit, pull boxes/vaults, trenches, concrete, asphalt, traffic control, pull tape, splices, splice enclosures, terminations, labor, etc., as required.
 - b. Damage is described as a breach in the fiber optic cable jacket, a kink, a break of the cable, or any other condition that causes a reduction in the capacity of the cable.

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- c. Should fiber optic cable facilities be damaged during construction without visible damage to the cable, the cable shall be tested by a certified fiber optic technician provided by the contractor at the contractor's cost to ensure that there is no internal damage. Should the test show internal damage, the cable shall be replaced as specified below. Otherwise, the cable shall be protected and the facilities repaired to current City standards.
8. Repair:
- a. Fiber optic cable running between and terminating at adjacent devices shall be replaced from:
 - 1) Termination to termination. All new cable and terminations shall be acceptance tested as required elsewhere in the City standards.
 - 2) If the new cable must be pulled through conduits that contain traffic signal phase wiring, then a "MAX CELL" or equivalent sleeve, per City standards, shall be installed in the conduit prior to the installation of the new fiber optic cable.
 - a) Pull box adjacent to the damage to controller cabinet.
 - (1) No more than 5 feet of slack may be used out of any one pull box.
 - (2) Pull boxes where new splices shall occur will be replaced with Fiberlyte FL36 24 inch deep vaults as specified in these construction standards (86-2.06)(02006110).
 - (3) At least 50 feet of slack must be provided in the new splice vault.
 - (4) The slack shall be provided in even amounts on either side of the splice enclosure.
 - (5) Only fusion splicing meeting City standards by a certified fiber optic technician will be allowed.
 - (6) All new cable, splices, and terminations shall be acceptance tested as required elsewhere in the City standards.
 - (7) The average optical loss of each splice shall not exceed 0.10 dB. The average is determined by measuring the splice loss in both directions with an OTDR, adding the 2 readings, and dividing by 2. Testing should be performed for both the 1310 and 1550 nm wavelengths.
 - (8) Splicing will not be allowed in pull boxes or vaults shared with non-signal interconnect cables.
 - (9) If the new cable must be pulled through conduits that contain traffic signal phase wiring, then a "MAX CELL" or equivalent sleeve, per City standards, shall be installed in the conduit prior to the installation of the new fiber optic cable.
 - b) Fiber optic cable running continuously past multiple traffic signal devices may be repaired by splicing at adjacent pull box locations.
 - (1) A single splice location may be appropriate if the damage is close enough to the adjacent pull box that the repair may be accomplished by using some of the slack in the existing cable.
 - (a) No more than 5 feet of slack may be used out of any 1 pull box.
 - (b) Pull boxes where new splices shall occur will be replaced with Fiberlyte FL36 24 inch deep vaults as specified in these construction standards (86-2.06)(02006110).
 - (c) At least 50 feet of slack must be provided in the new splice vault.
 - (d) The slack shall be provided in even amounts on either side of the splice enclosure.
 - (e) Only fusion splicing meeting City standards by a certified fiber optic technician will be allowed.
 - (f) All new cable, splices, and terminations shall be acceptance tested as required elsewhere in the City standards.

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- (g) The average optical loss of each splice shall not exceed 0.10 dB. The average is determined by measuring the splice loss in both directions with an OTDR, adding the 2 readings, and dividing by 2. Testing should be performed for both the 1310 and 1550 nm wavelengths.
 - (h) Splicing will not be allowed in pull boxes or vaults shared with non-signal interconnect cables.
- (2) 2 splices may be necessary if the damage is not near an existing pull box. In this case, a splice shall be provided on either side of the damage and a new length of cable meeting City standards shall be installed between the splices.
 - (a) Pull boxes where new splices shall occur will be replaced with Fiberlyte FL36 24 inch deep vaults as specified in these construction standards (86-2.06)(02006110).
 - (b) At least 100 feet of slack must be provided in each vault.
 - (c) The slack shall be provided in even amounts on either side of the splice enclosure.
 - (d) Only fusion splicing meeting City standards by a certified fiber optic technician will be allowed.
 - (e) All new cable, splices, and terminations shall be acceptance tested as required elsewhere in the City standards.
 - (f) The average optical loss of each splice shall not exceed 0.10 dB. The average is determined by measuring the splice loss in both directions with an OTDR, adding the 2 readings, and dividing by 2. Testing should be performed for both the 1310 and 1550 nm wavelengths.
 - (g) Splicing will not be allowed in pull boxes or vaults shared with non-signal interconnect cables.
 - (h) If the new cable must be pulled through conduits that contain traffic signal phase wiring, then a "MAX CELL" or equivalent sleeve, per City standards, shall be installed in the conduit prior to the installation of the new fiber optic cable.
- (3) Repair work must begin within 24 hours and be completed within 48 hours of the damage occurring irrespective of weekends and holidays.
- (4) Should the contractor be unable to make the repairs within this time frame, the City will complete temporary repairs and bill the contractor for their time and materials at the City's billable rate. The temporary repair shall be treated with the same restrictions, requirements, and care as the original cable. The contractor will still be required to make the permanent repairs prior to completion of the project.
- 3) Temporary copper SIC repairs must be made within 48 hours of the damage and provide sufficient bandwidth and reliability for the intended purpose of the copper SIC. Permanent repairs shall be completed within 30 days of the damage. The City may make the repairs and bill the contractor for the work should the contractor be unwilling or unable to meet these requirements.
- 4) Should the copper SIC installation be required by the City, the contractor shall test all copper SIC prior to installation as follows:
 - a) For continuity of each wire pair. Resistance shall be consistent.
 - b) For high resistance (meggar) testing (250v setting):
 - (1) Each wire pair to ground
 - (2) Each wire pair to the cable shielding
 - (3) Each wire pair to wire pair
 - c) The test may be in the field or shop
 - d) A city technician does not need to be present

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- 5) The contractor shall be liable for all inspection costs related to the removal and re-installation of new cable should untested cable found to be faulty after installation
- 6) Fiber optic cable shall be acceptance tested, every strand, both before and after installation at both 1310 and 1550 nm wavelengths. All testing shall be documented on OTDR Acceptance Test and Splice Loss Record forms. Losses shall not exceed 1.85 dB per mile of cable including patch panels and splices.

END OF SECTION

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CONTROL STRATEGIES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The PLC programming and SCADA application programming shall be performed by OTHERS and is excluded from CONTRACTORS Scope of Supply. This information is provided as information only.
- B. **The control strategies shall be developed and PLC and SCADA programming and configuration will be provided by OTHERS.**
- C. The CONTRACTOR shall coordinate equipment testing as required by Contract Documents with City Integrator to complete Start-up and Testing requirements.

1.02 RELATED WORK

- A. Section 40 91 00 Instrumentation and Control for Process Systems
- B. Section 40 95 10 PLC-Based Control System Hardware
- C. Division 26 Electrical Specifications

1.03 FUNCTIONS AND CONTROL MODES

A. Functions

- 1. LOCAL: The term "LOCAL" means "in the field" i.e. at the physical location of the equipment. Local control means at the equipment or control from the MCC starter panel.
- 2. REMOTE: The term "REMOTE" means away from the equipment. Remote control means ability to control the equipment at the control panel/PLC or from the HMI away from the equipment or away from the MCC.
- 3. Local Control Panel (LCP): refers to the presence of a field-situated panel, which serves as a control location. Usually this panel contains the PLC.
- 4. Local Display: This function refers to the display of equipment status or process variable at a location in the field, local to the equipment.
- 5. Local Interlock: This function refers to the presence of field control logic in which the status of other equipment directly effects the operation and control of the equipment being controlled.
- 6. Control System Alarms and Status: Variable or status data to be alarmed in the Control Room.
- 7. Local Alarms: Alarms that are announced in the field.
- 8. Set Points: Values which are adjustable at the engineer (supervisor) level displays without requiring any software configuration. These values are not adjustable by the operator from the display station. Whenever a LOCAL/REMOTE set point selection is provided, in LOCAL, the set point shall be adjustable from the equipment. In REMOTE, the set point shall be adjustable from a REMOTE set point input.

B. Control Modes

- 1. Local Manual Control Mode: This mode enables manual control to the equipment. The equipment is then manually controlled (e.g. START, STOP, OPEN-STOP-CLOSE, etc.) by a local selector switch by switching the position to "HAND" or "OFF", or "OPEN-STOP-

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CLOSE". The control logic and set points in the control system PLC are bypassed and do not affect the operation of the equipment. All the controls from the HMI are disabled.

2. Local Automatic Control Mode: This mode enables automatic control that is provided and performed external to the PLC. In some cases, the equipment in the plant is pre-packaged with a Local Control Panel complete with its own automation logic.
3. Remote Manual Control Mode: This mode allows control from the HMI. The operator switches the "Auto/Manual" switch at the HMI to "MANUAL" position to enable manual operation from the HMI. In this position the operator is able to "START", "STOP", "OPEN", CLOSE" etc. the equipment, or manually change the control output to the equipment. Consequently, in this position the automatic control logic and set points in the controller are overridden. In this mode the local control system is also bypassed with the except of equipment safety interlock.
4. Remote Automatic Control Mode or SCADA Mode: This mode allows control of the equipment from the HMI and PLC. The operator switches the "AUTO/MANUAL" switch at the HMI to "AUTO" position to enable PCIS automatic operation. In this mode the equipment is controlled automatically by the control logic and set points residing in the PLC. The supervisor is able to change operational parameters through the HMI by entering new set points. A control mode status signal will be sent to the PLC to indicate when the PLC is allowed to control the equipment. The PLC shall monitor the control mode status (LOCAL/ REMOTE) and attempt to control only that equipment which is in the REMOTE mode.

C. General Control and Mode Switches Terms

1. "LOCAL-OFF-REMOTE" Switch: For the purpose of this definition and for simplicity, it is assumed that the switches is located at MCC.
 - a. LOCAL Position: In this position equipment automation and control from the control panel/PLC are bypassed. Control from the PLC and HMI is also disabled.
 - b. OFF Position: In this position all equipment control functions are off and disabled.
 - c. REMOTE Position: In this position equipment automation and control are available from the control panel/PLC. An AUTO-MANUAL and a START-OFF-STOP switch (or OPEN-OFF-CLOSE) shall be provided at the operator HMI workstation from which remote manual control is performed.
2. "HAND-OFF-AUTO" Switch: This switch is located usually at the LCP. Control through this switch is performed from the LCP only if the LOCAL-OFF-REMOTE switch at the MCC is in LOCAL position as discussed above. All the control functions are performed locally and external to the PLC.
 - a. HAND Position; in this position the equipment is started manually.
 - b. OFF Position: The equipment is off.
 - c. AUTO: In this position the equipment is automatically controlled locally and external to the PLC by local control hardware.
3. HMI Switches:
 - a. For equipment that is controllable from the PLC in either a MANUAL or AUTOMATIC mode, the operator shall be provided with a software "AUTO-MANUAL" selector switch at the operator HMI workstation. This switch is functional only when LOCAL-OFF-

REMOTE switch in the field is in REMOTE position. The following are the AUTO-MANUAL functions:

- AUTO – In this position the operator delegates and enables the automation and control functions of the equipment to be performed at the PLC/control panel in the field. The operator is unable to manually control the equipment from the HMI.
 - MANUAL – In this position the operator is able to override the control functions in the PLC and remotely control the field equipment manually from the HMI.
- b. A second software switch such as “START-OFF-STOP” or OPEN-STOP-CLOSE”, etc. or as required by the application, shall be provided in the HMI to control the equipment in the field manually from the HMI.

1.04 QUALITY ASSURANCE

- A. The Control Strategies shall be tested outside of the contactors scope and implemented during the field startup activities coordinated by the contractor in cooperation with the City integrator.

PART 2 - PRODUCTS – NONE

PART 3 - EXECUTION -NONE

END OF SECTION

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SECTION 40 91 00
INSTRUMENTATION AND CONTROL PROCESS SYSTEMS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall provide Instrumentation and Control System (I&CS) complete and operable, in accordance with the Contract Documents.
- B. The CONTRACTOR is responsible for a complete and operational system, and for all control functions of the pump station.
- C. The Division 40 drawings and specifications are to be read together with drawings and specifications of all other Divisions and specifically Division 26. Additional information necessary to complete the work is included in other sections of the drawings and specifications.
- D. The requirements of this Section apply to every component of the I&CS unless indicated otherwise.
- E. All tables shown of the Division 40 drawings and specifications are for information purposes only and may show partial lists of equipment and materials. A complete take-off from all drawings and specifications shall be done by the CONTRACTOR in order to determine accurate quantities of equipment and materials.
- F. **PLC, OIT, and SCADA programming is excluded from CONTRACTORS scope of work.** All other elements of the project and control function of the pump station, including but not limited to, Reduced Voltage Soft Starter configuration, forward/reverse controls, Derrager device configuration, and power monitor setup and integration shall be provided by the CONTRACTOR.

1.02 DEFINITIONS AND ACRONYMS

- A. System Supplier: The System Supplier shall be a single firm, corporation, or other entity assuming full responsibility through the CONTRACTOR to perform all engineering and to select, furnish, program, configure, integrate, supervise the installation and connections, test, calibrate, and place into operation all instrumentation, controls, communication hardware and software. The System Supplier shall specialize and have an experienced engineering and technical staff in the design, integration, and supply of systems similar to the one in these Contract Documents.
- B. AI/AO Analog Input/Output
- C. CMMS Computerized Maintenance Management System
- D. DI/DO Digital Input/Output
- E. FOC Fiber Optic Cable
- F. HMI Human Machine Interface
- G. HSE High Speed Ethernet
- H. I/O Input/Output Signals
- I. LAN Local Area Network
- J. LIMS Laboratory Information Management System
- K. MM Multimode (Fiber)
- L. OIT Operator Interface Terminal
- M. OPC OLE for Process Control (communication interface driver)

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- N. PID Proportional, Integral and Derivative Process Controller
- O. PLC Programmable Logic Controller
- P. PS Pump Station
- Q. RAM Random Access Memory
- R. SCADA Supervisory Control and Data Acquisition
- S. SM Single Mode (Fiber Optic)
- T. UPS Uninterruptible Power Supply
- U. WAN Wide Area Network
- V. WTP Water Treatment Plant
- W. WWTP Wastewater Treatment Plant

1.03 RESPONSIBILITIES

- A. The CONTRACTOR, through the use of a single System Supplier and qualified electrical and mechanical installers, shall be responsible to the OWNER for the implementation of the I&CS and the integration of the I&CS with other required instrumentation and control devices.
- B. Due to the complexities associated with the interfacing of numerous control system devices, it is the intent of these specifications that the System Supplier will be responsible to the CONTRACTOR for the integration of the I&CS with existing devices and devices provided under this and other Divisions with the objective of providing a completely integrated control system free of signal incompatibilities.
- C. As a minimum, the implementation of the I&CS by the CONTRACTOR shall include the following WORK:
 - 1. Integrate the I&CS with existing devices and systems provided under this and other Divisions
 - 2. Prepare the required I&CS submittals
 - 3. Design and develop project-wide loop diagrams including those associated with equipment provided under other Divisions and OWNER-furnished and existing equipment
 - 4. Design and develop control panel drawings
 - 5. Field verify existing conditions
 - 6. Prepare factory and field test submittals
 - 7. Prepare training plan
 - 8. Prepare spare parts submittal
 - 9. Procure hardware and software
 - 10. Configure and factory test the I&CS
 - 11. Bench calibrate instruments and verify calibration after installation
 - 12. Terminate signals inside control and network panels; terminate communication and network devices and nodes
 - 13. Supervise and coordinate installation and termination of field signals, power, and utilities associated with the I&CS. Resolve signal, power, or functional incompatibilities between the I&CS and new and existing interfacing devices.

14. Loop test in accordance with the loop diagrams. Validate and certify loops
 15. Oversee, document, and certify system commissioning
 16. Conduct system performance test
 17. Prepare technical manuals
 18. Conduct training classes
 19. Prepare I&CS as-built final construction drawings
- D. Any Instrumentation Supplier responsibilities in addition to the list above are at the discretion of the CONTRACTOR and the Instrumentation Supplier. Additional requirements in this Section and throughout Division 17 that are stated to be the CONTRACTOR's responsibility may be performed by the Instrumentation Supplier if the CONTRACTOR and Instrumentation Supplier so agree.

1.04 RELATED WORK

- A. Section 40 91 00 Instrumentation and Control for Process Systems
- B. Division 26 Electrical Specifications
- C. All electrical work required under this section shall conform to the requirements of Division 40 and the applicable requirements of Division 01, Division 26.

1.05 REGULATORY AGENCIES AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all WORK specified herein shall conform to or exceed the applicable requirements of the referenced documents to the extent that the requirements therein are not in conflict with the provisions of this Section; provided, that where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such code or ordinance shall take precedence.
- B. The I&CS WORK shall conform to or exceed the applicable regulations, standards, specifications, and codes which are referenced in Section 01 42 03 Reference Standards and Abbreviations, and current as of the date of the final inspection for this Contract, including, but not limited to, those which are established by the following sources:
 1. The International Society of Automation (ISA)
 2. National Electrical Code (NEC)
 3. National Fire Protection Association (NFPA)
 4. Institute of Electrical and Electronic Engineers (IEEE)
 5. Occupational Safety and Health Administration (OSHA)
 6. American National Standards Institute (ANSI)
 7. National Electrical Manufacturers Association (NEA)
 8. Insulated Cable Engineers Association (ICEA)
 9. Local Power and Telephone Companies
 10. Local Authorities having jurisdiction over the work
 11. Federal Communication Commission (FCC)
 12. Underwriter Laboratory (UL)

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- C. Where the requirements set forth in these Specifications or on the Drawings are greater or more rigid than the mandatory requirements referenced above, the applicable Specifications or Drawings shall govern.
- D. In the case of conflict between any mandatory requirements and Specifications or Drawings, the mandatory requirement shall be followed in each case, but only after submitting such proposed changes to the ENGINEER for approval.
- E. Nothing contained in these Specifications or shown on the Drawings will be so construed to conflict with any national, state, municipal, or local laws or regulations governing the installation of work specified herein, and all such acts, ordinances, and regulations, including the National Electrical Code, are hereby incorporated and made a part of these Specifications. All such requirements will be satisfied by the CONTRACTOR at no additional expense to the OWNER.
- F. The Drawings and Specifications are complementary to each other; what is called for by one shall be as binding as if called for by both. If a conflict between Drawings and Specifications is discovered, this shall be referred to the ENGINEER as soon as possible for resolution. Should a conflict exist between the Drawings, Specifications, and/or mandatory requirements (i.e., codes, ordinances, etc.), it will be assumed that the more expensive method has been estimated, unless such alternate has been agreed to prior to submission of bids.

1.06 SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures and 40 91 00 - Instrumentation and Control for Process Systems.
- B. The CONTRACTOR shall coordinate the I&CS part of the WORK so that a complete instrumentation and control system will be provided and will be supported by accurate Shop Drawings and as-built drawings.
- C. The submittals and their schedules shall be in accordance with the requirements listed below: Any incomplete submittal will be rejected and returned without comments.
- D. Interface between instruments, motor control centers, engines, starters, control valves, flowmeters and other equipment related to the I&CS shall be included in the shop drawing submittal. Interface between existing equipment, instruments and control panels shall also be included.
- E. The CONTRACOTR shall be submitted in paper and electronic (PDF) format and shall include but not be limited to:
 - 1. Equipment descriptive data, including equipment tag as identified in the contract documents.
 - 2. Full manufacturer's part number indicating all selected options.
 - 3. Equipment installation, service manuals, operation/maintenance manuals and recommended spare parts lists.
 - 4. Schematics and interconnecting wiring diagrams.
 - 5. Records of conductor identification, field terminals, changes, etc.
 - 6. Instrumentation and control panel shop drawings, face layouts, schematics and point-to-point wiring diagrams.
 - 7. Ethernet network control system architecture drawings complete with wiring identification numbers.
 - 8. Records of as-built information for the control system components.

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- F. Symbols and Nomenclature: In these Contract Documents, systems, meters, instruments, and other elements are represented schematically, and are designated by symbols as derived from Instrument Society of America Standard ISA S5.1 - Instrumentation Symbols and Identification. The nomenclature and numbers designated herein and on the Drawings shall be employed exclusively throughout Shop Drawings, and similar materials. No other symbols, designations, or nomenclature unique to the manufacturer's standard methods shall replace those prescribed above, used herein, or on the Drawings.
- G. Shop Drawings shall include the letter head or title block of the System Supplier. The title block shall include, as a minimum, the System Supplier's registered business name and address, project name, drawing name, revision level, and personnel responsible for the content of the drawing.
1. Organization of the Shop Drawing submittals shall be compatible with eventual submittals for later inclusion in the Technical Manual. Submittals not so organized will not be accepted.
 2. For a project with multiple sites the CONTRACTOR shall provide a separate and unique set of drawings for each site.
 3. Drawings that require more than one sheet due to space limitation or continuation in the subject of the drawings (e.g. loop diagrams, etc.) shall be given the same drawing number but with different sheet number (e.g. sheet 1 of x, sheet 2 of x, etc.).
 4. Each submittal shall include a complete index appearing in the front of each bound submittal volume. Drawings and/or system groups shall be separated by labeled tags. The organization of the initial shop drawing submittal required above shall be compatible to eventual inclusion with the Technical Manuals submittal and shall include final alterations reflecting as-built conditions.
 5. Interfaces between new and existing instruments, motor starters, control valves, variable speed drives, flow meters, chemical feeders, panels, and other equipment related to the I&CS shall be included in the Shop Drawing submittal.
- H. Field Instrument Submittal
1. Submittal Schedule: The CONTRACTOR shall submit for approval a complete field and process instrument submittal, **all at one time, within 60 calendar days** after the date of Notice to Proceed is given to the CONTRACTOR.
 2. Submittal Contents: The submittal shall include a complete index which lists each device by tag number, type, and manufacturer in accordance with the specified data sheets provided in this CONTRACT. A separate manufacturer technical brochure or catalog sheet shall be included with each specified instrument data sheet. If, within a single system or loop, a single instrument is employed more than once, one manufacturer brochure or catalog sheet may cover multiple identical uses of that instrument in that system. Each manufacturer brochure or catalog sheet shall include a list of tag numbers for which it applies. System groups shall be separated by labeled tags. Special options and features which are furnished shall be identified.
- I. System Hardware Submittal:
1. Submittal Schedule: The CONTRACTOR shall submit for approval a complete system hardware submittal, **all at one time, within 90 calendar days** after the date of Notice to Proceed is given to the CONTRACTOR. This submittal shall be submitted together with the

submittal for the System Architecture, and Communication Diagrams submittal and the Project-Wide Wiring Diagrams and Panel Drawings submittal specified below.

2. Submittal Contents:

- a. The submittal shall be for the hardware specified under Sections 40 95 10 – PLC -Based Control System Hardware and 40 95 13 - Control Panels.
- b. The submittal shall include a complete index which lists each device by type, and manufacturer in accordance with the contract documents. A separate manufacturer technical data sheet or brochure shall be included for each hardware component. If, within a single system a single component is employed more than once, one manufacturer technical data sheet or brochure may cover multiple identical uses of that component in that system. Special options and features which are furnished shall be identified.
- c. The submittal shall include load calculations and size of the various UPS systems to demonstrate that the UPS is able to accommodate present and future load requirements, as well as overload capacity requirements.
- d. Spare Parts and Tools List: A list of spare parts and tools shall be submitted, covering items which are specified and furnished under this Contract. The list shall include the name, address, and phone number of manufacturer and manufacturer's local service representative of these parts. The list shall also include recommended spare parts and tools, quantities and prices from which the OWNER will select the "Additional Recommended Spare Parts and Tools".

J. Project-Wide Wiring Diagrams and Panel Drawings Submittal

1. Submittal Schedule: The CONTRACTOR shall submit for approval a complete set of project-wide wiring diagrams (PWWD) and panel drawings, **all at one time within 120 calendar days** after the date of Notice to Proceed is given to the CONTRACTOR. The PWWD and panel drawings shall be a singular complete hard copy bound package and accompanied with a PDF on a CD. This submittal shall be submitted together with the System Hardware submittal and the System Architecture and Communication Diagrams submittal specified herein.
2. Submittal Contents: The PWWD and panel drawings shall be submitted as a single and comprehensive set of drawings. The submittal shall include a complete index in the front of each part of the submittal. The drawings shall be indexed by systems, sites, or process areas. Diagrams shall be tagged in a manner consistent with the Contract Documents and shall include the following:
 - a. Project-Wide Wiring Diagrams: The PWWD shall define and document the contents of each analog and discrete monitoring, alarming, hardware interlock, and control functions associated with equipment provided under Division 40 sections. The PWWD shall also cover equipment provided under sections in other Divisions, existing, and OWNER-furnished equipment. The PWWD shall also include both field and panel wiring diagrams.
 - Drawings showing definitive diagram for every analog and discrete instrumentation loop system. These diagrams shall show and identify each component in each loop or system using legend and symbols from the standards in the Contract Documents. The wiring diagrams shall be presented on an 11"x17" drawing with no more than 10 loops per drawing.

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- In general, loops shall be grouped and organized by PLC (if used) and the I/O cards within the PLC. Each I/O card shall be presented on a separate sheet(s) and on the right side of the drawing. The type of card, part number and its slot location shall be identified. Each I/O shall be identified as well as its location on the card and its address. Existing, spare, and future I/Os shall also be shown. Power supply wiring to the card/loops, wire colors, and terminal numbers shall be shown on the wiring diagrams. The I/O cards, the loops and any device in the loop shall be shown together. Each loop shall be complete, including the source/destination within new or existing panels, device(s) in the loop, field connection panels or field junction boxes, field and PLC interface terminal blocks and wire numbers.
 - In addition wiring diagrams shall show the following details
 - Functional name of each loop
 - Reference name, drawing, and loop diagram numbers for any signal continuing off the wiring diagram sheet.
 - MCC panel, circuit, and breaker numbers for power feeds to the loops and instrumentation.
 - Wiring type, size and color
 - Designation, and if applicable, terminal assignments associated with every manhole, pull box, junction box, conduit in which wiring is to be located, and panel through which the loop circuits pass.
 - Vendor panel, instrument panel, conduit, junction boxes, equipment and PLC terminations, termination identification wire numbers and colors, power circuits, and ground identifications.
 - Wiring diagrams shall be developed for loops in equipment vendor-supplied packages, equipment provided under Division 40, and OWNER-furnished equipment.
- b. Panel Wiring Diagrams: Panel wiring and/or piping diagrams shall be prepared in concert with the PWWD and shall include the following information:
- Name of panel
 - Power distribution schematic diagrams associated with each panel or system (120VAC, 24VDC and other DC systems, control circuits). The schematic diagram shall show source of power for the panel (circuit breaker panel and breaker) and fuses. All power backup system distribution shall also be shown.
 - Schematic diagrams for control circuits in accordance with ANSI standards. The diagrams shall show complete details on the circuit interrelationship of all devices within and outside each Control Panel. Including primary measurement and control devices.
 - Communication diagram(s) for the equipment inside the panel.
 - Interfaces with existing control and monitoring systems. The CONTRACTOR shall furnish all necessary diagrams that depict any and all modifications made to existing measurement and control circuits, equipment and wiring. It is the responsibility of the System Supplier to ascertain actual field conditions of the

existing circuits, equipment and wiring. The CONTRACTOR may request copies of as built drawings and data that the OWNER can provide that show such existing conditions. Lack of such drawings shall not alleviate the contractual responsibility to ascertain and implement interfaces and modifications to existing measurement and control circuits, equipment and wiring.

- Surge protection and signal and safety grounding circuits
 - Wiring type and piping size and material
 - Terminal block numbers and wire numbers
- c. Panel Drawings: Panel drawings, including console, and cabinet layout drawings, shall be prepared and submitted for each panel and shall include the following information: These drawings shall include enough other details to define exactly the style, the contents, and overall appearance of the panel assembly.
- Name of Panel.
 - Panel Dimensions; front, side, and plan views and layout to scale.
 - Arrangement of internally and externally mounted instruments and equipment to scale. Note: Control panel layouts shown on the Contract Drawings are diagrammatic.
 - Location of terminal blocks, electrical devices, and conduit entry location(s).
 - Tag number or item number and functional name of items mounted in and on panel, console, or cabinet.
 - Nameplate legend which includes text, letter size, and colors to be used.
 - Complete and detailed Bills of Materials shall include all items within a panel and shall be presented on the panel layout drawing. The bill of material list shall include quantity, description, manufacturer, and part number.
 - Panel mounting information, including conduit entrance location.
 - Communication hardware installation, such as radio, mast and antenna.
 - Assembly and construction drawings. These drawings shall include dimensions, identification of all components, construction material and gauge, surface preparation and finish data, panel door locks and hinge mechanism, nameplates, and the like.

K. Factory Test Procedure Submittal:

1. Submittal Schedule: The CONTRACTOR shall submit for approval a comprehensive factory acceptance test (FAT) procedure **complete within 180 calendar days** after the date of Notice to Proceed is given to the CONTRACTOR, but not later than **60 calendar days** prior to the Factory Acceptance Test date.
2. Submittal Contents:
 - a. The CONTRACTOR shall develop and submit a factory test procedures to show that the integrated system hardware and software is fully operational and in compliance with the requirements of the Contract Documents.
 - b. The FAT procedures shall include the following tests to be conducted:
 - Hardware review and inventory

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- Central computer system(s) start-up
 - Security
 - Navigation and operator's commands
 - Database definition and configuration
 - Graphic displays and editing function
 - Monitoring and alarm features and functions
 - Trending functions
 - Reports and report system functions
 - Redundancy and backup
 - Network Communication and access from all the network nodes
 - Remote access from laptops
 - PLC functionality – I/O processing
 - Site/facility/Process PLC and HMI operation including pump and valve control
- c. Procedure Format: The test procedure shall have a table of contents and each procedure shall be provided on a separate sheet or sheets. The following shall be provided for each procedure:
- Test number
 - The purpose of the test
 - The procedure
 - The expected result
 - Space to indicate "Pass" and "Fail" and explanation
 - Space for sign-off Signature for the Contractor/System Supplier, the ENGINEER, the OWNER, and DATE
 - Space to provide comments and punch list items

1.07 CLOSEOUT SUBMITTALS

- A. In addition to the requirements specified in Division 01, provide the following information:
1. Information in the Technical Manual shall be based upon the approved Shop Drawing submittals as modified for conditions encountered in the field during the WORK. The Technical Manuals shall therefore contain the as-built drawings and information.
 2. The Technical Manuals shall include installation, connection, operating, calibration, set points (e.g., pressure, pump control, time delays, etc.) adjustment, test, troubleshooting, maintenance, and overhaul instructions in complete detail.
 3. The Manuals shall have the following material organized in volumes and divided by subject and tabs The Technical Manual shall have the following organization for each process (the number and the enumeration of the sections shall be project specific):
 - a. Section A - Process and Instrumentation Diagrams (as built copy)
 - b. Section B - System Architecture and Communication System Block Diagram(s)

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- c. Section C - Wiring Diagrams. A separate set of drawings shall be provided for each site. Each set shall be arranged in a separate tab (drawings shall also be provided in PDF).
- d. Section D – Functional design report. It shall include a copy of the site graphic display(s) and description how the site is controlled and any special control strategies specific for each site. Special control functions in the server shall also be included. Calibration, set points (e.g., pressure, pump control, time delays, etc.) shall also be included.
- e. Section E - Instrument Data Sheets and corresponding manufacturer's data sheet/catalog cuts/brochure that was used in the hardware submittal and the operation and maintenance/user manual.
- f. Section F - Calibration Documentation
- g. Section G – Communication survey and test results
- h. Section H - Loop, Commissioning and Performance Test Results

1.08 MAINTENANCE MATERIAL SUBMITTALS

- A. The CONTRACTOR shall provide the specified spare parts and tools. In addition, The ENGINEER and the OWNER will select from the priced list of "Additional Recommended Spare Parts" in the Hardware Equipment Submittal. The CONTRACTOR shall furnish these parts and will be paid for them from the corresponding allowance item in the Bid. The total price will not exceed the amount of the allowance item.
- B. The CONTRACTOR shall furnish a priced list of special tools required to calibrate and maintain the instrumentation provided from which the ENGINEER or the OWNER will select the needed tools. After approval the CONTRACTOR shall furnish tools on that list. The cost of these tools will be included in the allowance.
- C. The CONTRACTOR shall furnish one (1) portable instrument loop calibrator with current simulator with charger and carrying case. The calibrator shall be Fluke 709H series, Ametek AccuPro Calibrator CL-9005, or equal.

1.09 COORDINATION

- A. The CONTRACTOR shall examine the drawings and specifications of each division associated with this work. Before commencing work, obtain a ruling from the ENGINEER any conflicts between divisions.
- B. The drawings and specifications shall be read and interpreted in conjunction with other Divisions.
- C. The responsibility to determine which Division provides various products and work rests with the Contractor. Additional compensation will not be considered because of differences in interpretation of specifications.
- D. Provide work plan and identify methodologies for equipment installation with provision made for the most expeditious means to complete the work.
- E. Treat any item or subject omitted from this Division's specifications, but which is mentioned or reasonably specified in other Divisions' specifications or drawings and pertains to the instrumentation and control system, as being integral to the overall system. Provide such specified items or subjects.
- F. Structural members shall not be cut without prior approval of the ENGINEER.
- G. The Contractor is responsible to coordinate their work with other trades, and the OWNER'S Representative.

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- H. The Contractor is responsible for determining cable lengths for manufacturer supplied equipment and devices with integrated cables.

1.10 QUALITY ASSURANCE

A. Factory Acceptance Tests (FAT)

1. Prior to shipment, the I&CS including all panels, integrated SCADA system, PLCs, peripherals, communications equipment, etc. provided under this Division, shall be assembled, connected, and all software loaded for a full functional factory acceptance test (FAT) of the integrated system. Existing equipment is not required to be included in this test.
 2. In preparation for the FAT, the CONTRACTOR shall check, troubleshoot, debug and test the I&CS prior to arrival of the ENGINEER in order for the I&CS to be ready for the FAT, minimize testing time, and minimize re-testing during the visit. Similar testing shall be performed even if the ENGINEER chooses not to witness the FAT.
 3. The CONTRACTOR shall allow the ENGINEER and OWNER to inspect the I&CS and witness the functional testing of the system at the site of assembly and integration of the system.
 4. A minimum of 21 Days notification shall be given to the ENGINEER prior to testing. No shipments shall be made without the ENGINEER's approval. A successful completion of the test is a prerequisite to the shipment of the system.
 5. The factory test will be witnessed by the ENGINEER and the OWNER. The CONTRACTOR shall pay and provide for travel, food, and lodging for all the test witnesses.
 6. The factory acceptance test shall be conducted at the place where the system was engineered, fabricated, assembled, and programmed.
 7. It is considered reasonable that once scheduled, the system will be ready for the test and the test will be successfully completed in one session. If during the test, at the opinion of the ENGINEER and in accordance with the test procedure, the system is not ready for the test or has failed, and the ENGINEER and the OWNER must extend their stay or leave and arrive at another date, the OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER's time, travel, food, and lodging and associated project cost.
 8. During the factory acceptance test, the CONTRACTOR's Project Manager and software engineers (HMI application software and PLC programming) who worked on the I&CS shall be available on the premises where the test is being conducted for explanation, demonstration or corrections.
 9. After the successful completion of the test, the ENGINEER will generate a punch list. The list may include items that must be corrected or addressed prior to the shipment of the system, and/or items that must be corrected later in the field during installation and startup.
- B. Field Tests: The CONTRACTOR's attention is directed to the Article "EXECUTION" of this Section which delineates all the tests that are required to be performed in the field in order to demonstrate compliance with the Contract Documents.
- C. Prior to final acceptance of the I&CS System and related equipment, the CONTRACTOR shall propose and present in writing to the OWNER a one-year maintenance contract and quotation which will become effective upon the expiration of the warranty. The maintenance contract is an option that the OWNER may purchase from the System Supplier. The contract shall offer different maintenance, site visit and help-desk with options each with its respective cost.

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1.11 FIELD SITE CONDITIONS

- A. The I&CS shall be designed and constructed for satisfactory operation and long, low maintenance service under the following environmental conditions:
 - 1. Sewage Lift Station
- B. Site Equipment:
- C. Ambient temperature range: -18° through 60° C
- D. Thermal shock: 1.0° (1.8° F) per minute maximum
- E. Relative humidity: 95 percent maximum non-condensing.
- F. Unless specified otherwise, provide equipment and instrumentation suitable for continuous operation at an elevation of 1000 feet above sea level.
- G. Classification of Plant Areas.
 - 1. Refer to Division 16.

1.12 WARRANTY

- A. All parts, material labor, travel, subsistence, or other expenses incurred in providing services and service visits during the warranty period shall be borne by the CONTRACTOR under the guarantee specified in Division 1. Equipment, software, and materials that do not achieve their intended purpose shall be replaced by the CONTRACTOR to attain compliance, at no additional cost to the OWNER.
- B. Extended Period for Correction of Defects: The CONTRACTOR shall correct defects in the I&CS upon notification from the OWNER within 2 years from the date of Substantial Completion. Corrections shall be completed within 5 Days after notification.
- C. The performance of the servers and workstations hardware shall be guaranteed (repair of parts and labor at the owner's site including travel expenses) for a period of three (3) years following the date of completion and formal acceptance of the work (next business day on-site service).
- D. Software Upgrades: During the warrantee period, the CONTRACTOR shall furnish and install at no additional cost to the OWNER any application software upgrades published applicable to OWNER's applications and compatible with OWNER's hardware and operating system.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Standard and Current Technology: All I&CS hardware, software, materials, and equipment furnished under this contract shall be new, free from defects, and shall be standard products and technology produced by manufacturers regularly engaged in the manufacture of these products. Meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the Shop Drawings unless otherwise required to match existing equipment.
- B. The CONTRACTOR shall submit a Substitute Item Request Form in case of discontinued or upgraded product or other cases where changing technology requires changes in equipment or software.
- C. Adverse Environmental Impact: No component of an instrumentation system shall contain liquid mercury.

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- D. Hardware Commonality and Modularity: Instruments which utilize a common measurement principle shall be furnished by a single manufacturer. Panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single manufacturer. All equipment shall be of modular design to facilitate interchangeability of parts to assure ease of servicing and expandability.
- E. Instrument and Loop Power: Power requirements and input/output connections for components shall be verified. Power for transmitted signals shall, in general, originate in and be supplied by the control panel devices. The use of "2 wire" transmitters is preferred, and use of "4 wire" transmitters shall be minimized. Individual loop or redundant power supplies shall be provided as specified and/or as required by the manufacturer's instrument load characteristics to ensure sufficient power to each loop component. Power supplies shall be mounted within control panels or in the field at the point of application.
- F. Loop Isolators and Converters: The CONTRACTOR is responsible to resolve any signal level incompatibilities where required.
- G. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 milliampères DC except as indicated. Signals within enclosures may be 1 to 5 volts DC. Electric signals shall be electrically or optically isolated from other signals. Pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0 percent and 15 psig equal to 100 percent.
- H. Alternative Equipment and Methods: Equipment or methods requiring redesign of any project details are not acceptable without prior written approval of the ENGINEER through the "or equal" process of [[[Section 016000 - Products, Materials, Equipment, and Substitutions.]]] [[[The Bid Forms.]]] Any proposal for approval of alternative equipment or methods shall include evidence of improved performance, operational advantage, and maintenance enhancement over the equipment or method indicated, or shall include evidence that an indicated component is not available.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Refer to the requirements of Division 01 for additional requirements.
- B. Shipping
1. After completion of shop assembly, factory test, and approval, the tested I&CS equipment, cabinets, panels, and computer hardware shall be packed in protective crates and enclosed in heavy duty polyethylene envelopes or secured sheeting to provide complete protection from damage, dust, and moisture. Dehumidifiers shall be placed inside the polyethylene coverings. The equipment shall then be skid-mounted for final transport. Lifting rings shall be provided for moving without removing protective covering. Boxed weight shall be shown on shipping tags together with instructions for unloading, transporting, storing, and handling at the Site.
- C. Special Instructions

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1. Special instructions for proper field handling, storage, and installation required by the manufacturer shall be securely attached to each piece of equipment prior to packaging and shipment.

D. Tagging

1. A permanent stainless steel or other non-corrosive material tag marked with the instrument or equipment tag number shall be provided on each piece of equipment in the I&CS. Identification shall be prominently displayed on the outside of the package.

E. Storage

1. It is the CONTRACTOR's responsibility to assure proper handling and on-site storage of instrumentation and control equipment in accordance with the System Supplier's recommendations. All equipment and materials delivered to the jobsite shall be stored in a location which will not interfere with the operations of other contractors or the OWNER. Equipment shall not be stored outdoors. Storage and handling will be performed in manners which will afford maximum protection to the equipment and materials.
2. Equipment shall be stored in dry shelters, including in-line equipment, and shall be adequately protected against mechanical damage. If any apparatus has been damaged, such damage shall be repaired by the CONTRACTOR. If any apparatus has been subject to possible damage by water, it shall be thoroughly dried out and put through tests as directed by the ENGINEER. If such tests reveal defects, the equipment shall be replaced.

3.02 PRODUCT HANDLING

- A. Use all means necessary to protect the installation and to protect products and installed work of all other trades.
- B. Any damage to the products and/or installed work shall be repaired or replaced by the contractor, to the satisfaction of the OWNER and ENGINEER, at no additional cost to the OWNER.

3.03 INSTALLATION

- A. All systems and instrumentation, including instrumentation furnished under other Divisions, shall be installed, connected calibrated, tested, started, and placed into operation in accordance with CONTRACT documents under Division 40 and the manufacturers' instructions. The installation shall be coordinated with the ENGINEER and the OWNER. This shall include final integration in concert with equipment specified and provided by others.
- B. The CONTRACTOR shall employ installers who are skilled and experienced in the installation and connection of all I&CS equipment.
- C. Equipment Locations: The monitoring and control system configurations indicated in the contract documents are diagrammatic. The locations of equipment are approximate unless dimensioned. The exact locations and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. Equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the OWNER exercises the right to require changes in location of equipment which do not impact material quantities or cause material rework, the CONTRACTOR shall make such changes without additional cost to the OWNER.

- D. The CONTRACTOR shall review the existing site conditions and examine all shop drawings for the various items of equipment in order to determine exact routing and final terminations for all wiring and cables.
- E. The Contract Documents identify conduits and instruments required to make a complete I&CS. The CONTRACTOR shall be responsible for providing any reasonable additional or different type connections as required by parts of the I&CS' specific installation requirements, or as practical.

3.04 CONDUIT, CABLES, AND FIELD WIRING

- A. Conduits, process equipment control wiring, 4 to 20 mA signal circuits, signal wiring to field instruments and to control panels, PLC input and output wiring, and other field wiring and cables shall be provided under Division 26 and without delay to the WORK of Division 40.
- B. PLC equipment cables, communication networks shall be provided under Division 40, but the installation in the field shall be under Division 26.
- C. Terminations and wire identification inside I&CS equipment and panels furnished under this or any other Division shall be provided under Division 40.
- D. The CONTRACTOR shall supervise and coordinate installation and termination and identification of field signals, power, and utilities associated with the I&CS. Resolve signal, power, or functional incompatibilities between the I&CS and new and existing interfacing devices.

3.05 EQUIPMENT CONNECTIONS AND INSTALLATIONS

- A. Instruments, control panels, and equipment shall be anchored by methods that comply with seismic requirements applicable to the Site. Appropriate mounting stands and bracket materials and workmanship shall be provided and shall comply with requirements of the Contract Documents.
- B. Existing Instruments that are to be removed and reinstalled shall be cleaned, reconditioned, and recalibrated by an authorized service facility of the instrument manufacturer. The CONTRACTOR shall provide certification of this WORK prior to reinstallation of each instrument.
- C. The Contract Documents show necessary conduit and instruments required to make a complete instrumentation. The CONTRACTOR shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements. Such additions and such changes, including the proposed method of installation, shall be submitted to the ENGINEER for approval prior to commencing that WORK. Such changes shall not be a basis of claims for extra WORK or delay.
- D. Field Connection Panels and Interface Terminal Blocks: In cases where field I/O wiring has to be extended to a control panel or from enclosures or devices that are removed, the CONTRACTOR shall provide separate enclosures or junction boxes with interface terminal blocks that will serve as a field connection panel (FCP). The FCP and the terminal block shall be shown on the project-wide wiring diagrams.
- E. Conduits and/or raceways in building interior locations shall be surface mounted on walls or ceilings wherever possible and run perpendicular and parallel to building lines. Conduits shall not be routed on floors in areas subject to foot traffic. In exterior locations conduit shall be routed below grade.
- F. Wires and cables shall be arranged in a neat manner and securely supported in cable groups and connected from terminal to terminal without splices unless specifically approved by the ENGINEER. Wiring shall be protected from sharp edges and corners.

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- G. Signal and 24VDC low voltage wiring shall be run in a separate conduit from power and 120-volt control wiring.
- H. Field wiring shall terminate at terminal blocks in the control panel. Field wiring shall not be wired directly to equipment in the control panel except communication and specialty cables that must be wired directly to their respective equipment.
- I. Wires shall be marked clearly with an identification wire number labels that are of a permanent nature.
- J. Connectors shall be, as a minimum, water tight.
- K. Flexible cables and capillary tubing shall be installed in flexible conduits. The lengths shall be sufficient to withdraw the element for periodic maintenance.
- L. Differential pressure elements shall have 3 valve manifolds.
- M. The CONTRACTOR shall verify the correctness of each installation, including polarity of electric power and signal connections. The CONTRACTOR shall certify in writing all discrepancies have been corrected for each loop or system checked out. In addition, the CONTRACTOR shall make sure process connections are free of leaks.
- N. Moisture barriers shall be provided with enclosure rated for area installation.

3.06 SEALING OF WALL AND FLOOR OPENINGS

- A. The CONTRACTOR shall seal all conduit and cable entries passing through outside walls of buildings, through partition walls separating electrical rooms from other areas, through fire separations, and through floors above grade.
- B. Sealing material shall be fire resistant and not contain any compounds which will chemically affect the wiring jacket or insulating material. Cable penetrations through fire separations, if required, are to be sealed. Acceptable methods are Canstrut "Fire Stop", Electrovert "Multi-Cable Transit" or Dow Corning RTV Silicone Foam.
- C. Cable transit blocks (with knock out blocks) are also acceptable as long as they have capability to be sealed.

3.07 SLEEVES

- A. Provide sleeves of galvanized steel pipe with machine cut ends of ample size to accommodate conduits passing through walls, partitions, ceilings, floors, etc.
- B. For wall, partitions and ceilings the sleeve ends are to be flush with the finish on both sides. For floors the ends shall extend 4" above finished floor level.
- C. Fill the space between the sleeve and the conduit with fire stop material and caulked around the top and bottom with approved permanently resilient, non-flammable and weatherproof silicone base compound. Ensure that the seal is compatible with the floor and ceiling finishes.
- D. Locate the sleeves and position exactly prior to construction of the walls and floors.
- E. Failure to comply with the above requirements shall be remedied at the Contractor's expense.

3.08 TAGGING STANDARDS FOR DEVICES AND WIRING

- A. Tag all devices, wires and I/O using the assigned loop, equipment or device tag name. Where tag naming and numbering is not defined, the Engineer will provide naming and numbering that is consistent with the plant naming conventions.

3.09 FIELD QUALITY CONTROL

- A. Devices provided under Division 40 shall be initially calibrated by the manufacturer at the manufacturer's facility prior to shipment. Following installation, the devices shall be field calibrated according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements.
- B. Each instrument shall be field tested, inspected, and adjusted to the indicated performance requirement in accordance its manufacturer's specifications and instructions. Any instrument which fails to meet any contract requirement, or, in the absence of a contract requirement, any published manufacturer performance specification for functional and operational parameters, shall be repaired or replaced, at the discretion of the ENGINEER.
- C. Calibration Points: During bench and field calibration each instrument shall be calibrated at least at 0, 25, 50, 75, and 100 percent of span using test instruments to simulate inputs and outputs. The test instruments shall have accuracies traceable to National Institute of Standards and Testing.
- D. Bench Calibration: Instruments that have been bench-calibrated by the manufacturer shall be verified in the field after installation to determine whether any of the calibrations are in need of adjustment.
- E. Field Calibration: Instruments which were not bench-calibrated shall be calibrated in the field to insure proper operation in accordance with the instrument loop diagrams or specification data sheets.
- F. Analyzer Calibration: Each analyzer system shall be calibrated and tested as a workable system after installation. Testing procedures shall be directed by the manufacturers' technical representatives. Samples and sample gases shall be furnished by the manufacturers.
- G. Calibration Sheets: Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:
 - 1. Project name
 - 2. Loop number and site or process name and number
 - 3. Tag number
 - 4. Manufacturer
 - 5. Model number
 - 6. Serial number
 - 7. Calibration range
 - 8. Calibration data: Input, output, and error at 0 percent, 50 percent, and 100 percent of span
 - 9. Switch setting, contact action, and dead-band for discrete elements
 - 10. Space for comments
 - 11. Space for sign-off by System Supplier and when applicable by the manufacturer and date
 - 12. Test equipment used and associated serial numbers
 - 13. Calibration Tags: A calibration and testing tag shall be attached to each piece of equipment or system at a location determined by the ENGINEER. The CONTRACTOR shall have the System Supplier sign the calibration sheet when calibration is complete. The ENGINEER will sign the calibration sheet when the calibration and testing has been accepted.

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14. Loop Testing: The Contractor shall test newly installed loops for continuity and functionality. The up-to-date wiring diagrams shall be used as reference. The ENGINEER and/or the OWNER shall witness the loop testing.
- H. The CONTRACTOR shall notify the ENGINEER of scheduled tests minimum of 30 calendar days prior to the estimated completion date of installation and wiring of the I&CS. After the ENGINEER's review of the submitted loop diagrams for correctness and compliance with the specifications, loop testing shall proceed. The loop testing shall be witnessed by the ENGINEER and/or the OWNER.
- I. Control Valve Tests: Control valves, cylinders, drives and connecting linkages shall be stroked from the operator interface units as well as local control devices and adjusted to verify proper control action, hand switch action, limit switch settings, torque settings, remote control actions, and remote feedback of valve status and position. Control valve actions and positioner settings shall be checked with the valves in place to insure that no changes have occurred since the bench calibration.
- J. Interlocks: Hardware and software interlocks between the instrumentation and the motor control circuits, control circuits of variable-speed controllers, and packaged equipment controls shall be checked to the maximum extent possible.
- K. Loop Validation:
1. Control loops shall be checked under simulated operating conditions by impressing input signals at the primary control elements and observing appropriate responses of the respective control and monitoring elements, final control elements, and the HMI displays associated with the PLC or DCS. Actual signals shall be used wherever available. Following any necessary corrections, the loops shall be retested.
 2. Accuracy tolerances for each analog network are defined as the root-mean-square (RMS) summation of individual component accuracy requirements. Individual component accuracy requirements shall be as indicated by contract requirements or by published manufacturer accuracy specifications, whenever contract accuracy requirements are not indicated. Each analog loop shall be tested by applying simulated analog or discrete inputs to the first element of an analog loop. For loops which incorporate analog elements, simulated sensor inputs corresponding to 0, 25, 50, 75, and 100 percent of span shall be applied, and the resulting element outputs monitored to verify compliance to calculated RMS summation accuracy tolerance requirements. Continuously variable analog inputs shall be applied to verify the proper operation and setting of discrete devices. Provisional settings shall be made on controllers and alarms during analog loop tests. Analog loop test data, including calculated RMS summation system accuracy tolerance, shall be documented by the CONTRACTOR on the loop validation sheets. The validation sheets shall be included in the O&M Manuals.
- L. Loop Validation and Certification Sheets:
1. Loop Validation: The CONTRACTOR shall prepare loop validation sheets for each loop covering each active instrumentation and control device except simple hand switches and lights. Loop validation sheets shall form the basis for operational tests and documentation. Each loop validation sheet shall cite the following information and shall provide spaces for sign-off on individual items and on the complete loop by the System Supplier:
 - a. Project name
 - b. Loop number

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- c. Tag number, description, manufacturer, and model number for each element
 - d. Installation bulletin number
 - e. Specification sheet number
 - f. Loop description number
 - g. Adjustment check
 - h. Space for comments
 - i. Space for loop sign-off by the System Supplier and date
 - j. Space for ENGINEER witness signature and date
2. Loop Certification: A certified copy of each loop test validation sheet signed by the System Supplier, the ENGINEER or the ENGINEER's representative as a witness, with test data entered, shall be submitted to the ENGINEER together with a clear and unequivocal statement that the loops have been tested and the instrumentation in the loop has been successfully calibrated, inspected, and tested.
- M. Manufacturer's Services
1. The CONTRACTOR shall provide jobsite visits and services of a manufacturer's technical field representative for supervision of the following:
- a. Oversee installation: Supervise installation and connection of all instruments, elements, and components of every system, including connection of instrument signals to primary measurement elements and to final control elements such as VFD, smart starters, pumps, valves, engines and chemical feeders
 - b. Verify that installed instrument and software meet manufacturer's recommendations
 - c. Certify installation and reconfirm manufacturer's accuracy statement
 - d. Oversee loop testing, prepare loop validation sheets, and certify loop testing
 - e. Certify when testing is completed.
 - f. Training the OWNER's personnel

3.10 COMMISSIONING

- A. Commissioning is the verification that the complete WORK functions on an extended basis are in full conformance with the Contract requirements.
- B. As part of the commissioning, the entire I&CS shall operate continuously without failure for 30 consecutive days without failure (see test details below), thus extending its operation test longer than the commissioning period specified in Division 01.
- C. Refer to the requirements of Division 01 for additional commissioning requirements.
- D. The CONTRACTOR shall submit a report/letter states that CONTRACT requirements have been met and the I&CS is ready (2) weeks prior to energizing any system to allow inspections by ENGINEER.
- E. The entire I&CS shall go through a final 30-day acceptance test. For the purpose of this CONTRACT, the terms "Final Acceptance Test" and "Final Performance Test" are synonymous and are used interchangeably. The 30-day test must be successfully completed prior to the date of and as a condition to substantial completion of the entire project WORK. During the testing period, all system functions shall be exercised, and any system interruption and accompanying

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component, subsystem, software, or program failure shall be logged for cause of failure, as well as time of occurrence and duration of each failure.

- F. In addition to the requirements of Division 01, the CONTRACTOR shall furnish support staff as required to operate the system and to satisfy the repair or replacement requirements. The CONTRACTOR shall also provide a competently programmer on call during all normal working days and hours from the start of the acceptance test until final acceptance of the system. The on-call programmers shall be ready to respond within two hours of the notification of the problem.

G. Testing

1. The entire I&CS shall be tested and shall include, but not limited to the following:
 - a. Verify instrument calibration and provide written report.
 - b. Verify signal levels and wiring connections to control panels for all instrumentation and control equipment.
 - c. Function check and adjust under operational conditions the instruments and control equipment.
 - d. Coordinate instruments and control equipment supplier's service personnel as required for complete system testing.
 - e. The CONTRACTOR shall make provision to be available and coordinate with the Plant Control System programming team, and the commissioning team to check the sensor signals from source to destination.
 - f. Instruct plant personnel in correct method of operation of instruments and control equipment.
 - g. Direct plant personnel at hand-over as to final adjustment of the system for correct operation of plant.
- H. Failure During Testing: Failure of the system during the testing shall be considered as indicating that part of the I&CS does not meet the requirements of the specifications and corrective action shall be required before restarting the acceptance test.
- I. Technician Report: Each time a technician is required to respond to a malfunction in the I&CS he/she must complete a report which shall include details concerning the nature of the complaint or malfunction and the resulting repair action required and taken. If a malfunction occurs which clears itself or which the operator on duty is able to correct, no report shall be required (logged as specified above). Each report shall be submitted within 24 hours to the ENGINEER or its representative, and the OWNER.

3.11 TRAINING

- A. The CONTRACTOR shall train the OWNER'S personnel on the I&CS operation, maintenance, calibration, and repair of equipment provided under this Contract. The training shall be by qualified instructors. The training courses shall be given on-site to a minimum of Four (4) people of the OWNER's personnel. All instruction, tools and training material shall be provided by the CONTRACTOR.
- B. These courses shall be designed to provide the operations, maintenance and supervisory personnel with training in routine and preventive maintenance of all the I&CS including instrumentation, communication, PLCs software, and HMI. The training course shall include instruction on the use of all maintenance equipment and special tools provided under the contract.

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C. Instructions

1. The training shall be performed by qualified instructors. The training shall be performed by qualified representatives of the equipment manufacturers and shall be specific to each piece of equipment.

D. Training Manuals and Material

1. The CONTRACTOR shall use the approved Training syllabus and Training Manuals to develop training material. The training material shall be designed to provide the operations, maintenance and supervisory personnel with training in routine operation procedures, and preventive maintenance and troubleshooting of the I&CS, PLCs and the computer monitoring and control systems.

E. Schedule

1. Training shall be performed on-site during the calibration, loop and functional testing of the I&CS prior to the 30-day Final Acceptance Test. The training sessions shall be scheduled a minimum of 3 weeks in advance of when the courses are to be initiated. The ENGINEER will review the course outline for suitability and provide comments that shall be incorporated. Due to availability and scheduling of the OWNER's staff, the CONTRACTOR shall coordinate with the OWNER the schedule of the classes. The OWNER reserves the right to videotape the training sessions for later use. Due to possible limited availability of the OWNER's staff, the CONTRACTOR shall provide the number of identical courses/sessions of each of the following training courses as indicated, each up to four (4) people of the OWNER's staff.

- F. Training Subjects, Duration, and Agenda: The training shall include operation and maintenance procedures, troubleshooting with necessary test equipment, and changing set points, and calibration for that specific piece of equipment. During the course, hands-on experience with the system equipment shall be provided. Maintenance classes shall stress troubleshooting, repair, calibration, and other technical aspects of the I&CS and the PLCs. Operator classes shall stress operational theory and use of the I&CS and the PLCs.

1. Field Instruments

- a. Duration – an average of half hour (1/2) hours per each type of instrument
- b. Subjects - installation, setup, configuration, maintenance, calibration, and troubleshooting:
 - Level transmitter
 - Flow measuring device and transmitter
 - Power monitoring equipment
 - Uninterruptible power supply (UPS)

G. Programmable Logic Controller (PLC)

1. The training for the PLC and SCADA software shall be performed by OTHERS.

END OF SECTION

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**SECTION 40 91 06
LEVEL MEASURING**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. General: The CONTRACTOR shall provide level measuring systems, complete and operable in accordance with the Contract Documents.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Section 40 91 00 - Instrumentation and Controls for Process Systems.
B. Applicable Sections in Division 40 – Instrumentation and Control for Process Systems.
C. Division 26 – Electrical.

1.03 SUBMITTALS

- A. Submittals shall be provided in accordance with the requirements specified in Section 40 91 00 – Instrumentation and Controls for Process Systems.

PART 2 - PRODUCTS

2.01 SUBMERSIBLE TRANSDUCER TYPE LEVEL MEASUREMENT

A. Manufacturers:

1. Submersible level transducers/transmitters manufacturer and model shall be Keller America Level Rat, Dwyer Series PBLT2, TE KPSI 750, or Approved Equal.
2. Termination enclosure shall be of same manufacturer as level transducer.

- B. Description: The submersible level measurement system shall be designed for level and depth measurements, such as wells, where small transducer size is required. The level measurement system shall consist of a submersible transducer, electronic transmitter, support cable, and interconnecting cable with cable shield, termination enclosure, and vent tube for atmospheric reference. The installation shall allow easy removal of the transducer and cable assembly for maintenance purposes

C. Performance / Design Criteria:

1. The transducer shall be the strain gauge type suitable for sensing pressure equivalent to the measured liquid level range. Various pressure ranges shall be available from 1 to 900 psig and shall be provided as indicated in the data sheet.
2. The transducer' shall be less than 1-inch in diameter and shall be integral to and suspended by a corrosion resistant cable, as recommended by the manufacture
3. The transmitter shall produce a 24 VDC, 4 - 20 mA DC signal linearly proportional to the required level range as indicated in the data sheet. The measurement system shall operate over a temperature range of -5 to 140 degrees F with an accuracy of plus or minus 0.1 percent of full scale. Local indication shall be provided, unless otherwise indicated in the data sheet.

D. Materials / Components:

1. Submersible Transducer/Transmitter:

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- a. The wetted parts of the transducer/transmitter's body assembly shall be as recommended by the manufacturer. The transducer/transmitter shall be provided with a lightning surge arrestor. It shall be rated IP68/Type 6. Based on installation location rating, the unit shall be intrinsically safe and rated for Class I Div. II area. Intrinsically safe barriers shall be provided as required.
- b. Vent Tube: The vent tube shall be used for atmospheric reference and terminated in a sensor termination enclosure. Vent tube shall be able to support a load of up to 115 lb. and its material shall be compatible with the measured liquid level as recommended by the manufacturer for the intended service and as indicated in the data sheet.
- c. Termination Enclosure: The vent tube and the pressure transducer shall be terminated in an enclosure rated for the installation location. The enclosure shall contain a replaceable desiccant module with an integral moisture status indicator, and a replaceable micro filter assembly against ingress of dust. A DIN standard terminal block shall also be included. Mounting hardware shall be included for the required installation requirements.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Level measuring systems shall be handled, installed, calibrated, loop-tested, pre-commissioned, and performance tested in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems. Manufacturer's service, supervision, and training shall also be in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems.

END OF SECTION

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**SECTION 40 91 07
LEVEL DETECTION**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. General: The CONTRACTOR shall provide level detection switches, complete and operable, in accordance with the Contract Documents.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Section 40 91 00 - Instrumentation and Controls for Process Systems.
- B. Applicable Sections in Division 40 – Instrumentation and Control for Process Systems.
- C. Division 26 – Electrical.

1.03 SUBMITTALS

- A. Submittals shall be provided in accordance with the requirements specified in Section 40 91 00 – Instrumentation and Controls for Process Systems.

PART 2 - PRODUCTS

2.01 TIPPING FLOAT TYPE LEVEL SWITCHES

- A. **Manufacturers: Tipping float type level switch manufacturers shall be MJK 7030, MAGNETROL T10, FLYGT ENM-10, or Approved Equal.**
- B. Description: Tipping float level switch shall consist of a switch, a moving float, and a connecting cable that is anchored at the midpoint of a differential band. As the level rises and falls the float rights itself or inverts causing switching actions. The cable anchoring point shall be protected by strain relief.
- C. Performance / Design Criteria: The hermetically sealed switches shall have a SPDT output with a minimum rating of 10 Amps at 120 VAC.
- D. Materials / Components: The float switch shall be mercury-free. Float material shall be in accordance with the manufacturer's recommendations for the intended service and installation application and as indicated in the data sheet.

2.02 VERTICAL FLOAT TYPE LEVEL SWITCHES

- A. Manufacturers: Vertical float type level switch manufacturers shall be APG FS-400, Gems EW-xx or Approved Equal.
- B. Description: Vertical float level switch shall consist of a switch, a moving float, and a connecting cable that is sealed for NEMA4X environmental rating. As the level rises and falls the float actuates a magnetic switch contained withing a stainless-steel housing.
- C. Performance / Design Criteria: The hermetically sealed switches shall have a SPST output with a minimum rating of 0.8 Amps @ 120 VAC/1Amp @ 100VDC or less. Float shall be field reversible to change from N.C. to N.O. contacts
- D. Materials / Components: The float switch shall be stainless steel with ¼" NPTM threads and 24" integrated cable

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PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL:

- A. Level detection switches shall be handled, installed, calibrated, loop-tested, pre-commissioned, and performance tested in accordance with 40 91 00 - Instrumentation and Controls for Process Systems. Manufacturer's service, supervision, and training shall also be in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems.

END OF SECTION

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SECTION 40 95 10
PLC-BASED CONTROL SYSTEM HARDWARE

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR through the use of the System Supplier shall provide the programmable logic controllers (PLC)-based control system (PBCS) hardware for the I&CS, complete and operable, in accordance with the Contract Documents. The PBCS shall be furnished complete with all system hardware as indicated in the I-Series Contract Drawings.
- B. The System Supplier shall be responsible for selecting, sizing, and providing the correct and necessary type and quantity of hardware for the entire PBCS. The necessary hardware shall include but not limited to network hardware, PLC input/output (I/O) modules, interconnecting cables, accessories, communication ports, adapters and cards, and all appurtenances for proper operation of the PBCS and to meet the functional requirements described in these specifications, and as shown on the system architecture diagram or network diagram.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Section 40 91 00 - Instrumentation and Controls for Process Systems
- B. Applicable Sections in Division 40 – Instrumentation and Control for Process Systems
- C. Division 26 – Electrical
- D. The PBCS equipment, materials, and other work shall conform to the specifications; codes and standards requirements specified Section 40 91 00 - Instrumentation and Controls for Process Systems.

1.03 SUBMITTALS

- A. The PLC submittal shall be provided in accordance with the requirements specified in Section 40 91 00 - Instrumentation and Controls for Process Systems.

1.04 MAINTENANCE MATERIAL SUBMITTALS

- A. Spare Parts:
 - 1. It is intended that sufficient spare parts and supplies necessary to support the operation and maintain the system shall be furnished with the system. These spare parts are in addition to the "spare" I/Os listed in the I/O list. PLC system spare parts shall be furnished in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems.
 - 2. As a minimum, the spare parts listed below are required to be furnished under this contract
 - a. One (1) PLC I/O module of each type.
 - b. One (1) PLC CPU
 - c. One (1) PLC communication module (if a separate module is required)
 - d. One (1) PLC power supply
 - e. One (1) Firewall appliance

1.05 WARRANTY

- A. The CONTRACTOR shall guarantee the performance of all the new PLCs and the programming software for them as specified elsewhere in the Contract Documents.

- B. All parts, material labor, travel, subsistence, or other expenses incurred in providing services and service visits during the warranty period shall be borne by the CONTRACTOR under the guarantee. Equipment, software, and materials that do not achieve their intended purpose shall be replaced by the CONTRACTOR to attain compliance, at no additional cost to the OWNER.
- C. Guarantee and special corrections of defects and software upgrade requirements and warrantee shall be in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems.

PART 2 - PRODUCTS

2.01 REFER TO BILL OF MATERIALS ON I-SERIES DRAWINGS

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. The CONTRACTOR shall provide the OWNER with training on the subjects of use, maintenance, operation, troubleshooting and repair of all the components of the PLCs and the rest of the PBCS hardware. The training shall be specifically tailored to this project and reflect the hardware and the installation. All training shall be conducted on site unless another location is approved by the ENGINEER and OWNER. Hardware training subjects and the allocated hours for each class shall be in accordance with Section 40 91 00 - Instrumentation and Controls for Process Systems.

END OF SECTION

**SECTION 40 95 13
CONTROL PANEL**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR through the System Supplier shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install control panels for the PLC-based control system, complete and operable, in accordance with the Contract Documents.
- B. The system Supplier shall be responsible for selecting, sizing, and providing the required type and quantity of the panels for each process control applications. The hardware and responsibilities shall include but not limited to:
 - 1. The selection of all accessories, materials and methods of fabrication not specifically covered by these specifications, but which are necessary to complete the fabrication of the panels. Installation of all equipment shall be performed in accordance with good engineering and industry best practices.
 - 2. Mounting enclosures.
 - 3. Locating and mounting interior/exterior instrumentation, hardware and equipment in the control panel.
 - 4. Field interface terminal blocks
 - 5. Terminating panel internal wiring and signals.
 - 6. Terminating communication and network cabling and wiring.
- C. The requirements of Section 26 00 00 – General Electrical Work, apply to the WORK of this Section

1.02 RELATED WORK

- A. Division 26 Electrical Specifications
- B. Section 40 91 00 Instrumentation and Control for Process Systems
- C. Section 40 95 10 PLC-Based Control System Hardware
- D. All electrical work required under this section shall conform to the requirements of Division 40 and the applicable requirements of Division 01, Division 26.

1.03 REFERENCE CODES AND STANDARDS

- A. Reference Standards:
 - 1. NFPA 70, National Electric Code
 - 2. ANSI/UL 1449, Fourth Edition, Safety Surge Protective Devices
 - 3. IEEE C62.41.1, Guide on the Surge Environment in Low-Voltage (1000V and Less) AC Power Circuits
 - 4. IEEE C62.45, Recommended Practice on Surge Testing for Equipment Connect to Low-Voltage (1000V and Less) AC Power Circuits
 - 5. UL 1283, Safety Electromagnetic Interference Filters
 - 6. NFPA 70, National Electric Code
 - 7. National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE):

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- a. C62.90.2, IEEE trial use standard withstand capability of relay systems to radiated electromagnetic interference from transceivers.
 - b. C62.41, IEEE recommended practice on surge voltages in low-voltage AC power circuits.
 - c. C62.45, IEEE guide on surge testing for equipment connected to low-voltage AC power circuits.
8. Underwriters Laboratories, Inc. (UL):
- a. UL 508, Industrial control panels.
 - b. UL 1283, Safety-electromagnetic interference filters.
 - c. UL 1449, Surge protective devices.
9. Electronic Industries Association (EIA):
- a. TIA-232-E, interface between data terminal equipment and data circuit-terminating equipment employing serial binary data interchange.
 - b. 422-A, electrical characteristics of balanced voltage digital interface circuits.
10. International Organization for Standardization (ISO) 9001, quality systems-model for quality assurance in design, development, production, installation, and servicing.
11. National Electrical Manufacturers Association (NEMA):
- a. ICS 1 - General Standards for Industrial Control and Systems.
 - b. ICS 3 - Industrial Systems.
 - c. ICS 4 - Terminal Blocks for Industrial Use.
 - d. ICS 6 - Enclosures for Industrial Controls and Systems.
 - e. LS1 - Low Voltage Surge Protection Devices.
 - f. Publication No. 250 - Enclosures for Electrical Equipment (1000 V Maximum).
 - g. NEMA IA 2.2 - Programmable Controllers - Equipment Requirements and Tests.
 - h. NEMA IA 2.3 - Programmable Controllers - Programming Languages.
 - i. NEMA ICS 3 - Industrial Control and Systems: Factory Built Assemblies.
 - j. NEMA ICS 6 - Industrial Control and Systems: Enclosures.
12. National Fire Protection Association (NFPA).
13. Each control panel, including panels for service entrance equipment, shall meet all UL listing and labeling requirements including UL Standard 508 and UL Standard 508A and shall be UL labeled accordingly.

1.04 SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures and 40 91 00 - Instrumentation and Control for Process Systems.
- B. Control panels, wall mounted and free-standing, shall be provided with mounting and anchoring calculations signed by a California Registered Structural Engineer.

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1.05 QUALITY ASSURANCE

- A. Factory and field tests shall be performed in accordance with 40 91 00 - Instrumentation and Control for Process Systems.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All control panel assemblies for PLC's, Remote I/O, analyzer systems, communication systems, etc., shall be mounted within NEMA-rated enclosure suitable and designed for the process application, as specified in the Contract Drawings.
- B. Reference Contract Drawings for control panel layouts and product requirements. The control panel layouts shown on the Contract Drawings are diagrammatic. The control panel submittal shop drawing shall reflect the accurate layout of the equipment in the panel. It is not the intent of this specification to completely specify all details of the design and construction of each panel.
- C. Control panels shall be either freestanding, pedestal-mounted or equipment skid-mounted.
- D. The enclosures shall be suitable for carrying the weight of the equipment mounted inside the panel and on the doors without any distortion or warping. The CONTRACTOR shall supply all equipment and components mounted on or within panels unless otherwise noted. Spare space shall be kept clear of wiring, etc., to give contiguous clear space for future additions.
- E. When required, PLC-based control system panel assemblies shall be mounted in existing enclosures.
 - 1. The CONTRACTOR shall review the available space in the field or in the existing panel to determine the proper size of back panel suitable to accommodate the required equipment for the facility.
- F. Environmental Suitability and NEMA Rating:
 - 1. Indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents.
 - 2. Provide heating, cooling, and dehumidifying equipment required to maintain instrumentation devices 20-percent within the minimums and maximums of their rated environmental operating ranges. Provide power wiring for these heating, cooling and dehumidifying devices.
 - 3. Enclosures shall be suitable for the environment that they are installed. Panel instruments and equipment in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.
 - 4. Control panels shall be sized to adequately dissipate heat generated by equipment mounted in or on the panel.
 - 5. Enclosure Ratings:
 - a. NEMA 12: Suitable for enclosures located in the Electrical Room and Control Room.
 - b. NEMA 4X: Suitable for enclosures located outdoors and in damp and corrosive process areas.
 - c. NEMA 7X (explosion proof and corrosion resistant): Suitable for enclosures located in classified areas.

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- d. ALL modifications to the panel enclosure including device penetrations shall not compromise the enclosure rating.

2.02 ENCLOSURE CONTRUCTION

A. Approved enclosure manufacturers

1. Hoffman
2. Tesco
3. Or approved equal.

B. Material and Fabrication

1. Wall mounted type enclosure shall be constructed of a minimum of 12-gauge, depending of the size of the enclosure, application, environment, and the project requirements.
2. Floor mounted free-standing enclosures shall be made of 12-gauge, depending of the size of the enclosure, application, and the project requirements.
3. Seams shall be continuously welded and ground smooth. Corners shall be welded and ground smooth.
4. Each enclosure shall have a heavy gauge, continuous piano hinge pin which shall support each door.
5. Door and body stiffeners shall be provided where required. The stiffeners shall be welded to the inside of enclosures to prevent deformation due to the weight of face-mounted instruments.
6. Doors shall be sealed with a closed cell neoprene gasket.
7. The interior rear and sides of each enclosure shall have steel mounting channels for supporting mounting panels.
8. Enclosures shall be provided with external mounting feet when shown, as well as door clamps, hasp and staple for padlocking, data pocket, and closed-cell oil-resistant gasket. Removable lifting lugs to facilitate handling shall be provided on large enclosures.

C. Back and Side Panels

1. Each enclosure shall be provided with a removable back panel. Depending on the size of the enclosure more than one back panel may be required. Removable side panels shall be provided as required for additional mounting space.

D. Control Panel Finish

1. Non-stainless-steel enclosures shall have an ANSI 61 gray polyester urethane powder coating electrostatically applied to inside and outside surfaces. Enclosure interior, and back and side panels shall be white.
2. Stainless Steel enclosures shall be Type 316 and have a brush finish.

E. Ventilation, Louvers, and Vents

1. All enclosures rated NEMA 12 shall be provided with ventilation louvers, exhaust fan and thermostat. The perimeters of the louver plate shall be sealed with a gasket. Louver shall be of the same material and finish as the enclosure. The louver shall be sized for effective heat rejection.

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2. All Control Panels installed outside or inside non-air-conditioned environments shall have an integral heater c/w thermostat.
3. All enclosures shall be provided with a corrosion inhibitor size per manufacture recommendations.
4. Each panel enclosure shall be provided with a data pocket for storing wiring diagrams, operation manuals and other documentation inside the enclosure.

F. Air Conditioning

1. NEMA 4X enclosures and enclosures with VFD's shall be provide with Air Conditioning Units, size as recommended by the manufacturer to accommodate for heat dissipated by electrical equipment.

G. Accessories

1. The CONTRACTOR shall provide additional panel accessories to meet the specifications, such as floor stand and mounting kits, door handle and lock kits (common key shall be provided for all doors), 3-point latch, etc. Provide panels with front access only. Doors shall be key/pad lockable (as required) and fitted with 3-point heavy duty latching assemblies.

H. Instruments Mounting

1. Equipment mounted at the rear of enclosure shall be installed to allow for commissioning adjustments, operation and servicing requirements. The CONTRACTOR shall arrange components and wiring to meet UL requirements.
2. Spare space shall be kept clear of wiring, etc., to give maximum space for future additions.
3. For front mounted hardware, cutouts and holes may be cut or drilled by any standard method that does not cause deformation. Burrs shall be ground smooth. Mounting the instruments shall not degrade the NEMA rating of the enclosure.
4. Each enclosure shall be provided with interior nameplates to identify equipment tags and functions.

2.03 ELECTRICAL REQUIREMENTS

- A. The main power supply to the control panel controls shall be 120 VAC, 60 Hz. The CONTRACTOR shall provide the main power supply from an external source. The CONTRACTOR shall provide a step-down transformer as required to power the panel.
- B. Each source of foreign voltage shall be isolated by providing disconnect type terminal blocks Weidler or approved equal.
- C. The CONTRACTOR shall provide wireways, wire, and electrical fittings and components for 120V and 24VDC circuits to instruments and other electrical devices in the panel for a complete and operable installation. Wiring methods and materials for all panels shall be in accordance with the NEC requirements.
- D. The circuits for 24VDC shall run in separate wireways from the 120 VAC circuits.
- E. If required by the contract documents, the control panel shall be the source of power for any 120 VAC solenoid valves interconnected with the control panel.
- F. Wiring and Accessories

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1. Run all wiring in enclosed plastic wireways such as Panduit. Size all wireways so that the total cross-sectional area of the insulated wire and cable does not exceed forty (40%) percent of the cross-sectional area of the wireway.
2. Provide a minimum clearance of 1.5" between wireways and any point of wire termination.
3. Control wiring to be a minimum of #14 AWG tinned stranded copper; insulation rated at 600V.
4. Wiring for power distribution shall be a minimum of #12 AWG tinned stranded copper; insulation rated at 600 V.
5. Analog wiring to be a minimum of #16 single pair copper 300V CIC white/black cable with overall foil shield and the drain wire. The black wire shall be positive and white wire shall be negative. Drain wires shall be clipped in the field and terminated on individual green/yellow terminal blocks in the control panel. The shield shall be grounded at only one end in the control panel grounding terminals, and cut back and insulated at the instrument end.
6. Cable routing and requirements shall be installed in accordance with Division 26 – Electrical Specifications.
7. All wiring entering or leaving the enclosure shall be labeled with permanent marking identification subject to the review by the Engineer.

G. Terminal Blocks

1. The control panel shall be provided with sufficient terminal blocks for the connection of external field conductors, signals, and power and for use inside the panel for power distribution and for future expansion. In order to facilitate easy and safe loop maintenance, each analog input loop shall have a disconnect with test plugs built into its field terminal block.
2. Spare Terminal Blocks for Signals: The CONTRACTOR shall provide sufficient spare terminal blocks to connect additional signals for future use (implemented and future spares). Implemented spare signals shall be wired to terminal blocks and the percent of these terminals shall be in accordance with the growth requirements specified in Section 40 95 10 – PLC-Based Control System Hardware. For future signals (i.e. the source of inputs or final control elements are not yet known or available in the field), the CONTRACTOR shall provide 25-percent spare terminals in the panel for each type of actual I/O in the PLC. The number of terminals shall take in account the types of I/O for which spares are provided (Three (3) terminal for each AI or AO shall be provided).
3. Spare Terminal Blocks for Power and Other Applications: In addition to the spare terminals for signals, The CONTRACTOR shall provide spare terminals for 3 additional power distribution and grounding applications circuits.
4. Terminal blocks for all wiring shall be modular terminals, DIN rail mounted strap screw type rated at 15 amperes at 600VAC and suitable for No. 12 AWG. stranded wire.
5. Identify each terminal block within an enclosure with a unique machine printed terminal block number. Cabinet chassis grounding terminal blocks to be identified by the electrical ground symbol.
6. Connections to screw terminals to be locking fork tongue insulated crimp type wire connectors equal to Panduit PAN-TERM series or T&B STA-KON series.
7. Terminals to be Weidmuller terminal blocks or engineer approved equal.

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- a. WDU4 Feed through Terminal Block.
 - b. WPE4 Ground Block.
 - c. WTR4 Disconnect terminal.
 - d. WDK4N Two Level Terminal Block.
 - e. WTR 4/SI LED Fused Terminal Block - for 24 V DC rated circuits c/w all required fuses.
 - f. WTR 6/2 SI LED Fused Terminal Block - for 120 V AC rated circuits c/w all required fuses.
 - g. WAP End Bracket.
8. Provide a group of terminals for each of 120 V AC hot and neutral and 24 V DC positive and negative power. Distribution wiring to have a thermal magnetic circuit breaker upstream of all major blocks of loads, adequately sized to protect the connected load while not causing nuisance tripping. Provide nickel-plated terminals for all high-capacity applications in excess of 15 A.
9. Provide Weidmuller disconnect type terminal blocks c/w fuses for each load or loop powered instrument from the control panels.
- H. Electrical Hardware Accessories: The control panel shall be equipped with minimum provisions listed below:
- 1. Duplex 15-amp, 120 VAC GCFI type receptacles for service and maintenance use. The receptacle shall be 2-pole, 3-wire grounding, and heavy-duty industrial grade by Hubbell, Leviton, or approved equal.
 - 2. Simplex 15-amp 120 VAC GCFI type receptacle dedicated for a powering an uninterruptible power supply (UPS). The receptacle shall be color coded, 2-pole, 3-wire grounding, heavy duty industrial grade by Hubbell, Leviton, or approved equal.
 - 3. A 120 VAC LED light strip lamp with guards and a toggle switch (Hoffman Panelite LED Series, or approved equal) mounted on the top of the enclosure or on the part the side or back panel shall be provided for panel lighting. A separate fuse/circuit breaker shall be provided for the lamp mounted inside and in the top of the back-of-panel area. Provide (2) two lamps for Control Panels that are longer than 72-inches
 - 4. A one (1)-inch by eight (8)-inch copper grounding bus mounted in each Control Panel including grounding lugs, suitable for termination of up to #2 AWG copper grounding conductor. The grounded bus shall be bonded to the ground.
 - a. The grounding bus shall be complete with solderless connector for one 2 AWG bare stranded copper cable and with tapped holes to accommodate ground connections from various devices in the enclosure.
 - b. Provide ground connections for different AWG wires and shield connection clamps by Phoenix Contact, or approved equal.
 - c. Provide separate ground buses for analog and discrete/digital signals. The copper cable shall be provided by the CONTRACTOR and be connected to a system ground loop.
 - d. Bond each enclosure door to the grounding lug.
 - 5. Provide Hoffman 120 VAC Heater and thermostat. Heater shall be DAH1001A and thermostat shall be Stego model KTO-011, or approved equal, if required.

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6. Provide ventilation system sized for heat dissipation. The ventilation system shall be by Hoffman, Cooling kit with removable filter or approved equal.
- I. Circuit Breakers, Fuses, and Disconnects
 1. Provide circuit breakers, fuses and disconnects installed in the control panel to protect against fault current the 120 VAC and 24 VDC branch circuits. Circuit breakers shall be installed as disconnects of external power feeds for control circuits from outside the enclosure and branch circuits within the enclosure.
 2. The circuit breakers, fuses and disconnects shall also allow disconnecting the power from these instruments in a safe manner. Each circuit breaker and fuse shall be clearly identified by a unique service nametag.
 3. The fuses shall be DIN rail mounted with fuse holder terminal block and shall have a blown fuse indicator light.
 - a. The fuse holders for 120 VAC applications shall have a neon light indicator. Provide Entrelec part number 0115-661.21, or equal.
 - b. The fuse holders for 24 VDC applications shall have an LED indicator light. Provide Entrelec part number 0115-663.23, or equal.
 4. The circuit breakers shall be DIN rail mounted type. The 120 VAC breakers shall be Square D model QUO-120 and QUO-115, amperage rating as required, or approved equal.
 - a. 20-Amp main circuit breaker for the 120 VAC control panel power supply and the distribution of the power.
 - b. 15-Amp circuit breaker for the duplex 15-amp, 120 VAC GCFI type receptacle for service and maintenance, and the LED light.
 - c. 15-Amp circuit breaker (or as required by the UPS manufacturer) for the dedicated simplex GCFI type receptacle for UPS.
 - d. 15-Amp circuit breaker for the heater and thermostat and ventilation fan.
 - e. 5-Amp fuse, 120 VAC for each of the 120 VAC power input circuits to the two(2) redundant 24 VDC power supplies
 - J. Uninterrupted Power Supply
 1. The CONTRACTOR shall provide an uninterruptible AC power supply (UPS) system for each control panel to back up the power for the panel in case utility power fails. The UPS shall be a "smart" type, use on-line, high frequency, double-conversion technology. The batteries shall be integral to the UPS enclosure.
 2. Capacity and Duration
 - a. The continuous output capacity of the UPS shall be at least 1,000 VA. It shall be sufficient to supply the computers, interface and peripheral equipment (present and future) with regulated AC power for a minimum of thirty (30) minutes from batteries only. Additional batteries or larger UPS size shall be provided to meet the specified backup time.
 3. The CONTRACTOR shall submit load calculations and size each UPS to justify the selection of present and future load requirements, as well as overload and inrush capacity requirements.

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4. Features and Options

- a. Input Power Range: 120 VAC, 60 Hertz $\pm$ 5 Hertz.
- b. Output Power Range: 120 VAC, $\pm$ 3 percent of nominal, 60 Hertz $\pm$ 0.5 percent.
- c. Output Receptacles: Minimum of six (6) built-in outlets.
- d. Overload Capacity: The UPS shall have the ability to supply 110 percent of system requirements for 10 seconds, without degradation of the service life.
- e. Operating Temperature: 0-to-40-degree C.
- f. Protection: The UPS output shall be protected (IEEE standards) from lightning, surges overload, and short circuit. The input shall be protected by a circuit breaker, sized in accordance with manufacturer's recommendations.
- g. Battery: Lead acid type, maintenance free, sealed suspended electrolyte, and leak-proof. Recharge Time (with half load): three (3) hours.
- h. Alarms and Status: The UPS shall be provided with a relay output card in a combination with a network management card (NMC) to provide a common dry contact output that represents the health/status of the UPS and battery functions (i.e. low battery, UPS on batteries, UPS fault, batteries failed on battery self-test). The NMC shall be configured to provide the above alarms/status listed above.

5. Manufacturer: Schneider Electric APC model Smart-UPS with communication and relay interface cards, or approved equal.

K. 24VDC Power Supplies

1. Control panels shall be provided with redundant power supplies which shall be configured in a fault-tolerant manner to prevent interruption of service upon failure and interruption of service necessitated by the replacement of a power supply.
2. The CONTRACTOR shall size the power supplies to meet the control panel requirement and the instruments and loops they support. Power supplies shall have an excess rated capacity of 40 percent. The failure of a power supply shall be alarmed at the SCADA System.
3. The failure of a power supply shall generate a dry relay contact output that can be used as an input to the PLC/ SCADA system.
4. 5. Power supplies shall be Phoenix Contact 24 VDC Quint series, or equal.

L. Wire Labeling

M. Surge Protection Devices

N. Signal, Control, and Power Wiring

2.04 ELECTRICAL COMPONENTS

A. General Purpose Relays

1. General purpose relays in the control panel(s) shall be compact plug-in type with contacts rated 10-Amps at 120 VAC; or 24 VDC.
 - a. Quantity and form of contacts shall be as required by the application.
 - b. The relay shall have a minimum of two (2)-form C contacts (double pole-double throw), except when used as interpose relay for the PLC's DO modules.

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- c. Interpose relay for the PLC's DO modules shall have a minimum of one (1)-form C (single pole single throw) contacts. Each relay shall be provided with a neon light to indicate energized state.
 2. The relay socket and mounting shall be a standard DIN rail mount with pullover wire spring.
 3. Relays shall be IDEC compact relays 2213, or approved equal.
- B. Interpose Relays
1. Additional relays shall be provided when the number or type of contacts required exceed the contact capacity and/or rating of the specified relays and timers.
 2. Additional relays shall be provided when higher contact rating is required in order to interface with starter circuits or other equipment.
 3. The interpose relays shall be as the general-purpose relays specified above.
- C. Time Delay Relays
1. Time delay relays shall be plug-in electronic type with on-delay or off-delay actuation as required. Output contacts shall be double-pole double-throw (DPDT) rated 10-Amps at 120 VAC minimum. Each unit shall include an adjustable time delay with a time range scale. Operating temperature range of the units shall be -20 to +120 degrees-F minimum and each device shall be rated for 10,000,000 mechanical operations and 500,000 electrical operations.
 2. Provide Idec RTE multi-function series, Schneider Electric, or approved equal.
- D. Indicating Pilot Lights
1. Indicating lights shall be ultra-bright multiple LED cluster lamps, push-to-test full voltage and shall be heavy-duty, oil-tight construction. Operators shall be nickel or chrome plated. Each light shall have a screwed-on prismatic lens approximately 1-inch in diameter. Miniature style devices are not acceptable.
 2. Lens colors shall be GREEN for "run," "open," or "on"; RED for "stopped," "closed," or "off"; and AMBER for alarm.
 3. Indicating lights shall be Square D Company, Class 9001 Type K, General Electric Company Type CR104P, or approved equal. Each light shall have a factory-engraved legend plate, as shown on the Contract Documents.
- E. Selector and Pushbutton Switches
1. Selector and pushbutton switches shall be rated 10-amperes at 600 volts; shall be heavy-duty, oil-tight construction; and shall have the number of positions and poles required. Miniature style devices are not acceptable. Operators shall be nickel or chrome plated. Switches shall be Square D Company, Class 9001 Type K, General Electric Company Type CR104P, or approved equal. Each switch shall have a factory-engraved legend plate as shown on the Contract Documents.
- F. Signal Isolators, Conditioners and Converters
1. Signal isolators conditioners and converters shall be provided as required to resolve any signal level incompatibilities, to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component.

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2. Signal isolators, integrators and converters shall be 24 VDC or 120 VAC powered as applicable, and shall DIN rail mounted. Isolators shall be by Phoenix Contact, or approved equal.

G. Nameplates

1. Provide nameplates for each device on or within the panels and enclosures. Nameplates shall be black laminated with white lettering, a minimum of 1" x 3" in size with up to three lines of 1/4" lettering. Securely fasten nameplates in and situate them in a visible location.

2.05 SPARE PARTS AND SPECIAL TOOLS

A. Control panels

PART 3 - EXECUTION

3.01 EXAMINATION

A. Preparation for Shipment and Shipping

1. Control panels shall be crated for shipment using a heavy framework and skids as required and cushioned to protect the finish and the instruments during shipment. Provide sufficient cushioning material to protect interior hardware that could be damaged due to mechanical vibrations.
2. Each panel unit shall be provided with removable lifting lugs to facilitate handling.

3.02 INSTALLATION

A. Control panels shall be installed in accordance with Section 40 91 00 – Instrumentation and Controls for Process System and located as indicated in the Contract Drawings.

B. All conduit and cable entrance shall be from bottom entry only, unless otherwise specified by the Contract Drawings.

C. Wire Installation Requirements

1. Wiring methods and materials for panels shall be in accordance with the NEC requirements and industry best practices.
2. Wires shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals. Wiring run from components on a swing out panel to other components on a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon wire ties and shall be secured to panels at both sides of the hinge loop so that conductors are not strained at the terminals.
3. Wiring run to control devices on the front panels shall be tied together at short intervals with nylon wire ties and be secured to the inside face of the panel using adhesive mounts.

D. Wire Terminations

1. Spare I/O shall be wired to a terminal strip and clearly marked.
2. All field wiring shall terminate at a terminal block in the enclosure. Field wiring shall be terminated first at the field interface terminal block and then wired to the devices/instrument or PLC inside the panel.

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- a. Except for antenna cable, Cat 5e cables and other specialty cables, such as thermocouples and data cables, field wiring shall not be wired directly to the panel mounted device.
3. Terminals and fuses for each conductor and shield drain wire of a twisted shielded pair or triad cable shall be mounted consecutively next to each other.
4. Terminal blocks shall be grouped based on their function and voltage. Each group of terminal blocks shall be located in the panel to provide easy access, safety, practicality, and minimization of internal wiring.
5. Terminal blocks for 24 VDC signals shall be grouped separate from the power and other 120 VAC terminals.
6. Terminal blocks for 24 VDC signals shall be grouped separate from the 24VDC power as well. Likewise, terminal blocks for 120 VAC power and distribution shall be grouped separate from the 120 VAC terminals for control signals.
7. Each terminal and wire connection shall be tagged in accordance with the approved shop drawings or Facility standard tagging/numbering, if available.

3.03 IDENTIFICATION

A. Nameplates

1. Provide nameplates for each device on or within the panels and enclosures. Nameplates shall be black laminated with white lettering, a minimum of 1" x 3" in size with up to three lines of 1/4" lettering. Securely fasten nameplates in and situate them in a visible location and mechanically attached with self-tapping stainless-steel screws to the panel door. The nameplate to indicate panel name as indicated on drawings.
- B. If more than one power source is present in a panel, a separate warning nameplate with red face and white core, mechanically attached with self-tapping screws to the panel door shall be provided. The nameplate to indicate the number of power sources and their origin.
- C. All instruments within the panel shall be identified.
- D. Provide a list of all circuit breakers and fuses laminated in plastic. The list shall be located in each associated enclosure.
- E. All wires shall be identified.

3.04 FIELD QUALITY CONTROL

- A. Calibration and testing shall be performed in accordance with Section 40 91 00 – Instrumentation and Controls for Process Systems.

3.05 ADJUSTMENTS

- A. Analog Loops: Whenever an existing analog loop is modified, the CONTRACTOR shall ensure that the integrity and isolation of the loop is maintained and the shield is grounded correctly. In modifying the analog loop, the CONTRACTOR shall also modify the 24 VDC to that loop so that the power supply source of that loop is part of the control panel and backed up by the UPS in it.
- B. Field Connection Panels and Interface Terminal Blocks: In cases where field I/O wiring has to be extended to the control panel from enclosures that are removed or modified, the CONTRACTOR shall provide separate enclosures/field connection panel (FCP), as required, to which field I/O are wired, and from which the signals shall be wired to the control panel.

40 95 13-12
Control Panel

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

END OF SECTION

40 95 13-13
Control Panel

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

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**SECTION 40 98 30
INSTRUMENTATION AND CONTROL TEST FORMS**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR, in cooperation with ENGINEER and System Supplier, shall perform commissioning and start-up testing to verify the operation of all the systems as described herein after the installation is completed.
- B. The Sytem Supplier, under the direction of the General Contractor, will coordinate and schedule all activities associated with testing and commissioning in accordance with Section 17010 - Instrumentation and Controls for Process Systems.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Section 40 91 00 - Instrumentation and Controls for Process Systems
- B. Applicable Sections in Division 40 – Instrumentation and Control for Process Systems for related testing, commissioning and start-up requirements of the I&CS.
- C. Division 26 – Electrical.

1.03 SUBMITTALS

- A. Furnish submittals in accordance with the requirements of Section 01 33 03 – Submittal Procedures and 40 91 00 - Instrumentation and Control for Process Systems.
- B. The CONTRACTOR shall furnish all Instrumentation and Control Test Forms as required by Section 40 91 00 – 1.07 Closeout Submittals.

1.04 QUALITY ASSURANCE

- A. The CONTRACTOR shall use only approved forms by the ENGINEER to perform loop testing.
- B. The CONTRACTOR and System Supplier shall be responsible to provide a coordinated commissioning and start-up program. The overall program will be presented to the owner and ENGINEER for approval prior to testing and commissioning activities as part of the shop drawings approval process.

PART 2 - PRODUCTS - NONE

PART 3 - EXECUTION - NONE

TEST FORM NUMBER AND DESCRIPTION

409830-A	LOOP WIRING AND INSULATION RESISTANCE TEST DATA FORM
409830-B	FIELD SWITCH CALIBRATION TEST DATA FORM
409830-C	TRANSMITTER CALIBRATION TEST DATA FORM
409830-D	MISCELLANEOUS INSTRUMENT CALIBRATION TEST DATA FORM
409830-E	INDIVIDUAL LOOP TEST DATA FORM
409830-F	VISUAL AND MECHANICAL INSPECTION FORM
409830-G	I/O POINT CHECKOUT TEST FORM
409830-H	FACTORY TEST FORM

40 98 30-2

Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

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40 98 30-3

Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

409830-A: LOOP WIRING AND INSULATION RESISTANCE TEST DATA FORM

LOOP TAG: _____

List each conductor of all cables associated with a loop in table below. Ensure end devices are disconnected prior to making measurements. Perform continuity measurements with a 4,000 count DVM. Perform insulation resistance measurements with an insulation tester with energization voltage of 250V DC or less. Do not use a high voltage or hand-crank megohmmeter for this test.

Submit up to 5% of conductor recorded retest results when requested by the Engineer.

CABLE NO.	CONDUCTOR NO. (OR COLOUR)	CONTINUITY RESISTANCE ^A	SHIELD CONTINUITY INSULATION RESISTANCE ^B

A Continuity Test: Connect ohm meter leads between conductors 1 and 2 and jumper opposite ends together. Record resistance in table. Repeat procedure between conductors 1 and 3, and 4, etc. and finally between conductor 1 and cable shield. Any deviation of ± 2 ohms between any reading and the average of a particular run indicates a poor conductor. Take corrective action before continuing with the loop test.

B Insulation Test: With all conductors open, measure the insulation resistance between conductor 1 and shield. Repeat procedure for each conductor and record reading.

CERTIFIED _____
Contractor's Representative

DATE _____

WITNESSED _____
Owner's Representative

DATE _____

40 98 30-4
Instrumentation and Control Test Forms
Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

409830-B: FIELD SWITCH CALIBRATION TEST DATA FORM

TAG NO. AND DESCRIPTION: _____

MAKE AND MODEL NO.: _____

SERIAL NO.: _____

INPUT: _____

RANGE: _____

SETPOINT(S): _____

Simulate process variable (flow, pressure, temperature, etc.) and set desired setpoint(s). Run through entire range of switch and calculate deadband.

Perform two tests per device or switch and record results.

SETPOINT	TRIP POINT (EU)		DEADBAND	
	INCREASE INPUT	DECREASE INPUT	CALCULATED	REQUIRED

CERTIFIED _____
Contractor's Representative

DATE _____

WITNESSED _____
Owner's Representative

DATE _____

40 98 30-5
Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

40 98 30-6

Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060

December 2022
BID SET

409830-C: TRANSMITTER CALIBRATION TEST DATA FORM

TAG NO. AND DESCRIPTION: _____

MAKE AND MODEL NO.: _____

SERIAL NO.: _____

INPUT: _____

SUPPRESSION: _____

RANGE: _____

SCALE: _____

Simulate process variable (flow, pressure, temperature, etc.) and measure output with appropriate meter.

% OF RANGE	INPUT	OUTPUT		% DEVIATION
		EXPECTED	ACTUAL	
0				
25				
50				
75				
100				
75				
50				
25				
0				

NOTE: If transmitter includes integral switches include Form 16900-G for each switch.

CERTIFIED _____
Contractor's Representative

DATE _____

WITNESSED _____
Owner's Representative

DATE _____

409830-D: MISCELLANEOUS INSTRUMENT CALIBRATION TEST DATA FORM

TAG NO. AND DESCRIPTION: _____

MAKE AND MODEL NO.: _____

SERIAL NO.: _____

SERVICE: _____

INPUT: _____

DATA SHEET: _____

SUPPRESSION: _____

RANGE: _____

SCALE: _____

	TEST 1				TEST 2			
TEST METHOD								
	INPUT		OUTPUT		INPUT		OUTPUT	
PROCESS	INC.	DEC.	INC.	DEC.	INC.	DEC.	INC.	DEC.
TEST POINT 1								
TEST POINT 2								
TEST POINT 3								
TEST POINT 4								
TEST POINT 5								
COMMENTS								

40 98 30-9

Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville
WWE Project: 21-060December 2022
BID SET

GRAPHS

CERTIFIED _____
Contractor's Representative

DATE _____

WITNESSED _____
Owner's Representative

DATE _____

409830-E: INDIVIDUAL LOOP TEST DATA FORM

LOOP NO.: _____

DESCRIPTION: _____
Give complete description of loop's function using tag numbers where appropriate

P & ID NO.: *Attach copy of P & ID*

1. Wiring tested (*attach test Form 409830 -A or equivalent*).
2. Instruments calibrated (*attach test Forms 409830-I through K*).
3. List step-by-step procedures for testing loop parameters. Test loop with instruments, including transmitters and control valves, connected and functioning. If it is not possible to produce a real process variable, then a simulated signal may be used with the Engineer's approval.
4. List step-by-step procedures for testing loop failure action. This testing to include loop operation upon loss of motive air supply, modulating control air signal, modulating control electrical signal and solenoid energizing power.
5. Sort all test forms associated with the P & ID in ascending order by loop number (*attach all associated instrument loop diagrams and interconnecting wiring diagrams*).

CERTIFIED _____
Contractor's Representative

DATE _____

WITNESSED _____
Corporation's Representative

DATE _____

409830-F: VISUAL AND MECHANICAL INSPECTION FORM**Equipment Name:**

Manufacturer: _____
Model #: _____
Voltage: _____
Amperage: _____
Bus Type: _____
Vertical Bus: _____
Ground Bus: _____
Enclosure: _____

Location:

Series#: _____
U.L. #: _____
Phase: _____
Service: _____
Bus Bracing: _____
Horizontal Bus: _____
Neutral Bus: _____
Environ. Rating: _____

Inspection ChecklistCheck: **A** – Acceptable, **R** - Needs Repair or Replacement, **NA** – Not Applicable

	Accept	Repair	NA
1. Tighten All Bolts and Screws	☐	☐	☐
2. Tighten All Wiring and Buss Connections.....	☐	☐	☐
3. Verify All Breakers and Fuses Have Proper Rating.....	☐	☐	☐
4. Check Bus Bracing and Clearance	☐	☐	☐
5. Check Main Grounding Connection and Size.....	☐	☐	☐
6. Inspect Ground Bus Bonding	☐	☐	☐
7. Check Equipment Grounds.....	☐	☐	☐
8. Check Conduit Grounds and Bushings.....	☐	☐	☐
9. Inspect Neutral Bus and Connections	☐	☐	☐
10. Check Heaters and Thermostats	☐	☐	☐
11. Check Ventilation and Filters	☐	☐	☐
12. Check for Broken or Damaged Devices	☐	☐	☐
13. Check Door and Panel Alignment.....	☐	☐	☐
14. Inspect Anchorage	☐	☐	☐
15. Check for Proper Clearances and Working Space	☐	☐	☐
16. Remove All Dirt and Dust Accumulation	☐	☐	☐
17. Inspect All Paint Surfaces	☐	☐	☐
18. Check for Proper Wire Color Codes	☐	☐	☐
19. Inspect all Wiring for Wire Labels	☐	☐	☐
20. Check for Proper Wire Terminations	☐	☐	☐
21. Check for Proper Wire Sizes.....	☐	☐	☐
22. Inspect All Devices for Nameplates	☐	☐	☐
23. Check if Drawings Match Equipment.....	☐	☐	☐
24. Check Accuracy of Operation & Maintenance	☐	☐	☐

Tested by: _____

Witnessed by: _____ Date: ____/____/____

40 98 30-12

Instrumentation and Control Test Forms

Pump Station 26 Improvement Project

City of Roseville

WWE Project: 21-060

December 2022

BID SET

Location: _____

[illegible]

Pump Station 26 Improvement Project

December 2022
BID SET

Witnessed by: _ Date: ____/____/____

409830-H: FACTORY TEST FORM (MCC BUCKET / CONTROL PANEL / PEDESTAL CHECKOUT FORM)

Manufacturer: _____ **Location:** _____
Job No.: _____
Telephone #: _____ **Fax #:** _____

MCC Bucket /
Control Panel
Pedestal: _____

Test Result

Pass Fail

OVERALL PANEL INSPECTION

- | | | |
|--|--------------------------|--------------------------|
| 1. All front panel and back panel components counted securely. | ☐ | ☐ |
| 2. All wiring terminated and labeled correctly. | ☐ | ☐ |
| 3. All components, wiring, and labeling accurately reflected on the drawings. | ☐ | ☐ |

POWER-UP INSPECTION

- | | | |
|---|--------------------------|--------------------------|
| 1. Voltage levels on load side of circuit breakers. | ☐ | ☐ |
| 2. Voltage levels at the DC terminals of the power supply. | ☐ | ☐ |
| 3. Voltage levels at the DC power distribution terminals. | ☐ | ☐ |

POWER DISTRIBUTION AND GENERAL COMPONENT TESTING

- | | | |
|---|--------------------------|--------------------------|
| 1. Power distribution to the appropriate components. | ☐ | ☐ |
| 2. Operation of the ancillary components such as receptacles, work lights, etc. ... | ☐ | ☐ |

CONTROL COMPONENTS CHECKS

- | | | |
|---|--------------------------|--------------------------|
| 1. Operators (push buttons, selector switches, pilot lights)..... | ☐ | ☐ |
| 2. Inputs from External Sources | ☐ | ☐ |
| 3. Outputs to External Sources..... | ☐ | ☐ |
| 4. Relay Logic | ☐ | ☐ |
| 5. PLC I/O and Program Verification | ☐ | ☐ |
| 6. O/I Display Verification | ☐ | ☐ |

Notes:

1. For relay logic checks, each rung of the elementary or loop diagram is to be highlighted in yellow as they are verified for correct control functions.
2. For PLC I/O and program verification, the control strategies shall be highlighted in yellow as each logic function is tested.

Tested by: _____

Witnessed by: _____

Date: ____/____/____

END OF SECTION

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CITY STANDARD SPECIFICATIONS
Micro-Surfacings

DIVISION V SURFACINGS AND PAVEMENTS

37 BITUMINOUS SEALS

37-3 SLURRY SEALS AND MICRO-SURFACINGS

Replace section 37-3.03 with:

37-3.03 MICRO-SURFACINGS

37-3.03A General

37-3.03A(1) Summary

Section 37-3.03 includes specifications for applying micro-surfacings.

Applying a micro-surfacing shall consist of mixing a polymer modified, cationic micro-surfacing emulsion (MSE), aggregate, mineral filler, set-control additives, and water and spreading the mixture on a pavement surface where shown on the plans, in conformance with the provisions in these Special Provisions and State Revised Standard Specifications, and as directed by the Engineer.

37-3.03B Material

37-3.03B(1) Micro-surfacing Emulsion (MSE)

Micro-surfacing emulsion (MSE) shall be homogenous and shall conform to the provisions of these Special Provisions. The polymer shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process.

The MSE shall conform to the following requirements when tested in conformance with the following test methods:

Polymer Modified, Cationic Micro-Surfacing Emulsion (MSE)

Specific Designation	Test Method	Requirement
Viscosity SSF @ 25°C	AASHTO T59	15 – 90 seconds
Sieve, max	AASHTO T59	0.30 percent
Settlement, 5 days, max	ASTM D6930 or AASHTO T59	5 percent
Storage Stability, 1 day, max	AASHTO T59	1 percent
Residue by Evaporation, min	California Test 331	64 percent
Specification Designation for Residue		
Specific Designation	Test Method	Requirement
Penetration @ 25°C, 100g, 5s, 0.1 mm	AASHTO T49	40 – 90
Softening Point, min	AASHTO T53	61°C
G*, @ 20°C, 10 rad/sec ^a	AASHTO T315	Report Only
Phase angle @ 50°C, 10 rad/sec, PA (max) – PA base ^b	AASHTO T315	Report Only
Stiffness, @ -12°C, MPa and M-value	AASHTO T315	Report Only
Torsional Recovery, %	California Test 332	>21%
Polymer Content, % (by weight)	California Test 402	>3.5%
25mm plates for the 50°C test. 8mm plates for the 20°C test.		

37-3.03B(2) Water and Additives

Water shall be of such quality that the asphalt will not separate from the MSE before the micro-surfacing is placed on the pavement. If necessary for workability, a set-control agent that will not adversely affect the micro-surfacing product may be used.

37-3.03B(3) Mineral Filler

Mineral filler shall be Portland cement or hydrated lime that is free of lumps. Portland cement shall be either Type I, Type II, or combination thereof. The type of mineral filler shall be determined by the Contractor based on laboratory mix designs. The mineral filler will be considered part of the aggregate gradation requirement.

37-3.03B(4) Aggregate

The aggregate used for micro-surfacing shall be Type II. The material shall be free from vegetation matter and other deleterious substances. Aggregate shall be free of lumps and oversize particles. The aggregate shall be 100% crushed with no rounded particles, volcanic in origin and black in color. The use of gray or light-colored aggregate shall not be allowed. The Contractor shall specify in the bid proposal the name and location of the black rock aggregate quarry and shall provide certification at the preconstruction conference that the rock was crushed a minimum of 90 days prior. The Contractor shall submit samples of the black rock aggregate to the Engineer for review and acceptance.

Aggregate, prior to the addition of the MSE, shall conform to the provisions of these Special Provisions. If aggregates are blended, each component aggregate shall conform to the Sand Equivalent and Durability Index requirements of these Special Provisions when tested in conformance with the respective California Tests.

The percentage composition by mass of the aggregate (including mineral filler) shall conform to the following grading requirements when tested in conformance with California Test 202:

Type II	
Sieve Size	Percent Passing
3/8 inch (9.5 mm)	100
#4 (4.75 mm)	94 – 100
#8 (2.36 mm)	65 – 90
#16 (1.18 mm)	40 – 70
#30 (600 µm)	25 – 50
#200 (75 µm)	5 – 15

The aggregate (excluding mineral filler) shall conform to the following quality requirements:

Type II		
Test	California Test	Requirement
Sand Equivalent (min)	217	70
Durability Index (min)	229	75
Percentage of Crushed Particles (min) ¹	205	100%
Los Angeles Rattler Loss at 500 Rev. (max) ²	211	35%
¹ CT205, Section D, is amended to read: "Any particle having 2 or more freshly, mechanically fractured faces shall be considered a crushed particle."		
² Los Angeles Rattler shall be performed on the parent aggregate before crushing.		

If the results of the aggregate grading do not meet the specified gradation, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the micro-surfacing represented by the tests containing a percentage passing (PP) range value +/- 1 in any of the Sieve sizes, but not greater than +/-4, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Sieve Sizes	Percentage Passing	Allowable Tolerances	Allowable Tolerances	Allowable Tolerances	Allowable Tolerances
3/8 inch (9.5 mm)	100	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#4 (4.75 mm)	94 – 100	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#8 (2.36 mm)	65 – 90	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#16 (1.18 mm)	40 – 70	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#30 (600 µm)	25 – 50	PP +/- 1	PP +/- 1	PP +/- 1	PP +/- 1
#200 (75 µm)	5 – 15	PP +/- 1	PP +/- 1	PP +/- 1	PP +/- 1
PAYMENT TO CITY		\$5.00 per ton	\$7.50 per ton	\$10.00 per ton	\$15.00 per ton

If the results of the Sand Equivalent test for aggregate do not meet the specified requirement, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the Micro-surfacing represented by the tests containing a sand equivalent Value below 70, but not less than 65, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Sand Equivalent	Payment to City
70 or over	NONE
68 – 69	\$5.00 per ton
66 – 67	\$7.50 per ton
65	\$10.00 per ton

If the results of the Durability Index test for aggregate do not meet the specified requirement, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the micro-surfacing represented by the tests containing a durability index value below 75, but not less than 70, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Durability Index	Payment to City
75 or over	NONE
73 – 74	\$5.00 per ton
71 – 72	\$7.50 per ton
70	\$10.00 per ton

When the results of 2 or all 3 of the aggregate grading, the Sand Equivalent, and Durability Index tests do not conform to the specified requirements, both or all three payments to the City shall apply. The City shall deduct these amounts from any moneys due or to become due to the Contractor.

Any progress payment made after the completion date shall not be construed as a waiver of material deductions.

No single aggregate grading, durability index or Sand Equivalent test shall represent more than 300 tons or one day's production, whichever is smaller.

37-3.03B(4)(a) Aggregate for Rut filling

Micro-surfacing (Type III) shall be used for rut filling and shall conform to these Special Provisions.

The aggregate used for Type III shall be grey rock aggregate. The grey rock aggregate shall be 100% crushed with no rounded particles. The material shall be free from vegetation and other deleterious substances. The Contractor shall submit samples and test results of the grey rock aggregate to the Engineer for review and acceptance.

Aggregate, prior to the addition of the MSE, shall conform to the provisions of these Special Provisions. If aggregates are blended, each component aggregate shall conform to the Sand Equivalent and Durability Index requirements of these Special Provisions when tested in conformance with the respective California Tests.

The percentage composition by mass of the aggregate (including mineral filler) shall conform to the following grading requirements when tested in conformance with California Test 202:

Type III	
Sieve Size	Percent Passing
3/8 inch (9.5 mm)	100
#4 (4.75 mm)	70 – 90
#8 (2.36 mm)	45 – 70
#16 (1.18 mm)	28 – 50
#30 (600 µm)	19 – 34
#200 (75 µm)	5 – 15

The aggregate (excluding mineral filler) shall conform to the following quality requirements:

Type III		
Test	California Test	Requirement
Sand Equivalent (min)	217	70
Durability Index (min)	229	70
Percentage of Crushed Particles (min) ¹	205	100%
Los Angeles Rattler Loss at 500 Rev. (max) ²	211	35%
¹ CT205, Section D, is amended to read: "Any particle having 2 or more freshly, mechanically fractured faces shall be considered a crushed particle."		
² Los Angeles Rattler shall be performed on the parent aggregate before crushing.		

If the results of the aggregate grading do not meet the specified gradation, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the micro-surfacing represented by the tests containing a percentage passing (PP) range value +/- 1 in any of the Sieve sizes, but not greater than +/-4, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Sieve Sizes	Percentage Passing	Allowable Tolerances	Allowable Tolerances	Allowable Tolerances	Allowable Tolerances
3/8 inch (9.5 mm)	100	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#4 (4.75 mm)	70 – 90	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#8 (2.36 mm)	45 – 70	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#16 (1.18 mm)	28 – 50	PP +/- 1	PP +/- 2	PP +/- 3	PP +/- 4
#30 (600 µm)	19 – 34	PP +/- 1	PP +/- 1	PP +/- 1	PP +/- 1
#200 (75 µm)	5 – 15	PP +/- 1	PP +/- 1	PP +/- 1	PP +/- 1
PAYMENT TO CITY		\$5.00 per ton	\$7.50 per ton	\$10.00 per ton	\$15.00 per ton

If the results of the Sand Equivalent test for aggregate do not meet the specified requirement, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the micro-surfacing represented by the tests containing a sand equivalent Value below 70, but not less than 65, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Sand Equivalent	Payment to City
70 or over	NONE
68 – 69	\$5.00 per ton
66 – 67	\$7.50 per ton
65	\$10.00 per ton

If the results of the Durability Index test for aggregate do not meet the specified requirement, the micro-surfacing represented by the test shall be removed within 5 working days of the Engineer's written notice. However, if requested in writing by the Contractor and approved by the Engineer, the micro-surfacing represented by the tests containing a durability index value below 70, but not less than 65, may remain in place. The Contractor shall pay to the City the following amount for the screenings represented by the test and left in place:

Durability Index	Payment to City
75 or over	NONE
73 – 74	\$5.00 per ton
71 – 72	\$7.50 per ton
70	\$10.00 per ton

When the results of 2 or all 3 of the aggregate grading, the Sand Equivalent, and Durability Index tests do not conform to the specified requirements, both or all three payments to the City shall apply. The City shall deduct these amounts from any moneys due or to become due to the Contractor.

Any progress payment made after the completion date shall not be construed as a waiver of material deductions.

No single aggregate grading, durability index, or Sand Equivalent test shall represent more than 300 tons or one day's production, whichever is smaller.

37-3.03B(5) Mix Design

At least 7 working days before the micro-surfacing placement commences, the Contractor shall submit for approval of the Engineer a laboratory report of tests and a proposed mix design covering the specific materials proposed for use on the project.

The percentages of each individual material proposed in the mix design shall be shown in the laboratory report. Individual materials shall be within the following limits:

Micro-surfacing Mix Design	
Material	Proportion Limits
Residual Asphalt	7.5% to 10.5% by dry mass of aggregate
Mineral Filler	0% to 3% by dry mass of aggregate
Additive	As needed
Water	As needed

Adjustments may be required during construction based on field conditions.

The mix design and aggregate tests shall be performed by a laboratory capable of performing the applicable International Slurry Surfacing Association (ISSA) tests. The proposed micro-surfacing mixture shall conform to the specified requirements when tested in conformance with the following tests:

Test	ISSA Test Method	Requirements
Wet Cohesion @ 30 minute (Set) (min) @ 60 minute (Traffic) (min)	TB* 139	12 kg-cm 20 kg-cm
Excess Asphalt	TB* 109	540 g/m ²
Wet Stripping (min)	TB* 114	90%

TB* = Technical Bulletin

Test	ISSA Test Method	Requirements
Wet Track Abrasion 6-day soak loss (max) 1-hour soak	TB* 100	810 g/m ² 538 g/m ²
Displacement Lateral (max) Specific Gravity after 1000 cycles of 56.8 kg (max)	TB* 147A	5% 2.10
Classification Compatibility	TB* 144	(AAA, BAA) 11 Grade Points
Mix Time @ 25°C	TB* 113	Controllable to 120 seconds

TB* = Technical Bulletin

The laboratory that performed the tests and designed the mixture shall sign the laboratory report. The report shall show the results of the tests on individual materials and shall compare their values to those required by these Special Provisions. The report shall clearly show the proportions of aggregate, filler (minimum and maximum), water (minimum and maximum), set control additive, and MSE solids content (minimum and maximum) based on the dry mass of aggregate. The laboratory shall report the quantitative effects of moisture content on the unit mass of the aggregate (bulking effect) in conformance with the requirements of ASTM Designation C 29M. Previous laboratory reports covering the same materials may be accepted provided the material test reports were completed within the previous 12 months. The mix design shall further show the recommended changes in mineral filler, water, and additive proportions for high temperature weather conditions by reporting proportions of materials required for 60 seconds of mix time with materials heated to 100°F. This 100°F mixing report will not be required for projects requiring nighttime application.

The component materials used in the mix design shall be representative of the micro-surfacing materials proposed by the Contractor for use on the project.

Once the mix design is approved by the Engineer, no substitution of other material will be permitted unless the materials proposed for substitution are first tested and a laboratory report is submitted for the substituted design in conformance with the provisions of these Special Provisions. Substituted materials shall not be used until the mix design for those materials has been approved by the Engineer.

The completed mixture, after addition of water and set control agent, if used, shall be such that the micro-surfacing mixture has proper workability. At the expiration of the road closure hours, in conformance with the provisions in these Special Provisions, the micro-surfacing mixture shall be sufficiently cured to support unrestricted traffic.

37-3.03C Construction

37-3.03C(1) Surface Preparation

Before placing the micro-surfacing, the pavement surface shall be cleaned by sweeping, flushing or by other means necessary to remove loose particles of paving, dirt, vegetation, and other extraneous material. When required, the roadway surface may be fogged with water ahead of the spreader box. The application of the fog spray may be adjusted to suit temperatures, surface texture, humidity and dryness of pavement.

37-3.03C(2) Weather Conditions

The micro-surfacing mixture shall not be placed when the ambient temperature is below 50°F or during unsuitable weather. Micro-surfacing shall not be placed if rain is imminent or if there is the possibility that there will be freezing temperatures within 24 hours.

37-3.03C(3) Equipment

37-3.03C(3)(a) General

The equipment used by the Contractor for pavement cleaning and excess aggregate removal shall include a self-propelled rotary power broom, mobile pick-up broom or top dumping mobile pick-up broom.

37-3.03C(3)(b) Mixing and Spreading Equipment

The micro-surfacing shall be mixed in continuous pugmill mixers of adequate size and power for the type of micro-surfacing to be placed. All indicators shall be in conformance with the provisions of these Special Provisions and shall be in working order prior to commencing mixing and spreading operations.

Mixer-spreader trucks shall be equipped to proportion the MSE, water, aggregate, mineral filler, and set-control additives by volume. Rotating and reciprocating equipment on mixer-spreader trucks shall be covered with metal guards.

The mixer-spreader truck shall not be operated unless low-flow and no-flow devices and revolution counters are in good working condition and functioning and metal guards are in place. Indicators required by these Special Provisions shall be visible while walking alongside the mixer-spreader truck.

Aggregate feeders shall be connected directly to the drive on the emulsion pump. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest one-tenth of a revolution.

In addition to the requirements of the fourth paragraph of section 5-1.33, "Equipment," of the State Standard Specifications, the identifying number of mixer-spreader trucks shall be at least 3 inches in height, located on the front and rear of the vehicle.

The micro-surfacing mixture shall be spread by means of a spreader box conforming to sections 37-3.03C(3)(b)(i) and 37-3.03C(3)(b)(ii).

37-3.03C(3)(b)(i) Spreader Box

The mixture shall be agitated and spread uniformly in the surfacing box by means of motor driven twin-shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry, the box shall be adjustable. Spreader box skids shall be maintained in such manner as to prevent chatter (wash boarding) in the finished mat. The spreader box in use shall be clean and free of micro-surfacing and MSE at the start of each work shift.

The spreader box shall have a series of strike-off devices at the rear of the box. The leading strike-off device shall be fabricated of steel, stiff rubber or other suitable material. The number of strike-off devices shall be determined by the Contractor. The first strike-off device shall be designed to maintain close contact with the pavement during the spreading operations, shall obtain the thickness required, and shall be capable of being adjusted to the various pavement cross sections for application of a uniform micro-surfacing finished surface. The final strike-off device shall be fabricated of flexible material suitable for the intended use and shall be designed and operated to ensure a uniform texture is achieved in the finished surface of the micro-surfacing. The final strike-off device shall be cleaned or changed daily if problems with longitudinal scouring occur.

Flexible fabric drags attached to the rear of the spreader box shall not be used.

37-3.03C(3)(b)(ii) Wheel Path Depression (Rut) Box

The wheel path depression (rut) box shall be designed to have adjustable strike-off devices to regulate the depth and shall have a width of between 5 feet and 6 feet. Hydraulic augers, or similar devices, shall be installed and shall be capable of moving the mixed material from the rear to the front of the filling chamber. These devices shall also be capable of guiding the larger aggregate into the center, deeper section of the wheel path depression, and forcing the finer material toward the outer edges of the spreader box.

The micro-surfacing mixture, to be spread in areas inaccessible to the controlled spreader box, may be spread by other methods upon approval of the Engineer.

Flexible fabric drags attached to the rear of the wheel path depression (rut) box shall not be used.

37-3.03C(3)(c) Mixer and Spreader Truck Calibration

Each mixer/spreader truck used on the project shall be calibrated in accordance with California Test 109. The trucks shall be calibrated for rock, emulsion, cement, additives, and any mineral filler used. Calibrations shall take place a maximum of 10 days prior to application of micro-surfacing. The Contractor shall notify the Engineer a minimum of 3 working days prior to calibration so that City representatives may make arrangements to observe.

For all material calibrated, 3 consecutive runs per gate setting shall be completed and these 3 test runs must not deviate from their combined mathematical average by more than 2.0%.

Calibrations will take place at most once a week or as required by the Engineer and no machine will be allowed to work on the project until the calibration has been completed and/or accepted 3 working days before the start of work. Weigh back tickets shall be submitted at the end of each work day that micro-surfacing is placed.

37-3.03C(4) Proportioning

Aggregate, mineral filler, MSE, water, and additives, including the set-control agent, if used, shall be proportioned by volume utilizing the mix design approved by the Engineer. If more than 1 kind of aggregate is used, the correct amount of each kind of aggregate to produce the required grading shall be proportioned separately, prior to adding the other materials of the mixture, in a manner that will result in a uniform and homogeneous blend.

The aggregate shall be proportioned using a belt feeder operated with an adjustable cutoff gate. The height of the gate opening shall be determinable. The MSE shall be proportioned by a positive displacement pump. Variable rate emulsion pumps, if used, shall be calibrated and sealed in the pump's calibrated condition in conformance with California Test 109 prior to usage.

The delivery rate of aggregate and MSE per revolution of the aggregate feeder shall be calibrated at the appropriate gate settings for each mixer-spreader truck used on the project in conformance with California Test 109 and in conformance with the provisions of these Special Provisions.

The aggregate belt feeder shall deliver aggregate to the pugmill with such volumetric consistency that the deviation for any individual aggregate delivery rate check-run shall not exceed 2.0 percent of the mathematical average of 3 runs of at least 3 tons each. The emulsion pump shall deliver MSE to the pugmill with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within 2.0 percent of the mathematical average of 3 runs of at least 300 gallons each. The water pump shall deliver water to the pugmill with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within 2.0 percent of the mathematical average of 3 runs of at least 300 gallons each.

The MSE storage tank shall be located immediately before the emulsion pump and shall be equipped with a device which will automatically shut down the power to the emulsion pump and aggregate belt feeder when the MSE level is lowered to a point where the pump suction line is exposed.

A temperature-indicating device shall be installed in the emulsion storage tank at the pump suction level. The device shall indicate the temperature of the MSE and shall be accurate to within 10°F.

The belt delivering the aggregate to the pugmill shall be equipped with a device to monitor the depth of aggregate being delivered to the pugmill. The device for monitoring the depth of aggregate shall automatically shut down the power to the aggregate belt feeder whenever the depth of aggregate is less than the target depth of flow. A second device shall be located where the device will monitor the movement of the aggregate belt by detecting revolutions of the belt feeder. The devices for monitoring no flow or belt movement shall automatically shut down the power to the aggregate belt when the aggregate belt movement is interrupted. The device to detect revolutions of the belt feeder will not be required where the aggregate delivery belt is an integral part of the drive chain. To avoid erroneous shutdown by normal fluctuation, a delay of 3 seconds will be permitted between sensing and shutdown of the operation.

37-3.03C(5) Application Rate of Aggregate

Micro-surfacing spread rates must be within the ranges shown on the following table:

Micro-surfacing Type	Application Range (lb of dry aggregate/sqyd)
Type II	15 – 18
Type III	20 – 30

The micro-surfacing mixture shall be uniformly spread on the existing surfacing within the rate specified without spotting, re-handling, or otherwise shifting of the mixture.

37-3.03C(6) Repair Wheel Path Depressions

When wheel path depressions have a cross section that is deformed 1/2 inch or more, the individual wheel paths shall first be filled utilizing a wheel path depression (rut) box. The depth of the wheel path depression shall be determined after the adjacent ridges have been removed, when applicable. The maximum single application for wheel path depressions shall be 1 inch. Wheel path depressions of depths greater than 1 inch shall require multiple applications in each depression. A pneumatic tired roller shall be used after all rut filling operations. The roller shall make 2 passes at slow speed no more than 7 mph. Wheel path depressions having a cross section greater than 1/2 inch and less than 1 inch shall be paid for under the contract bid item "Micro-surfacing (Type III)".

Wheel path depression repair shall be constructed with a slight crown to allow for initial compaction by traffic on the micro-surfacing.

Freshly filled wheel path depressions shall be compacted by traffic for a minimum of 12 hours before additional lifts of micro-surfacing material are placed for rut filling purposes or as surface courses.

37-3.03C(7) Placement

Micro-surfacing shall be placed no earlier than 7 calendar days after Chip Seal operation on roads to receive the Roseville Cape Seal as shown on the plans.

Longitudinal joints shall correspond with the edges of the traffic lanes. The Engineer may permit other patterns of longitudinal joints if the patterns will not adversely affect the quality of the finished product, this shall be required for approval in writing 5 working days prior to the start of work.

Through traffic lanes shall be spread in full lane widths only. Longitudinal joints common to 2 traffic lanes shall be butt joints with overlaps not to exceed 3 inches. Building paper shall be placed at the transverse joints to avoid double placement of the micro-surfacing. Other suitable methods to avoid double placement of the micro-surfacing will be allowed. Hand tools shall be available to remove spillage.

The mixture shall be uniform and homogeneous after placing on the surfacing and shall not show separation of the MSE and aggregate after setting. The completed surface shall be of uniform texture and free from ruts, humps, depressions, or irregularities.

Adequate means shall be provided to protect the micro-surfacing from damage by traffic until such time that the mixture has cured sufficiently so that the micro-surfacing will not adhere to or be picked up by the tires of vehicles.

If the micro-surfacing is not capable of supporting unrestricted traffic at the expiration of the road closure hours, the Contractor shall pay the liquidated damaged per the provisions of these Special Provisions. Placement of the micro-surfacing shall cease before the expiration of road closure hours as specified in these Special Provisions.

37-3.03C(8) Sweeping

Initial sweeping shall begin 1 day after the micro-surfacing placement. Care shall be taken to avoid unraveling the micro-surfacing. Excessive sweeping will not be allowed.

Seven sweepings shall be considered as included in the contract price paid for micro-surfacing. The first sweeping shall be performed the day after the application is applied. The second sweeping shall be performed 3 days after the micro-surfacing application is applied. The third sweeping shall be performed 5 days after the micro-surfacing application is applied. The forth sweeping shall be performed 7 days after the micro-surfacing is applied. The fifth sweeping shall be performed 10 days after the micro-surfacing is applied. The sixth sweeping shall be performed 15 days after the micro-surfacing is applied. The seventh sweeping shall be performed during the punch list process.

Prior to each sweeping, the Contractor shall contact the Engineer with the street's sweeping schedule. After sweeping takes place, the Contractor shall contact the Engineer for acceptance of the street sweeping.

If the sweeping is not done to the schedule listed above, the Contractor shall pay the liquidated damaged per the provisions of these Special Provisions.

The Contractor shall remove all loose aggregate from the curbs, gutters, driveways, and sidewalks prior to sweeping the roadway surface. The Contractor will be responsible to sweep abutting adjacent areas and haul routes. The Contractor shall have 1 working day to sweep the adjacent areas and haul route when requested in writing by the Engineer.

The Contractor shall sweep the micro-surfaced streets and adjacent areas with a self-propelled vacuum or regenerative air sweeper. Any additional sweepings required to remove excess material shall be performed as directed by the Engineer at no additional expense to the City.

If rain is anticipated on sweeping days, the contractor shall re-schedule sweeping and notify the Engineer of the rescheduled date.

37-3.03C(9) Test Strip

The Contractor shall construct a test strip for evaluation by the Engineer 10 working days prior to the micro-surfacing application. The test strip shall be 500 feet to 1000 feet long and shall consist of the application courses specified. The test strip shall be constructed at the same time of day or night that the full production of micro-surfacing will be placed and may be constructed in 2 days or nights when multiple course applications are specified. The location of the test strip shall be specified by the City. The crew utilized to place the test strip shall be same as the crew that places microsurfacing for the remainder of the project.

The micro-surfacing test strip shall have a break time and shall be able to be open to cross traffic no greater than 1 hour after the micro-surfacing is placed. This time will be reflected on the global projects break time and capability of being open to cross traffic. The global project shall have this break time and shall be able to be open to cross traffic no greater than 1 hour after placement of the micro-surfacing. If the test strip does not meet this requirement the test strip will be rejected and shall be removed at the Contractors expense.

The Engineer will evaluate the completed test strip after 12 hours of traffic on the completed test strip to determine if the mix design and placement procedure are acceptable. If the mix design or the placement procedure is determined by the Engineer to be unacceptable, the test strip will be rejected, the Contractor

shall make modifications, and a new test strip shall be constructed and evaluated by the Engineer. The cost of materials and placement of the test strips, which have been rejected, shall be borne by the Contractor and will not be considered as part of the contract work. If ordered by the Engineer, rejected test strips shall be removed at the Contractors expense.

37-3.03C(10) Repair of Early Distress

If bleeding, raveling, delamination, rutting, or washboarding occurs within 60 days after placing the micro-surfacing, the Contractor shall diligently pursue repairs by any method approved by the Engineer. The Contractor shall not be relieved from maintenance until repairs have been completed.

37-3.03D Payment

The payment quantity for micro-surfacing bid items paid for by weight is the weight determined by combining the weights of the aggregate and micro-surfacing emulsion. The payment quantity for micro-surfacing does not include the weights of added water, mineral filler, and additives.

Weight shall be determined from calibrations and revolutions per day and verified with weight back tickets. The revolutions for each truck shall be submitted to the construction inspector prior to the start of work and the final revolution count shall be submitted to the construction inspector at the end of the day for every day micro-surfacing is applied, work shall not be permitted until these requirements are met.

All weight tickets including aggregate and emulsion tickets shall be turned in on a daily basis. For materials that is stockpiled prior to the start of the project, those tickets are required on a daily basis and at the end of the business day. In that case, upon project completion, weight back tickets are required for the emulsion and leftover stockpile aggregate shall be deducted and removed.

Full compensation for conforming to all requirements specified in section 37-3.03, "Micro-Surfacings" shall be considered as included in the contract unit price paid per ton for "Micro-Surfacing (Type II)".

The Contractor shall use a spread rate of 17 pounds of dry aggregate per square yard to determine the contract bid item for "Micro-surfacing Type II".

DRAWINGS

Project: **Regional Pump Station 26 and Force Main Capacity Improvement**

CITY OF ROSEVILLE

PUMP STATION 26 IMPROVEMENT PROJECT

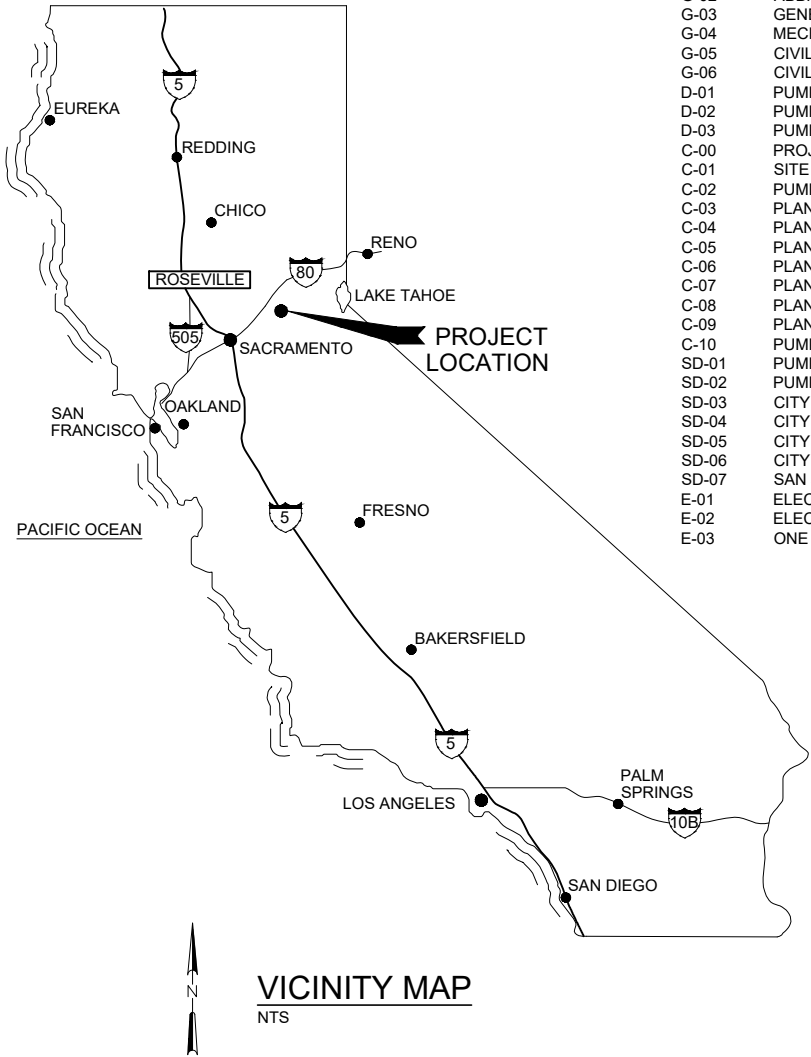
ROSEVILLE, CALIFORNIA

VOLUME 3 - DRAWINGS

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APPROVAL RECOMMENDED BY:	DATE:
RANA MOORE, P.E. ASSOCIATE ENGINEER DEPARTMENT OF ENVIRONMENTAL UTILITIES CITY OF ROSEVILLE	
APPROVAL BY:	DATE:
BRYAN BUCHANAN, P.E. WASTEWATER UTILITY MANAGER ENVIRONMENTAL UTILITIES - WASTEWATER UTILITY CITY OF ROSEVILLE	
SUBMITTED BY:	DATE:
KRISTINA ALACON, P.E. SENIOR PROJECT ENGINEER WATERWORKS ENGINEERS	



VICINITY MAP
NTS



LOCATION MAP
NTS

BID SET
DECEMBER 2022



WATERWORKS
ENGINEERS



FOR INFORMATION REGARDING
THIS PROJECT CONTACT:
MIKE FISHER
(916) 277-9027

NO.	DATE	REVISION	BY	APVD

L:\CAD\PROJECTS\21-060 ROSEVILLE ON-CALL SERVICES 2021-2022\21-060 PS26\DELIVERABLES\2060D-G-02.DWG

ABBREVIATIONS

A	AIR	CLSM	CONTROLLED LOW STRENGTH MATERIAL	FES	FLARED END SECTION	LAT'L	LATERAL	PSIG	POUNDS PER SQUARE INCH, GAUGE	T	TANGENT, TELEPHONE LINE, TOP
@	AT	CMLCSP	CEMENT MORTAR LINED AND COATED STEEL PIPE	FEXT	FIRE EXTINGUISHER	LB	POUNDS	PT	POINT OF TANGENCY	T&B	TOP AND BOTTOM
AB	ANCHOR BOLT, AGGREGATE BASE			FF	FINISH FLOOR	LB/CU FT	POUNDS PER CUBIC FOOT	P.U.E.	PUBLIC UTILITY EASEMENT	T&G	TONGUE AND GROOVE
AC	ASPHALTIC CONCRETE, ASBESTOS CEMENT	CMLSP	CEMENT MORTAR LINED STEEL PIPE	FG	FINISH GRADE	LE	LEVEL ELEMENT	PV	PLUG VALVE	t, T	THICKNESS
ACI	AMERICAN CONCRETE INSTITUTE	CMP	CORRUGATED METAL PIPE	FHY	FIRE HYDRANT	LF	LINEAR FEET	PVC	POLYVINYL CHLORIDE PLASTIC, POINT OF	TBG	TUBING
ACU	AIR CONDITIONING UNIT	CMU	CONCRETE MASONRY UNIT	FI	FLOW INDICATOR	LG	LONG		VERTICAL CURVE	TCE	TEMPORARY CONST EASEMENT
ADD	ADDITIONAL	CO	CLEANOUT	FIG	FIGURE	LIT	LEVEL INDICATOR/TRANSMITTER	PVCGS	POLYVINYL CHLORIDE PLASTIC-GRAVITY SEWER TYPE	TDH	TOTAL DYNAMIC HEAD
ADH AB	ADHESIVE ANCHOR BOLT	COL	COLUMN	FIL	FILTRATE	LONG	LONGITUDINAL			TECH	TECHNICAL
ADJ	ADJACENT, ADJUSTABLE	COM	COMMUNICATION	FL	FLOOR, FLOW LINE	LP	LOW POINT	PVCW	POLYVINYL CHLORIDE PLASTIC-WATER DISTRIBUTION SERVICE TYPE	TEL	TELEPHONE
AE	ANALYZER ELEMENT	COMB	COMBINED	FLG	FLANGE	LR	LONG RADIUS		PAVEMENT	TEMP	TEMPORARY, TEMPERATURE
AFF	ABOVE FINISH FLOOR	CONC	CONCRETE	FLH	FLAT HEAD	LS	LOW PRESSURE STREAM	PVMT	POINT OF VERTICAL INTERSECTION	TF	TOP FACE
AFG	ABOVE FINISH GRADE	CONN	CONNECTION	FLL	FLOW LINE	LT	LEVEL TRANSMITTER	PVI	POINT OF VERTICAL INTERSECTION	THD	THREAD
AHP	AIR: HIGH PRESSURE	CONT	CONTINUOUS, CONTINUATION	FLTR	FILTER	LSH	LEVEL SWITCH HIGH	PVT	POINT OF VERTICAL TANGENCY, PRIVATE	THK	THICK
AIR	COMPRESSED AIR	COORD	COORDINATE	FM	FLOW METER	LSL	LEVEL SWITCH LOW	PW	POTABLE WATER, PROCESS WATER	TNK	TANK
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	CPLG	COUPLING	FNSH	FINISH	LWL	LOW WATER LEVEL			TOC	TOP OF CURB, TOP OF CONCRETE
AIT	ANALYZER INDICATOR/TRANSMITTER	CTRD, CTD	CENTERED	FO	FUEL OIL			R, RAD	RADIUS	TOW	TOP OF WALL
AL, ALUM	ALUMINUM	CTR	CENTER	FOC	FACE OF CONCRETE	MAX	MAXIMUM	RBW	RECLAIMED BACKWASH	TOF	TOP OF FOOTING
ALP	AIR LOW PRESSURE	CU	COPPER	FOE	FLANGED ONE END	MCC	MOTOR CONTROL CENTER	RC	REINFORCED CONCRETE	TP	TURNING POINT, TEST PIT
ALTN	ALTERNATE	CU FT	CUBIC FOOT	FRP	FIBERGLASS REINFORCED PLASTIC	MCJ	MASONRY CONTROL JOINT	RCP	REINFORCED CONCRETE PIPE	TRANS	TRANSITION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	CU IN	CUBIC INCH	FS	FINISHED SURFACE, FLOW SWITCH	MECH	MECHANICAL	RD	ROAD, ROOF DRAIN	TRANSV	TRANSVERSE
APPROX	APPROXIMATE	CU YD	CUBIC YARD	FT	FOOT OR FEET	MFR	MANUFACTURER	RDCR	REDUCER	TS	TUBE STEEL
APVD	APPROVED	CULV	CULVERT	FTG	FOOTING	MGD	MILLION GALLONS PER DAY	REF	REFER, REFERENCE	TST	TOP OF STEEL
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	CWTP	CIRCULATING WATER	FWD	FORWARD	MH	MANHOLE	REINF	REINFORCED, REINFORCING, REINFORCE	TT	THRUST TIE
AR	AERATION	CV	CHECK VALVE	*F	DEGREE FAHRENHEIT	MIN	MINIMUM, MINUTE	REQD	REQUIRED	TURB	TURBIDITY
ARCH, A	ARCHITECTURAL	*C	CELSIUS			MISC	MISCELLANEOUS	RJ	RESTRAINED JOINT	TW	TREATED GROUND WATER
ARV	AIR RELEASE VALVE			G	GAS	MJ	MECHANICAL JOINT	RLS	RUBBER LINED STEEL	TWS	TRACER WIRE STATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	d	PENNY	GA	GAGE	MPH	MILES PER HOUR	RM	ROOM	TYP	TYPICAL
AUTO	AUTOMATIC	DBA	DEFORMED BAR ANCHOR	GAC	GRANULAR ACTIVATED CARBON	MSNRY	MASONRY	RFCA	RESTRAINED FLANGED COUPLING ADAPTER		
AUX	AUXILIARY	DBL	DOUBLE	GAL	GALLON	MSP	MILL STEEL PIPE, MANUAL OF STANDARD PRACTICE	RMJ	RESTRAINED MECHANICAL JOINT	UBC	UNIFORM BUILDING CODE
AV	AIR/VACUUM ASSEMBLY	DEC	DECANT	GALV	GALVANIZED			RO	ROUGH OPENING, REVERSE OSMOSIS	UD	UNDERDRAIN
AVE	AVENUE	DET	DETAIL	GB	GRADE BREAK	MTL	MATERIAL	RP	RADIUS POINT	UG	UNDERGROUND
AWG	AMERICAN WIRE GAGE	DF	DOUGLAS FIR/LARCH	GC	GROOVED COUPLING	MW	MAKE UP WATER	R/R	REMOVE AND REPLACE	UH	UNIT HEATER
AWWA	AMERICAN WATER WORKS ASSOCIATION	DI	DROP INLET, DUCTILE IRON	GCO	GRADE CLEAN OUT	MWS	MAXIMUM WATER SURFACE	RST	REINFORCING STEEL	UNK	UNKNOWN
AX	ANOXIC	DIA	DIAMETER	GCF	GROOVED COUPLING FITTING			RT	RIGHT	UNO	UNLESS NOTED OTHERWISE
		DIAG	DIAGONAL	GD	GENERAL DRAINAGE	N	NORTH	RTN	RETURN WATER		
		DIL	DILUTE	GE	GROOVED END	NC	NORMALLY CLOSED	RV	ROOF VENT	V	VENT, VOLT, VALVE
B	BORING	DIM	DIMENSION	GL	GLASS	NE	NORTHEAST	RW	RAW WATER	VAC	VACUUM
BAV	BALL VALVE	DIMJ	DUCTILE IRON MECHANICAL JOINT	GPD	GALLONS PER DAY	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	R/W	RIGHT-OF-WAY	VAR	VENT ACID RESISTANT
BC	BEGIN CURVE, BOTTOM OF CURB	DIP	DUCTILE IRON PIPE	GPH	GALLONS PER HOUR					VC	VERTICAL CURVE
BD	BLOW DOWN	DIPPL	DUCTILE IRON PIPE, POLYETHYLENE LINED	GPM	GALLONS PER MINUTE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	S	I-BEAM, SOUTH, SLOPE	VERT	VERTICAL
BF	BLIND FLANGE, BOTTOM FACE	DIR	DIRECTION	GRTG	GRATING	NH	AMMONIA	S =	SLOPE EQUALS	VFD	VARIABLE FREQUENCY DRIVE
BFD	BUTTERFLY VALVE DAMPER	DIST	DISTANCE	GSP	GALVANIZED STEEL PIPE	NIC	NOT IN CONTRACT	SA	SERVICE AIR	VPI	VERTICAL POINT OF INTERSECTION
BFV	BUTTERFLY VALVE	DN	DOWN	GT	GAS TURBINE	NO	NUMBER, NUMBERING	SAT	SUSPENDE ACOUSTIC TILE	VPS	VENEER PLASTER SYSTEM
BLDG	BUILDING	DR	DRAIN	GV	GATE VALVE	NPT	NATIONAL PIPE THREAD	SC	SCUM	VTR	VENT THRU ROOF
BLK	BLACK	do	DITTO	GVL	GRAVEL	NTS	NOT TO SCALE	SCFH	STANDARD CUBIC FEET PER HOUR		
BLM	BUREAU OF LAND MANAGEMENT	DP	DIFFERENTIAL PRESSURE TRANSMITTER	GW	GROUND WATER	NW	NORTHWEST	SCFM	STANDARD CUBIC FEET PER MINUTE	W/	WITH
BM	BENCH MARK, BEAM	DWG	DRAWING					SCH	SCHEDULE	W	WIDE FLANGE (BEAM), WEST, WATER
BO	BLOW OFF			HD	HUB DRAIN	OC	ON CENTER	SD	STORM DRAIN	WC	WATER CLOSET
BOC	BACK OF CURB	E	EAST, ELECTRIC, ELECTRICAL	HDPE	HIGH DENSITY POLYETHLENE PIPE	OD	OUTSIDE DIAMETER, OVERFLOW DRAIN	SDS	SECONDARY DIGESTED SLUDGE	WD	WOOD
BOG	BACK OF GUTTER	EA	EACH	HDR	HEADER	OF	OUTSIDE FACE, OVERFLOW	SE	SOUTHEAST	WH	WATER HEATER
BOO	BOTTOM OF OPENING	EC	END CURVE	HDW	HARDWARE	OFR	OVERFLOW RETURN	SEC	SECONDARY	WM	WATER METER
BOT	BOTTOM	ECC	ECCENTRIC	HF	HIGH PRESSURE FEEDWATER	OG	ORIGINAL GROUND	SECT	SECTION	WR	WATER RESISTANT
BRG	BEARING	EE	ELECTRICAL	HGL	HYDRAULIC GRADE LINE	OHE	OVERHEAD ELECTRIC	SHC	SODIUM HYPOCHLORITE	WS	WATER SURFACE, WATER STOP
BVC	BEGINNING OF VERTICAL CURVE	EF	EACH FACE, EXHAUST FAN	HGT	HEIGHT	OMRF	ORDINARY MOMENT RESISTING FRAME	SH	SHEET	W SH ST	WEATHERING SHEET STEEL
BWD	BACKWASH DISPOSAL	EFL	EFFLUENT	HM	HOLLOW METAL	O TO O	OUT TO OUT	SIM	SIMILAR	WSE	WATER SURFACE ELEVATION
BWI	BACKWASH IN	EG	EXISTING GRADE	HORIZ	HORIZONTAL	OPNG	OPENING	SL	SLUDGE	WSP	WELDED STEEL PIPE
BWO	BACKWASH OUT	EJ	EXPANSION JOINT	HP	HORSEPOWER	OPP	OPPOSITE	SLG	SLUDGE	WT	WATER TIGHT
BYP	BYPASS	EL	ELEVATION	HPT	HIGH POINT	OSHA	OCCUPATIONAL SAFETY & HEALTH ADMIN.	SLMH	SLUDGE MANHOLE	WTR	WATER
		ELB, ELL	ELBOW	HR	HANDRAIL	SLP	OUNCE	SLOPE	SLOPE	WW	WASH WATER, WASTEWATER
		ELC	ELECTRICAL LOAD CENTER	HSS	HOLLOW STRUCTURAL STEEL			SMP	SAMPLE	WWF	WELDED WIRE FABRIC
C to C, CC	CENTER TO CENTER	ELEC	ELECTRIC, ELECTRICAL	HV	HOSE VALVE	PA	PROCESS AIR	SOLN	SOLUTION		
C	CHANNEL (BEAM)	EM	EMISSION MEASUREMENT	HW	HIGH WATER LEVEL	PC	POINT OF CURVE	SOW	SLIP ON WELD	XMFR	TRANSFORMER
CARV	COMBINATION AIR ADMISION/ AIR RELEASE VALVE	EMR	EMERGENCY	HWL	HIGHWAY	PE	PLAIN END, POLYETHYLENE, PERMANENT EASEMENT	SP	SPACE OR SPACES		
CATH	COMBINATION AIR RELEASE VALVE	ENGR	ENGINEER	HWY	HIGHWAY			SPD	SUMP PUMP DRAIN	YD	YARD
		EO	EMERGENCY OVERFLOW	HYD	HYDRANT	PENT	PENETRATION	SPEC	SPECIFICATIONS		
CATV	CATHODIC PROTECTION	EP	EDGE OF PAVEMENT			PI	POINT OF INTERSECTION	SPLY	SUPPLY		
CB	CATCH BASIN	EQ	EQUALIZATION	IA	INSTRUMENT AIR	PJF	PREMOLDED JOINT FILLER	SQ	SQUARE		
CCP	CONCRETE CYLINDER PIPE	EQPL SP	EQUALLY SPACED	I&C	INSTRUMENTATION & CONTROL	PL	PLATE, PROPERTY LINE	SQ FT	SQUARE FOOT		
CCS	CENTRAL CONTROL SYSTEM	EQPT	EQUIPMENT	ID	INSIDE DIAMETER	PLC	PROGRAMMABLE LOGIC CONTROLLER	SQ IN	SQUARE INCH		
CE	CONDENSATE	ERW	EFFLUENT REUSE WATER	IF	INSIDE FACE	PLYWD	PLYWOOD	SS	SANITARY SEWER		
CF	CUBIC FEET	ESC	EROSION SEDIMENT CONTROL	IMLR	INTERNAL MIXED LIQUOR RETURN	PNL	PANEL	SSH	SAFETY SHOWER		
CFM	CUBIC FEET PER MINUTE	ESA	ENVIRONMENTALLY SENSITIVE AREA	INFL	INFLUENT	POB	POINT OF BEGINNING	SSMH	SANITARY SEWER MANHOLE		
CFS	CUBIC FEET PER SECOND	EVC	END OF VERTICAL CURVE	INSTM	INSTRUMENTATION	POC	POINT OF CONNECTION	ST	SAMPLE TAP		
CHEM	CHEMICAL	EW	EACH WAY	INSUL	INSULATE, INSULATION	POE	POINT OF ENDING, PLAIN ONE END	SST	STAINLESS STEEL		
CI	CAST IRON	EWEF	EACH WAY, EACH FACE	INV	INVERT	PP, P&P	PLAN AND PROFILE, POWER POLE	STA	STATION		
CIGC	CAST IRON GROOVED COUPLING	EXC	EXCAVATE	IP	IRON PIPE	PPM	PARTS PER MILLION	STD	STANDARD		
CIMJ	CAST IRON MECHANICAL JOINT	EXP	EXPOSED, EXPANSION	IR	IRON ROD	PRC	POINT OF REVERSE CURVE	STIF	STIFFENER		
CIP	CAST IRON PIPE	EXP JT	EXPANSION JOINT	IRR	IRRIGATION	PRCST	PRECAST	STL	STEEL, STEEL PIPE		
CIRJ	CAST IRON RESTRAINED JOINT	EXST	EXISTING	IS	INTERMEDIATE PRESSURE STREAM	PREFAB	PREFABRICATED	STLS	STEEL PIPE (SPECIAL)		
CISP	CAST IRON SOIL PIPE			IW	INJECTION WATER	PRESS	PRESSURE	STR	STRAIGHT		
CJ	CONSTRUCTION JOINT, CONTRACTION JOINT	FB	FLAT BAR	JT	JOINT	PRC	POINT OF REVERSE CURVE	STRL	STRUCTURAL		
CL	CENTERLINE	FBE	FUSION BONDE EPOXY			PRI	PRIMARY	STRUCT	STRUCTURE		
CL2	CHLORINE	FC	FLEXIBLE COUPLING	KIP	THOUSAND POUNDS	PROP	PROPERTY	SUBFL	SUBFLOOR		
CLDIP	CEMENT-LINED DUCTILE IRON PIPE	FCA	FLANGED COUPLING ADAPTER	KW	KILOWATT	PRV	PRESSURE RELEASE VALVE	SUP	SUPERNATANT, SUPPLY		
CLG	CEILING	FCO	FLOOR CLEAN OUT			PR	PRESSATE	SUSP	SUSPEND		
CLR	CLEAR, CLEARANCE	FD	FLOOR DRAIN	L	LEFT, ANGLE, LENGTH	PS	PUMP STATION	SW	SOUTHWEST, SERVICE WATER		
		FDA	FLOOR DRAIN W/INTEGRAL TRAP	LAB	LABORATORY	PSF	POUNDS PER SQUARE FOOT	SYMM	SYMMETRICAL		
		FDN	FOUNDATION			PSI	POUNDS PER SQUARE INCH				

NOTES

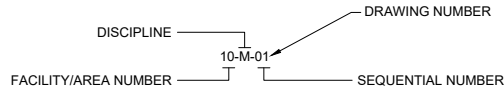
- FOR ELECTRICAL AND INSTRUMENTATION ABBREVIATIONS, SEE ELECTRICAL AND INSTRUMENTATION DRAWINGS.
- CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED.
- THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND MAY NOT BE UTILIZED ON THIS PROJECT.



DESIGN	A CORREA	DRAWN	A CORREA	CHECKED	KALACON	APPROVED	KALACON
							
							
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA							
GENERAL ABBREVIATIONS							
DATE DECEMBER 2022							
PROJECT NUMBER 21-060							
DRAWING NUMBER G-02							
SHEET NUMBER 2							

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DRAWING NUMBERING

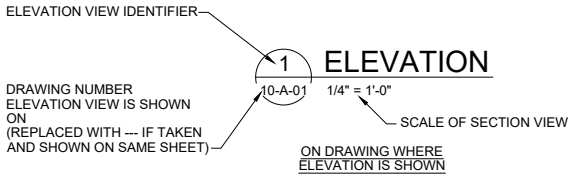
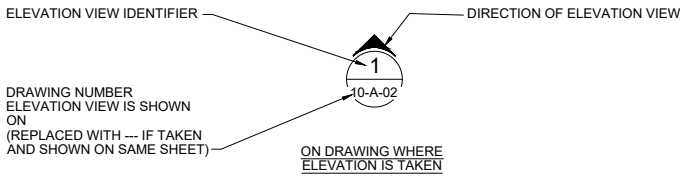


LETTER	DISCIPLINE OR DRAWING TYPE
G	GENERAL
C	CIVIL
Y	YARD PIPING
D	DEMOLITION
A	ARCHITECTURAL
S	STRUCTURAL
M	MECHANICAL
H	HEATING, VENTILATION AND COOLING (HVAC)
P	PLUMBING
E	ELECTRICAL
I	INSTRUMENTATION
SD	STANDARD DETAIL
WZ	WORK ZONE

NOTES:

- LETTERS MAY BE COMBINED FOR DUAL-DISCIPLINE DRAWINGS
EXAMPLE: CD-01, 10-AS-01, 10-SM-01, ETC.
- LETTERS MAYBE COMBINED FOR DISCIPLINE-SPECIFIC STANDARD DETAIL DRAWINGS
EXAMPLE: CSD-01, SSD-01, MSD-01, ETC.

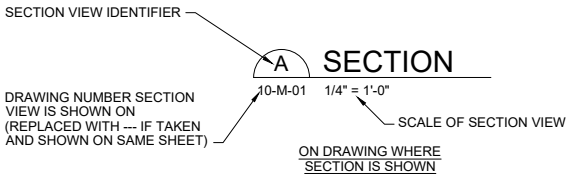
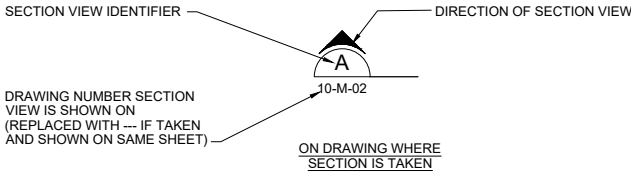
ELEVATIONS



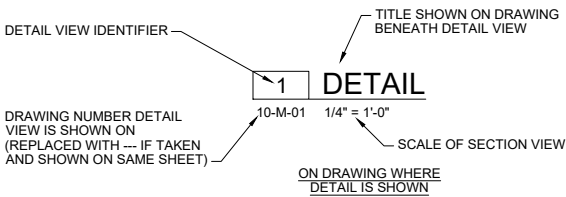
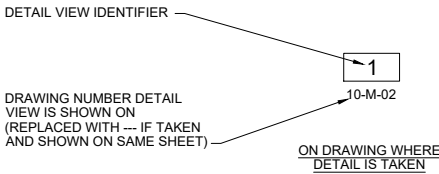
NOTES:

- SIMILAR SYMBOLOLOGY IS USED FOR ISOMETRIC VIEWS.

SECTIONS



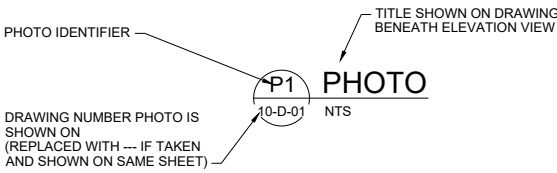
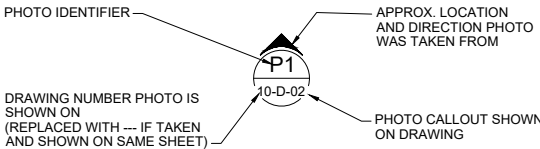
DETAILS



NOTES:

- SIMILAR SYMBOLOLOGY IS USED FOR PARTIAL PLANS.

PHOTOS



STANDARD DETAILS



GENERAL SYMBOLOLOGY

BLACK	NEW WORK WITHIN DISCIPLINE OF DRAWING
DARK GRAY	NEW WORK OUTSIDE OF DISCIPLINE OF DRAWING ("OFF DISCIPLINE")
LIGHT OR MEDIUM GRAY OR SCREENED	EXISTING FEATURES OR NEW WORK OUTSIDE OF DISCIPLINE OF DRAWING ("OFF DISCIPLINE")
EXISTING STRUCTURE OR EQUIPMENT TO BE DEMOLISHED	
EXISTING PIPE OR LINEAR ELEMENT TO BE DEMOLISHED	
EXISTING PIPE OR LINEAR ELEMENT TO BE ABANDONED	
WATER SURFACE	
BREAK LINE	

CITY NOTES

- CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLAN AND DETOUR PLAN TO CITY PRIOR TO ANY WORK. TRAFFIC CONTROL DESIGN REQUIRES RED FLASH FORM (STANDARD DETAIL TS-21 ON DRAWING SD-05) FOR SIERRA COLLEGE BLVD. AND E. ROSEVILLE PARKWAY.
- CONTRACTOR SHALL CCTV GRAVITY LINES WITHIN THE AREA OF POTENTIAL EFFECT OF PIPE BURSTING OPERATION, BEFORE AND AFTER CONSTRUCTION. CONTRACTOR SHALL PROVIDE A COPY OF THE BEFORE AND AFTER OF THE STORM DRAIN LINES TO PUBLIC WORKS.
- CONTRACTOR TO COORDINATE WITH THE TRAFFIC/TRAFFIC SIGNAL TEAMS AS DURATION DETECTION WILL BE IMPACTED AT THE INTERSECTION OF SIERRA COLLEGE BLVD. AND E. ROSEVILLE PARKWAY.
- SIERRA COLLEGE BLVD. IS A MORATORIUM STREET DUE TO ITS RECENT RESURFACING. CONTRACTOR SHALL REFERENCE "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON DRAWING SD-03 AND CITY OF ROSEVILLE SPECIFICATION "DIVISION V - SURFACING AND PAVEMENTS".
- TRENCHING ON SIERRA COLLEGE BLVD. SHALL BE PER CITY OF ROSEVILLE STANDARD DETAIL SS-1, TB-1.
- CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT TO BE PAID FOR BY CITY OF ROSEVILLE.
- CONTRACTOR SHALL MAKE EFFORTS TO AVOID IMPACTING EXISTING TRAFFIC LOOPS. SHOULD IMPACT BE NECESSARY, CONTRACTOR TO COORDINATE WITH CITY.
- UTILITY VERIFICATION POTHOLES SHALL BE RESTORED PER CITY OF ROSEVILLE STANDARD DETAIL TB-5.



DESIGN	A CORREA	DRAWN	A CORREA	CHECKED	KALACON	APPROVED	KALACON
CITY OF ROSEVILLE ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888							
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA							
GENERAL GENERAL DESIGNATIONS							
DATE DECEMBER 2022							
PROJECT NUMBER 21-060							
DRAWING NUMBER G-03							
SHEET NUMBER 3							

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1			2		3		4		5		6	
PIPING SYMBOLS			PUMPS		ACTUATORS		MISC FITTING SYMBOLS		PIPING DESIGNATIONS			
SYMBOL	SINGLE LINE	DESCRIPTION	SYMBOL	PUMP TYPE	SYMBOL	ACTUATOR TYPE	SYMBOL	EQUIPMENT TYPE				
		EXISTING PIPE (SCREENED)		CENTRIFUGAL PUMP		MOTOR ACTUATOR		Y STRAINER				
		NEW PIPE		SUBMERSIBLE PUMP		PNEUMATIC ACTUATOR		PULSATION DAMPER				
		EXISTING PIPE TO BE ABANDONED		VERTICAL TURBINE PUMP (PLAN)		SOLENOID ACTUATOR		GAUGE				
		EXISTING PIPE TO BE DEMOLISHED OR REMOVED AND SALVAGED		VERTICAL TURBINE PUMP (SECTION)				DIAPHRAGM SEAL				
VALVES				VERTICAL TURBINE PUMP (SECTION)	GATES / WEIR			RUPTURE DISK (PRESSURE)				
SYMBOL	VALVE TYPE			DIAPHRAGM METERING PUMP	SYMBOL	GATE / WEIR TYPE		RUPTURE DISK (VACUUM)				
	BALL VALVE			PERISTALTIC PUMP		SLIDE GATE		ORIFICE				
	BLOWOFF VALVE			PROGRESSIVE CAVITY PUMP		STOP LOG		BLIND FLANGE OR TANK NOZZLE				
	VENTED BALL VALVE			AXIAL FLOW PUMP		WEIR		EXPANSION COUPLING				
	CORPORATION STOP VALVE		BLOWERS		MISC EQUIPMENT			FLEXIBLE COUPLING				
	BUTTERFLY VALVE		SYMBOL	BLOWER TYPE	SYMBOL	TYPE		UNION				
	DIAPHRAGM VALVE			CENTRIFUGAL BLOWER		AIR DIFFUSER		ECCENTRIC REDUCER				
	GATE VALVE			BLOWER FAN		SPRAY BAR OR DIFFUSER		CAP	NOTES: 1. MOTORIZED VALVE SHOWN, MANUAL VALVE SIMILAR.			
	KNIFE GATE		FLOWMETERS		EMERGENCY EYEWASH AND SHOWER			FEMALE QUICK CONNECT				
	GLOBE VALVE		SYMBOL	FLOWMETER TYPE				MALE QUICK CONNECT				
	MUD VALVE			MAGNETIC FLOWMETER				QUICK CONNECT WITH CAP				
	MULTIPORT VALVE			PROPELLER FLOWMETER				QUICK CONNECT COUPLING	NOTES: 1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS AND THE PIPING SCHEDULE. 2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.			
	NEEDLE VALVE		FILTERS AND STRAINERS					DRAIN				
	PINCH VALVE		SYMBOL	FILTER TYPE				DRAIN				
	PLUG VALVE			FILTER				SIGHT GLASS				
	PLUG VALVE (ECCENTRIC)			CARTRIDGE FILTER (SMALL)				CALIBRATION COLUMN	GENERAL PIPING NOTES: 1. THRUST RESTRAINT; ALL NEW SEWER LINES, FITTINGS, VALVES, AND APPURTENANCES ARE TO BE FULLY MECHANICALLY RESTRAINED. 2. TIE-IN CONNECTIONS: OPERATION OF ANY EXISTING SEWER SYSTEM VALVES OR OTHER EXISTING FACILITIES SHALL ONLY OCCUR UNDER THE DIRECT OBSERVATION AND PRIOR APPROVAL OF THE CITY. CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWO (2) WEEKS IN ADVANCE OF ANY NECESSARY SHUTDOWN AND/OR TIE-IN. 3. VERTICAL AND HORIZONTAL SEPARATION: UNLESS OTHERWISE NOTED ON PLANS OR APPROVED BY THE CITY, CONTRACTOR SHALL MAINTAIN VERTICAL AND HORIZONTAL SEPARATION FROM PARALLEL SEWERS AND STORM DRAINS IN ACCORDANCE WITH CALIFORNIA WATERWORKS STANDARDS. 4. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS. MINIMUM COVER SHALL BE 36 INCHES UNLESS OTHERWISE SHOWN. 5. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE. 6. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED. 7. APPROPRIATE STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL. 8. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED. 9. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. ALL OF THE VARIOUS APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT. 10. ALL PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, GROOVED END, OR SCREWED PIPING, SHALL BE PROVIDED WITH TRUST PROTECTION AT ALL DIRECTION CHANGES, UNLESS OTHERWISE NOTED. SEE THRUST DETAILS AND NOTES ON DRAWINGS. 11. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT. 12. THE CONTRACTOR FOR THIS PROJECT IS RESPONSIBLE FOR COORDINATING AND PERFORMING THE CONNECTION OF THE PIPING AND ASSOCIATED APPURTENANCES INSTALLED UNDER THIS CONTRACT TO BOTH THE EXISTING PIPING AND FACILITIES. 13. PRIOR TO SUBMITTING PIPING DRAWINGS FOR ANY NEW PIPE THAT IS TO CONNECT TO OR CROSS AN EXISTING PIPE OR STRUCTURE, THE CONTRACTOR SHALL EXPOSE THE EXISTING PIPE OR STRUCTURE TO VERIFY ITS EXACT LOCATION, SIZE, MATERIALS, AND INVERT ELEVATIONS. 14. VCP TO BE USED WHERE OPEN CUT INSTALLATION IS UTILIZED. WHERE TRENCHLESS IS UTILIZED, HDPE SHALL BE USED. SEE PLAN AND PROFILE SHEETS FOR ADDITIONAL NOTES.			
	BALL CHECK VALVE			CARTRIDGE FILTER (LARGE)				ROTAMETER				
	DOUBLE DISK SWING CHECK VALVE			BASKET STRAINER				ROTAMETER WITH NEEDLE VALVE				
	DUCKBILL CHECK		MIXERS				MISC SYMBOLS					
	SILENT CHECK VALVE		SYMBOL	MIXER TYPE			SYMBOL	DESCRIPTION				
	SWING CHECK VALVE			MIXER				SAMPLE				
	TELESCOPING VALVE			STATIC MIXER				WATER SURFACE				
	AIR RELIEF VALVE			WAFER STATIC MIXER								
	AIR VACUUM VALVE											
	COMBINATION AIR RELIEF AIR VACUUM VALVE											
	PRESSURE REGULATING VALVE											
	PRESSURE RELIEF VALVE											
	HOSE BIBB OR FLUSHING CONNECTION											
	BACKFLOW PREVENTER VALVE											
									DESIGN A CORREA DRAWN A CORREA CHECKED KALACON APPROVED KALACON			
									CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
									GENERAL MECHANICAL LEGEND			
									DATE DECEMBER 2022 PROJECT NUMBER 21-060 DRAWING NUMBER G-04 SHEET NUMBER 4			

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CIVIL LEGEND

	SPOT ELEVATION
	CONTOUR LINE
	CUT SLOPE (HORIZ:VERT)
	EMBANKMENT - FILL SLOPE (HORIZ:VERT)
	DRAINAGEWAY OR DITCH
	DIRECTION OF FLOW
	CENTER LINE, BUILDING, ROAD
	PROPERTY LINE
	RIGHT OF WAY, EASEMENT OR SETBACK
	STAGING OR WORK AREA LIMITS
	STRUCTURE, BUILDING OR FACILITY LOCATION POINT COORDINATES
	STRUCTURE, BUILDING OR FACILITY
	RETAINING WALL
	CONCRETE CURB
	ARCHITECTURAL FENCE
	GUARD RAIL / BARRICADE
	CHAIN LINK FENCE WITH 3 STRAND BARBED WIRE TOPPING
	ARCHITECTURAL FENCE
	WIRE FENCE
	BARBED WIRE
	SINGLE SWING GATE
	DOUBLE SWING GATE
	SLIDING GATE
	CULVERT
	WALL
	BRUSH / TREE LINE
	TREE
	DEMOLITION
	ABANDON
	AUTOMATIC AIR RELEASE VALVE
	MANUAL AIR RELEASE VALVE
	WATER SURFACE
	BENCHMARK

CIVIL PATTERNS

	BEDROCK
	ROCKS OR RIPRAP
	SAND
	AGGREGATE BASE
	NATURAL SOIL
	COMPACTED SOIL
	CONCRETE
	GROUT
	CONTROLLED LOW STRENGTH MATERIAL (CLSM)
	PAVEMENT
	GRATING

CIVIL NOTES

- EXISTING PIPING, EQUIPMENT AND TOPOGRAPHY ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW PIPING, EQUIPMENT, STRUCTURES AND FINISHED GRADE ARE SHOWN HEAVY-LINED.
- THIS IS A STANDARD LEGEND DRAWING. SOME SYMBOLS MAY APPEAR ON THIS DRAWING BUT MAY NOT BE USED.

CIVIL ABBREVIATIONS

ABBREVIATION	DEFINITION
AB	AGGREGATE BASE, ANCHOR BOLT
BC	BEGIN CURVE, BOTTOM OF CURB
BM	BENCH MARK, BEAM
BOC	BACK OF CURB
BOG	BACK OF GUTTER
BOO	BOTTOM OF OPENING
BRG	BEARING
BVC	BEGINNING OF VERTICAL CURVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CI	CAST IRON
CIGC	CAST IRON GROOVED COUPLING
CIMJ	CAST IRON MECHANICAL JOINT
CIP	CAST IRON PIPE
CIRJ	CAST IRON RESTRAINED JOINT
CISP	CAST IRON SOIL PIPE
CMLCSP	CEMENT MORTAR LINED AND COATED STEEL PIPE
CMLSP	CEMENT MORTAR LINED STEEL PIPE
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT
CULV	CULVERT
DI	DROP INLET, DUCTILE IRON
DIMJ	DUCTILE IRON MECHANICAL JOINT
DIPPL	DUCTILE IRON PIPE, POLYETHYLENE LINED
EC	END CURVE
EG	EXISTING GRADE
EP	EDGE OF PAVEMENT
ESA	ENVIRONMENTALLY SENSITIVE AREA
ESC	EROSION SEDIMENT CONTROL
EVC	END OF VERTICAL CURVE
FH	FIRE HYDRANT
FL	FLOOR, FLOW LINE
FLL	FLOW LINE
FOC	FACE OF CONCRETE
GB	GRADE BREAK
GD	GENERAL DRAINAGE
HORIZ	HORIZONTAL
HPT	HIGH POINT
HYD	HYDRANT
IE	INVERT ELEVATION
IF	INSIDE FACE
IRR	IRRIGATION
LP	LOW POINT
MH	MANHOLE
OG	ORIGINAL GROUND
OHE	OVERHEAD ELECTRICAL
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
POE	POINT OF ENDING
PP, P&P	PLAN AND PROFILE, POWER POLE
PRC	POINT OF REVERSE CURVE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PLASTIC, POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY, PRIVATE
R/W, ROW	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
RD	ROAD, ROOF DRAIN
RP	RADIUS POINT
S	SOUTH, SLOPE
S =	SLOPE EQUALS
SD	STORM DRAIN
SLP	SLOPE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
STA	STATION
T	TANGENT, TELEPHONE LINE, TOP
TBM	TEMPORARY BENCHMARK
TCE	TEMPORARY CONST EASEMENT
TOC	TOP OF CURB, TOP OF CONCRETE
TOW	TOP OF WALL
TP	TURNING POINT, TEST PIT
TWS	TRACER WIRE STATION
UD	UNDERDRAIN
UG	UNDERGROUND
VC	VERTICAL CURVE
VPI	VERTICAL POINT OF INTERSECTION



DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
GENERAL CIVIL LEGEND			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER G-05			
SHEET NUMBER 5			

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CIVIL GENERAL NOTES

1.

CONTRACTOR RESPONSIBILITY: ALL CONSTRUCTION WORK AND INSTALLATIONS SHALL CONFORM TO THE CITY OF ROSEVILLE (OWNER) STANDARDS AND SPECIFICATIONS WHICH ARE SUBJECT TO APPROVAL FROM THE CITY ENGINEER (OWNER). IN ADDITION, ALL WORK SHALL CONFORM WITH THE CONTRACT DOCUMENTS AND COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES. ALL NECESSARY LICENCES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
2.

WORK DEVIATION: DEVIATION FROM THESE PLANS WITHOUT THE PRIOR WRITTEN CONSENT OF THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE. MINOR CHANGES IN THE HORIZONTAL AND VERTICAL ALIGNMENT OF MAIN PIPELINES & YARD PIPING MAY BE PROPOSED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL TO FACILITATE CONSTRUCTION AND AVOID FIELD CONFLICTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS.
3.

CONTRACT DOCUMENT PRECEDENCE: ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS AND OTHER PROVISIONS ARE LISTED IN VOLUME 1.
4.

EXISTING CONDITIONS: EXISTING OR ORIGINAL CONDITION IS DEFINED AS A PRE-CONSTRUCTION CONDITION. IF PROVIDED, AERIAL ORTHO-RECTIFIED PHOTO IMAGERY IN THE BACKGROUND OF A DRAWING IS INTENDED TO CLARIFY THE WORK SITE AT THE TIME OF THE DESIGN. EXISTING CONDITIONS MAY VARY FROM THE CONDITIONS DEPICTED IN THE ORTHO IMAGERY. CONTRACTOR SHALL VERIFY EXISTING SURFACE CONDITIONS WHEN FEASIBLE PRIOR TO BIDDING. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS.
5.

REFERENCE ALIGNMENT & CONSTRUCTION SURVEY: ALL ALIGNMENT LENGTHS AND DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE. ALL EXISTING OR FINISHED GRADE ELEVATIONS DEPICTED IN PROFILE VIEW ARE ELEVATIONS ALONG THE CENTER LINE OF THE REFERENCE ALIGNMENT UNLESS OTHERWISE INDICATED. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION AND SHALL NOTIFY THE ENGINEER TO ANY DISCREPENCIES. A POSITIVE OFFSET STATION IS THE PERPENDICULAR OFFSET DISTANCE TO THE RIGHT OF AN ALIGNMENT IN THE DIRECTION OF THE INCREASING STATION. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SURVEYING WHICH SHALL BE PERFORMED BY A LICENSED SURVEYOR.
6.

TYPICAL DETAILS AND TRENCH DETAIL CONTINUITY: TYPICAL DETAILS AND SCHEDULES INDICATED MAY NOT BE SPECIFICALLY REFERENCED ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE WHERE EACH TYPICAL DETAIL OR SCHEDULE APPLIES. THE ENGINEER SHALL BE NOTIFIED IF LOCATIONS ARE FOUND WHERE NO TYPICAL DETAIL, SCHEDULE, OR SPECIFIC DETAIL APPLIES. THE CONTRACTOR SHALL ADAPT AND TRANSITION BETWEEN CONTINUOUS TRENCH DETAILS BASED ON PLAN AND PROFILE.
7.

PRESERVATION OF PROPERTY: PRIVATE AND PUBLIC PROPERTY SHALL BE PROTECTED DURING CONSTRUCTION AND IF DAMAGED DURING EXECUTION OF WORK SHALL BE REPLACED AND/OR RESTORED TO MATCH EXISTING CONDITIONS OR UPDATED STANDARDS IF REQUIRED BY THE OWNER.
8.

CONCRETE FLATWORK REPLACEMENT: ALL TRAFFIC ISLANDS, CURBS, CONCRETE DRIVEWAYS AND SIDEWALKS EXCAVATED OR DAMAGED DURING EXECUTION OF WORK SHALL BE REPLACED TO THE FIRST EXPANSION JOINT BEYOND THE TRENCH AND TO THE FULL WIDTH AND SHALL MATCH EXISTING CONDITIONS OR UPDATED STANDARDS IF REQUIRED BY THE OWNER. UNLESS OTHERWISE DIRECTED, ADA-ACCESSIBILITY CURB RAMPS SHALL BE REPLACED IN FULL TO THEIR FUNCTIONAL LIMITS AND MODIFIED TO COMPLY WITH OWNER STANDARD DETAILS.
9.

MONUMENT CONSERVATION: PRIOR TO COMMENCEMENT OF WORK, ALL SURVEY MONUMENTS IN THE PROJECT AREA SHALL BE LOCATED AND TIED OUT. ALL CENTERLINE MONUMENTS OR TIES LOST OR DESTROYED BY THIS WORK SHALL BE REPLACED EITHER BY A LICENSED SURVEYOR OR A CIVIL ENGINEER REGISTERED PRIOR TO JANUARY 1, 1982 AND NEW TIE SHEETS PROVIDED. METHOD OF ESTABLISHMENT SHALL BE STATED ON THE TIE SHEET.
10.

SALVAGING OWNER EQUIPMENT & DEBRIS DISPOSAL: SALVAGED OWNER EQUIPMENT SUCH AS PUMPS SHALL BE RETURNED TO THE OWNER AT THE PROJECT CONCLUSION OR UPON REQUEST. NO SALVAGED ITEMS SHALL BE RE-INCORPORATED INTO THE NEW WORK, UNLESS OTHERWISE DIRECTED. ALL CONSTRUCTION DEBRIS, UNSUITABLE AND SURPLUS MATERIAL, AND CLEARED/GRUBBED VEGETATIVE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED BY THE OWNER.
11.

PIPELINE PROTECTION FROM DEBRIS: THE CONTRACTOR SHALL PREVENT ACCUMULATION OF DEBRIS OR SOILS WITHIN NEW PIPELINES DURING INSTALLATION AND SHALL PLUG THE ENDS OF PIPELINES WITH APPROVED PLUGS AT THE END OF THE DAY. USE OF A PIPELINE DURING CONSTRUCTION TO STORE OR CONVEY SCREENED DEWATERED GROUNDWATER OR ACCUMULATED STORM RUNOFF IS ONLY PERMISSIBLE FOR PIPELINES INTENDED FOR NON-POTABLE SERVICE WITH PRIOR APPROVAL FROM ENGINEER. AFTER FINAL ACCEPTANCE, USE OF ANY PIPELINE FOR PURPOSES OTHER THAN START-UP AND OPERATION ARE RESTRICTED UNLESS APPROVED BY THE OWNER.
12.

EXISTING UTILITIES: THE CONTRACTOR IS REQUIRED TO CONTACT UNDERGROUND SERVICE ALERT TWO (2) TO FOURTEEN (14) DAYS PRIOR TO BEGINNING ANY EXCAVATION. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS, ARE APPROXIMATE, AND ARE DEPICTED FOR THE CONTRACTOR'S CONVENIENCE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND ACCURACY OF UTILITIES SHOWN. THE CONTRACTOR SHALL NOTE THAT SMALL-DIAMETER IRRIGATION PIPELINES ARE NOT DEPICTED HEREIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE SIZE, DEPTH, ORIENTATION, MATERIAL, AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES WITHIN WORK AREAS PRIOR TO CONSTRUCTION AND SUBMIT THIS INFORMATION TO THE ENGINEER IF IT DEVIATES FROM THE PROJECT PLANS. THE CONTRACTOR SHALL PROVIDE FOR THE PROTECTION OF EXISTING UTILITIES AND REPAIR OR REPLACE UTILITIES THAT ARE DAMAGED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER. THE CONTRACTOR SHALL MAKE SUCH REPAIRS OR REPLACEMENTS TO A SATISFACTORY CONDITION THAT MEETS THE CURRENT UTILITY COMPANY STANDARD. THE CONTRACTOR SHALL COORDINATE WORK WITH CONFLICTING UTILITY OWNERS AND PROVIDE FOR REMOVAL, RELOCATION, AND REPLACEMENT AS NECESSARY FOR INSTALLATION OF THE PROPOSED FACILITIES AT NO EXPENSE TO THE OWNER

13.

UTILITY VERIFICATION REQUIREMENTS: CONTRACTOR SHALL DEVELOP AND SUBMIT TO THE ENGINEER FOR APPROVAL A UTILITY VERIFICATION PLAN WITHIN 30 DAYS OF PROJECT COMMENCEMENT. THE PLAN SHALL DESCRIBE THE PROPOSED VERIFICATION METHODOLOGY, BACKFILL AND/OR TEMPORARY PAVEMENT REPLACEMENT PROCEDURES, IMPLEMENTATION SCHEDULE, AND TRAFFIC CONTROL PLAN. ACCEPTABLE VERIFICATION METHODOLOGIES ARE NON-MECHANICAL VACUUM POTHOLING AND HAND EXCAVATION THAT EXPOSE THE UTILITY FOR VISUAL CONFIRMATION AND ALLOW FOR DOCUMENTATION WITH PHOTO/VIDEO AND SURVEY. MECHANICAL EXPLORATORY TRENCHING SHALL ONLY BE APPROVED IN SPECIAL CIRCUMSTANCES WHERE IT BENEFITS THE OWNER AND PROJECT SCHEDULE AND MAY BE SUBJECT TO CULTURAL MONITORING PROCEDURES. CITY-OWNED GRAVITY UTILITIES SUCH AS SERVICE LATERALS MAY REQUIRE CCTV CONFIRMATION OF HORIZONTAL PLACEMENT PRIOR TO UTILITY VERIFICATION.

THE CONTRACTOR SHALL VERIFY ADDITIONAL UTILITIES MARKED BY THE LOCATING COMPANY AND/OR SHOWN IN CONFORMED DRAWINGS WITHIN 3.0-LF OF THE EXCAVATION LIMITS A MINIMUM OF 2 WEEKS PRIOR TO EXCAVATON AND WITHIN 200-LF OF THE ADVANCING LINEAR CONSTRUCTION ACTIVITY
14.

TIE-IN CONNECTIONS: OPERATION OF ANY EXISTING FACILITIES SHALL ONLY OCCUR UNDER THE DIRECT OBSERVATION AND PRIOR APPROVAL OF THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST TWO (2) WEEKS IN ADVANCE OF ANY NECESSARY SHUTDOWN AND/OR TIE-IN CONNECTION AND EACH INDIVIDUAL EVENT SHALL BE IDENTIFIED ON CONTRACTOR'S THREE (3) WEEK LOOK AHEAD SCHEDULE AS SUBMITTED WEEKLY TO THE OWNER. SHUTDOWNS AND TIE-INS MAY NOT OCCUR ON THE WEEKEND OR HOLIDAYS UNLESS PRE-APPROVED BY THE OWNER. ALL PREPARATORY WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE OWNER PRIOR TO INITITATING SHUTDOWN AND STARTING WORK ON THE TIE-IN. CONTRACTOR SHALL VERIFY CONNECTION POINTS AND PIPE MATERIAL IN ADVANCE AND HAVE ALL PIPE, FITTINGS, VALVES, HARDWARE, GASKETS AND OTHER MATERIALS READY ON-SITE. THE CONTRACTOR SHALL COMPLY WITH OWNER STANDARDS, AND WASTEWATER DISPOSAL REQUIREMENTS.
15.

SHUTDOWNS: THE CONTRACTOR SHALL NOT CAUSE ANY SERVICE INTERRUPTIONS WITHOUT PRIOR OWNER APPROVAL AND SHALL MAKE EVERY EFFORT TO MINIMIZE LENGTH OF ANY NECESSARY SEWER SERVICE INTERRUPTIONS. ANY AND EACH SHUTDOWN SHALL BE INDIVIDUALLY PLANNED AND SCHEDULED AT LEAST TWO (2) WEEKS IN ADVANCE OF WORK.
16.

RECORD DRAWINGS: PRIOR TO BACKFILLING THE CARRIER THE CONTRACTOR SHALL SURVEY THE CL @ CROWN OF EVERY PIPELINE FITTING, HORIZONTAL AND VERTICAL ELBOWS, AND EVERY 50-FT THROUGH A HORIZONTAL CURVE. IN ADDITION, THE CONTRACTOR SHALL SURVEY THE GEOMETRIC CENTER @ FG OF ALL INSTALLED STRUCTURES SUCH AS BUT NOT LIMITED TO MANHOLES, VALVE VAULTS/BOXES, PULLBOXES, TRACER WIRE TERMINALS, AND GROUND ROD TERMINALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND SUBMIT TO THE ENGINEER A SET OF RECORD DRAWINGS IN ACCORDANCE WITH SECTION 01 33 03 AND SECTION 01 77 03.

PRECONSTRUCTION SURVEYS:

1.

IF THE LAYDOWN AREA IS ESTABLISHED BY CONTINUING THE EASTERN FENCING OF THE PS-26 FACILITY DUE SOUTH AND THEN USING THE AREA BETWEEN THAT LINE AND SIERRA COLLEGE BLVD. (STAGING AREA 'A' ON DRAWING WZ-1), THEN THE ONLY FOLLOW UP WOULD BE CONDUCT A PRE-CONSTRUCTION NESTING BIRD SURVEY. THE NESTING BIRD SURVEY WOULD ONLY BE NEEDED IF CONSTRUCTION OCCURS BETWEEN FEBRUARY 1ST AND AUGUST 30TH.
2.

IF STAGING AREA 'B' (PER DRAWING WZ-1) IS REQUIRED, A BIOLOGICAL REVIEW OF THE WORK AREA SHALL BE ESTABLISHED TO EXCLUDE DRIPLINE OF NATIVE OAKS, A MINIMUM OF 50-FOOT BUFFER FROM WETLANDS LOCATED TO THE EAST, AND AREAS OF NON-REDERAL VEGETATION THAT COULD BE HABITAT FOR SPECIAL STATUS PLANTS.

ENVIRONMENTAL AWARENESS TRAINING:

1.

PRIOR TO COMMENCEMENT OF GRADING OPERATIONS, THE PROJECT APPLICANT SHALL EMPLOY A QUALIFIED BIOLOGIST TO CONDUCT ENVIRONMENTAL AWARENESS TRAINING FOR CONSTRUCTION EMPLOYEES. THE TRAINING WILL DESCRIBE THE IMPORTANCE OF ON-SITE BIOLOGICAL RESOURCES AND WILL EXPLAIN THE IMPORTANCE OF OTHER RESPONSIBILITIES RELATED TO THE PROTECTION OF WILDLIFE DURING CONSTRUCTION. THE ENVIRONMENTAL AWARENESS PROGRAM SHALL BE PROVIDED TO ALL CONSTRUCTION PERSONNEL TO BRIEF THEM ON THE LIFE HISTORY OF SPECIAL-STATUS SPECIES IN OR ADJACENT TO THE PROJECT AREA, THE NEED TO AVOID IMPACTS ON SENSITIVE BIOLOGICAL RESOURCES, ANY TERMS AND CONDITIONS REQUIRED BY STATE AND FEDERAL AGENCIES, AND THE PENALTIES FOR NOT COMPLYING WITH BIOLOGICAL MITIGATION REQUIREMENTS, IF NEW CONSTRUCTION PERSONNEL RECEIVE THE MANDATORY TRAINING BEFORE STARTING WORK. AND ENVIRONMENTAL AWARENESS HANDOUT THAT DESCRIBES AND ILLUSTRATES SENSITIVE RESOURCES TO BE AVOIDED DURING PROJECT CONSTRUCTION AND IDENTIFIES ALL RELEVANT PERMIT CONDITIONS SHALL BE PROVIDED TO EACH PERSON.

CONSTRUCTION WORK PLANS

1.

THE CONTRACTOR SHALL DEVELOP, SUBMIT TO ENGINEER FOR APPROVAL, AND IMPLEMENT ALL WORK PLANS REQUIRED BY THE CONTRACT DOCUMENTS. PROJECT CONSTRUCTION WORK PLANS MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING ITEMS, WHICH HAVE BEEN DELINEATED FOR THE CONTRACTOR'S CONVENIENCE.

MAJOR CONSTRUCTION WORK PLANS		REFERENCE
1.	PROJECT PUBLIC COMMUNICATION PLAN	OWNER SHALL DEVELOP PRIOR TO NTP
2.	TRAFFIC CONTROL PLAN	TRAFFIC CONTROL DWGS
3.	UTILITY SHUTDOWN PLAN	SEE NOTE 15
4.	SITE ACCESS, STAGING, SAFETY & SECURITY PLAN	01 51 03
5.	SHEETING & SHORING PLAN	31 05 03
6.	UTILITY VERIFICATION PLAN	SEE NOTE 13
7.	SEWER BYPASSING PLAN	01 57 03
8.	SOIL TESTING QUALITY CONTROL PLAN	31 05 03
9.	START-UP PLAN & PROCEDURES FOR PUMP STATION(S) AND PIPELINE(S)	01 75 06 & 01 77 03
10.	EROSION AND SEDIMENT CONTROL PLAN	SEE BELOW

EROSION AND SEDIMENTATION CONTROL NOTES:

1.

AN EROSION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED TO THE CITY OF ROSEVILLE FOR APPROVAL.
2.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF ROSEVILLE STORMWATER QUALITY BMP GUIDANCE MANUAL FOR CONSTRUCTION OR AS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS FOR THIS PROJECT.
3.

EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) SHALL BE INSTALLED AND MAINTAINED YEAR ROUND AND AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROL BMPS SHALL BE INSTALLED AND MAINTAINED DURING THE WET SEASON (OCTOBER 1 THROUGH APRIL 30) AND PRIOR TO THE ONSET OF ANY STORM.
4.

ALL STORM DRAIN INLETS WITHIN THE WORK AREA, AND OFFSITE STORM DRAIN INLETS WITH THE POTENTIAL TO RECEIVE RUNOFF FROM THE PROJECT SITE, SHALL BE ADEQUATELY PROTECTED WITH SEDIMENT CONTROL BMPS TO EFFECTIVELY REMOVE SEDIMENT FROM RUNOFF PRIOR TO DISCHARGE TO THE STORM DRAIN. ADDITIONAL BMPS SHALL BE USED AS NEEDED TO REMOVE SEDIMENT FROM RUNOFF. UPON COMPLETION OF THE PROJECT AND ACCEPTANCE OF THE IMPROVEMENTS BY THE CITY, ALL SEDIMENT CONTROL BMPS SHALL BE REMOVED
5.

PROTECTED AREAS AND AREAS WHERE EXISTING VEGETATION IS BEING PRESERVED SHALL BE PROTECTED WITH ORANGE CONSTRUCTION FENCING. ADDITIONAL SIGNAGE MAY BE REQUIRED TO IDENTIFY THE RESOURCE BEING PROTECTED AND/OR PROVIDE ADDITIONAL INSTRUCTIONS TO CONSTRUCTION PERSONNEL. EROSION, SEDIMENT, AND DIVERSION CONTROL BMPS SHALL BE INSTALLED AND MAINTAINED TO ENSURE THAT CONSTRUCTION RUNOFF DOES NOT ENTER PROTECTED AREAS.
6.

SEDIMENT CONTROL BMPS SHALL BE PLACED ALONG THE PROJECT PERIMETER WHEREVER THERE IS A POTENTIAL FOR DRAINAGE TO LEAVE THE PROJECT SITE. PERIMETER SEDIMENT CONTROL BMPS SHALL BE MAINTAINED YEAR ROUND UNTIL THE CONSTRUCTION IS COMPLETE OR THE DRAINAGE PATTERN HAS BEEN CHANGED AND NO LONGER LEAVES THE SITE AT THOSE LOCATIONS.
7.

CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS ANY CORRECTIVE CHANGES TO THE BMPS OR TO THE EROSION AND SEDIMENT CONTROL PLAN.
8.

THE CONTRACTOR SHALL ESTABLISH A SPECIFIC SITE WITHIN THE DEVELOPMENT FOR MAINTENANCE AND STORAGE OF EQUIPMENT OR ANY OTHER ACTIVITY THAT MAY ADVERSELY CONTRIBUTE TO THE WATER QUALITY OF THE RUNOFF. THIS AREA SHALL HAVE A BERM LOCATED AROUND ITS PERIMETER. THIS AREA SHALL BE RESTORED TO ACCEPTABLE CONDITION UPON COMPLETION OF PROJECT.
9.

FIBER ROLLS MAY BE USED ALONG THE TOP, FACE AND AT GRADE BREAKS OF EXPOSED AND ERODIBLE SLOPES, PLACED BEHIND CURBS OR WALKWAYS, AND USED AS CHECK DAMS WHEN PROPERLY ANCHORED.
10.

LOCATE FIBER ROLLS ON LEVEL CONTOURS SPACED AS FOLLOWS:

A.

SLOPE INCLINATION OF 4:1 (H:V) OR FLATTER: FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 20FT.

B.

SLOPE INCLINATION BETWEEN 4:1 AND 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 15FT. (A CLOSER SPACING IS MORE EFFECTIVE).

C.

SLOPE INCLINATION OF 2:1 (H:V): FIBER ROLLS SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 10FT. (A CLOSER SPACING IS MORE EFFECTIVE).



DESIGN
A CORREA

DRAWN
A CORREA

CHECKED
KALACON

APPROVED
KALACON

WATERWORKS

ENGINEERS

2060 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2988

CITY OF ROSEVILLE

SEWER PUMP STATION NO. 26

IMPROVEMENTS

ROSEVILLE, CALIFORNIA

GENERAL

CIVIL GENERAL NOTES

DATE

PROJECT NUMBER

DRAWING NUMBER

SHEET NUMBER

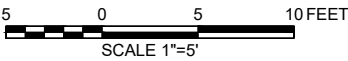
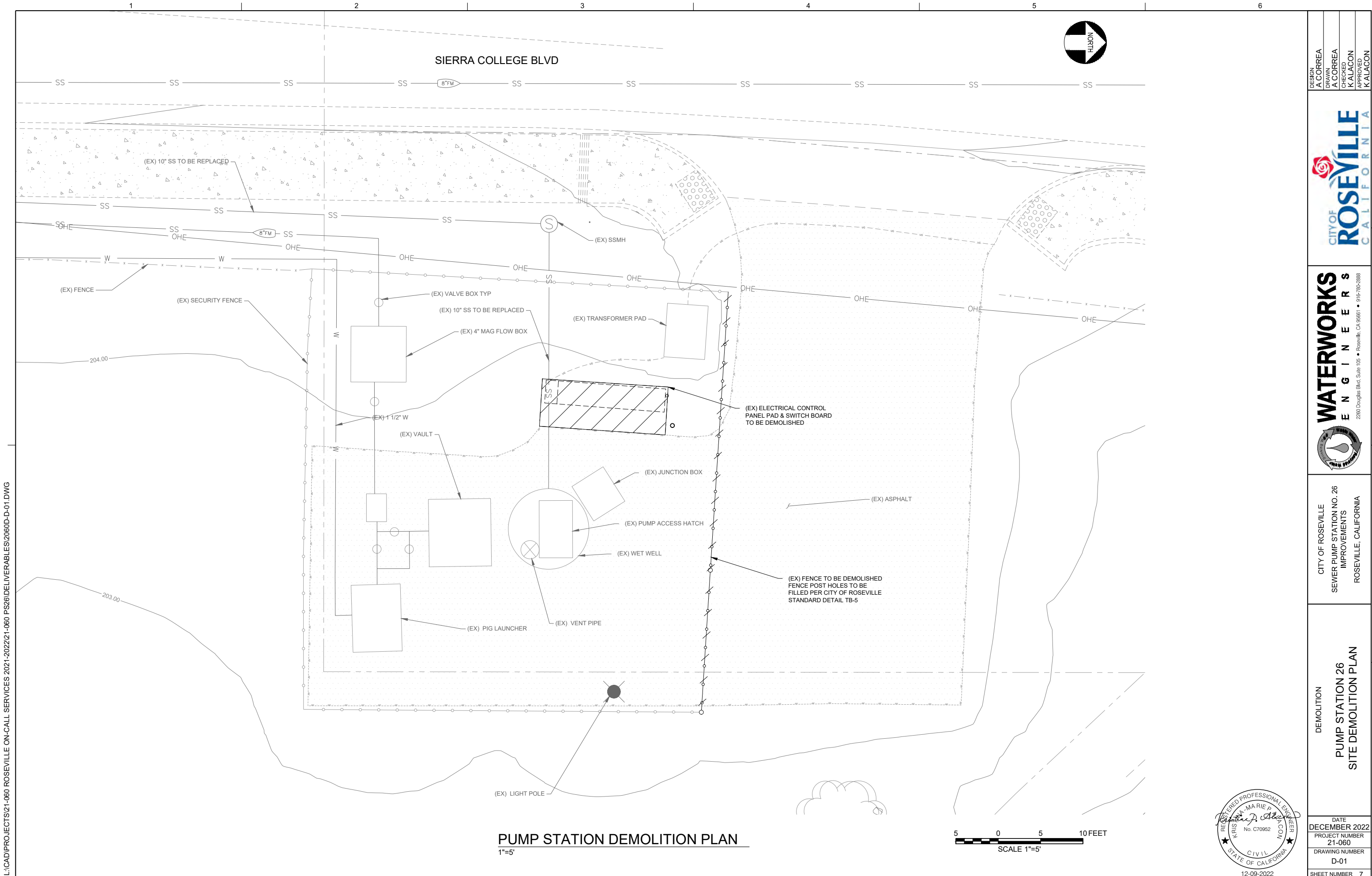
DECEMBER 2022

21-060

G-06

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DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON		WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888		CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	DEMOLITION PUMP STATION 26 SITE DEMOLITION PLAN	DATE DECEMBER 2022
									PROJECT NUMBER 21-060
									DRAWING NUMBER D-01
									SHEET NUMBER 7

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PUMPING STATION TOP PLAN
SCALE: 1/2"=1'-0"

BOTTOM PLAN
SCALE: 1/2"=1'-0"



- NOTES:
1. APRIL 1999 AS-BUILT DRAWING FOR REFERENCE AND MAY NOT BE 100% ACCURATE.
 2. HATCHED AREAS DENOTE ITEMS TO BE DEMOLISHED AS PART OF THIS PROJECT.



CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

DEMOLITION
PUMP STATION 26
MECHANICAL DEMOLITION PLANS - 1



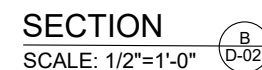
DATE
DECEMBER 2022
PROJECT NUMBER
21-060
DRAWING NUMBER
D-02
SHEET NUMBER
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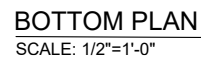


CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

DEMOLITION
PUMP STATION 26
MECHANICAL DEMOLITION PLANS - 2

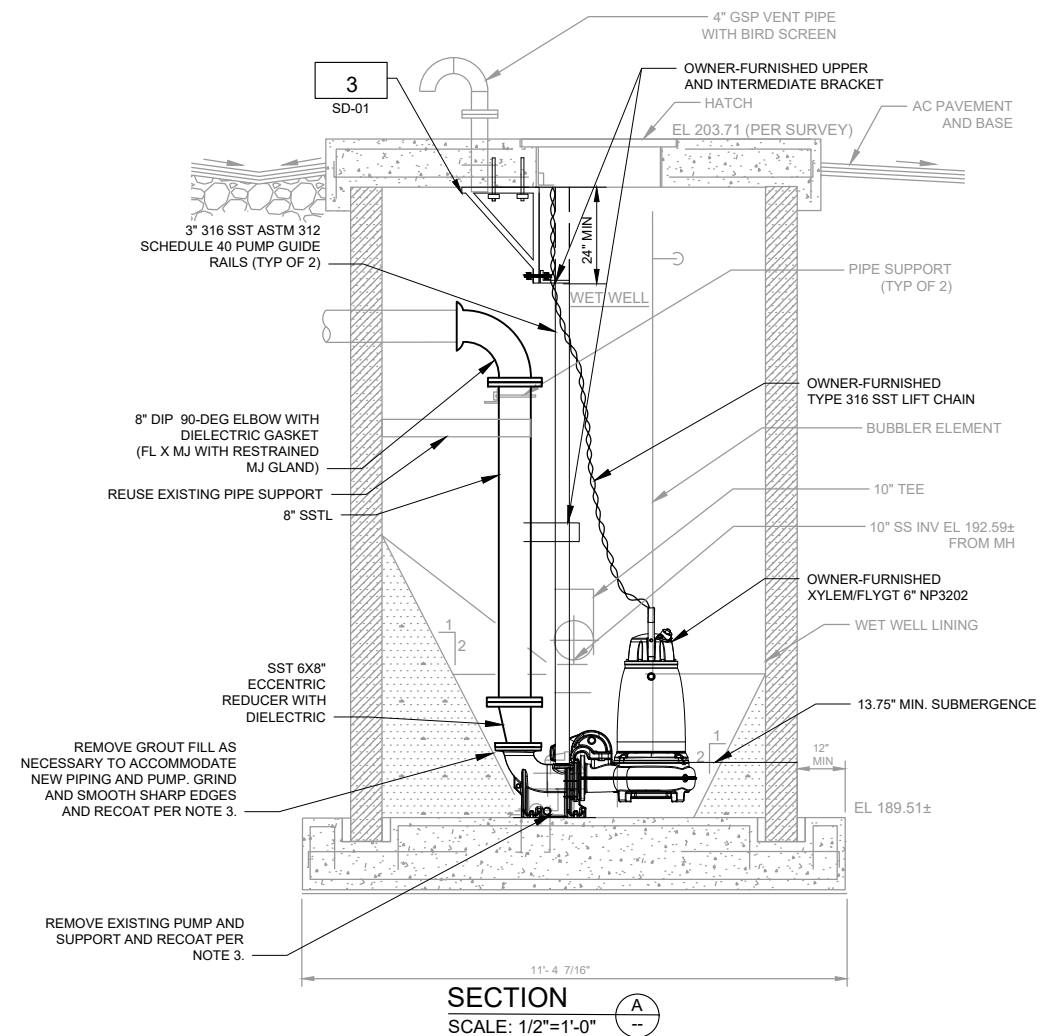
DATE DECEMBER 2022
PROJECT NUMBER 21-060
DRAWING NUMBER D-03
SHEET NUMBER 9





1. APRIL 1999 AS-BUILT DRAWING FOR REFERENCE AND MAY NOT BE 100% ACCURATE.
2. DIMENSIONS OF EXISTING FACILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS PRIOR TO FABRICATING OR PROCURING ANY MATERIALS.
3. CONTRACTOR TO OVERLAP EXISTING COATING 4" MIN WITH SHERWIN-WILLIAMS RESUPRIME 3830 UNDER DURAPLATE 6100, OR EQUALS.

FIRST MH TO OVERFLOW	MH NO 1
MAX STORAGE EL	193.80
LSHH EMERGENCY ALARM	CROWN OF 12" SS AT MH NO 2 = 192.00
LSH LEAD PUMP START EL	193.30
LSL PUMP STOP EL	191.16

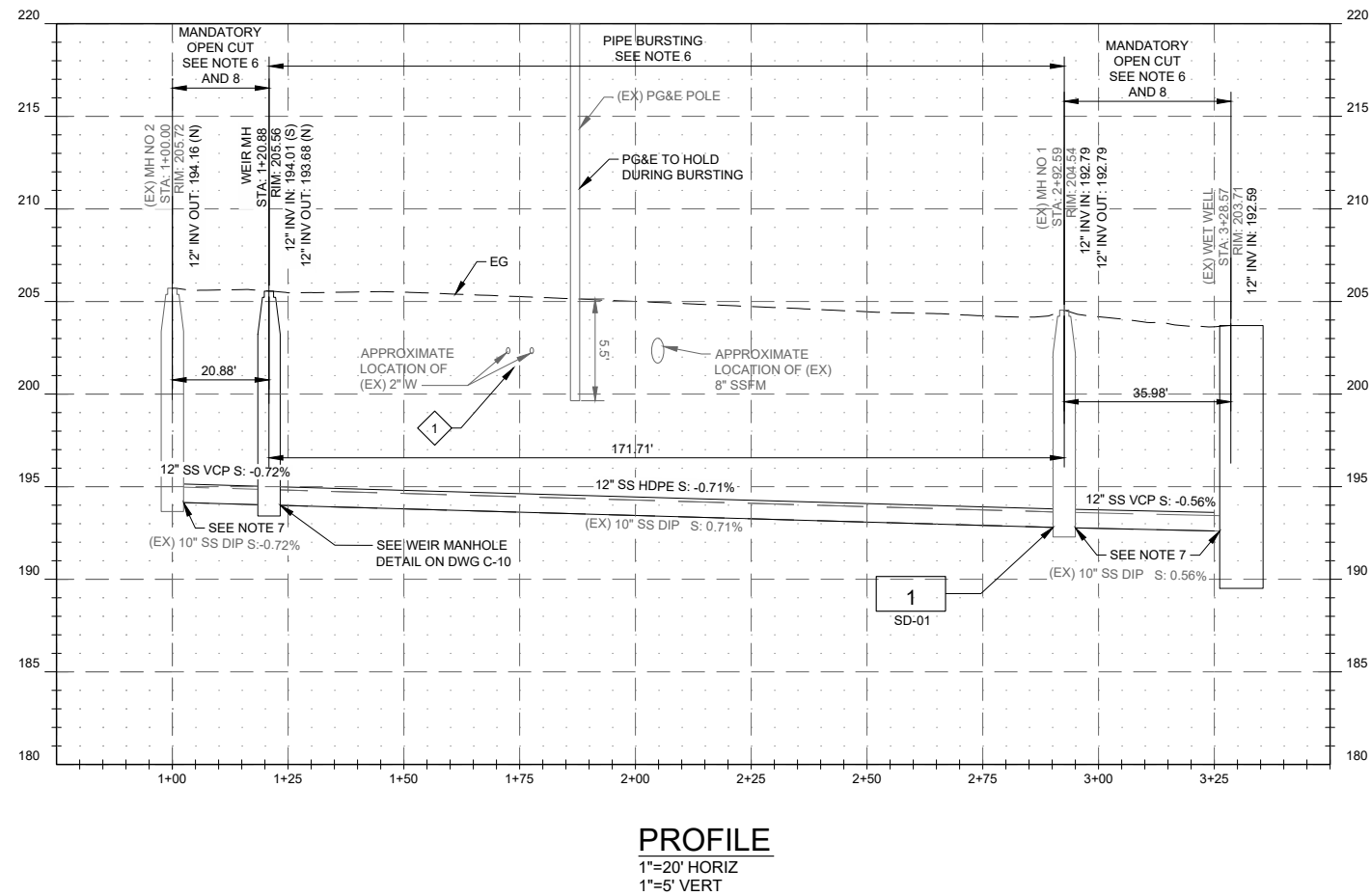
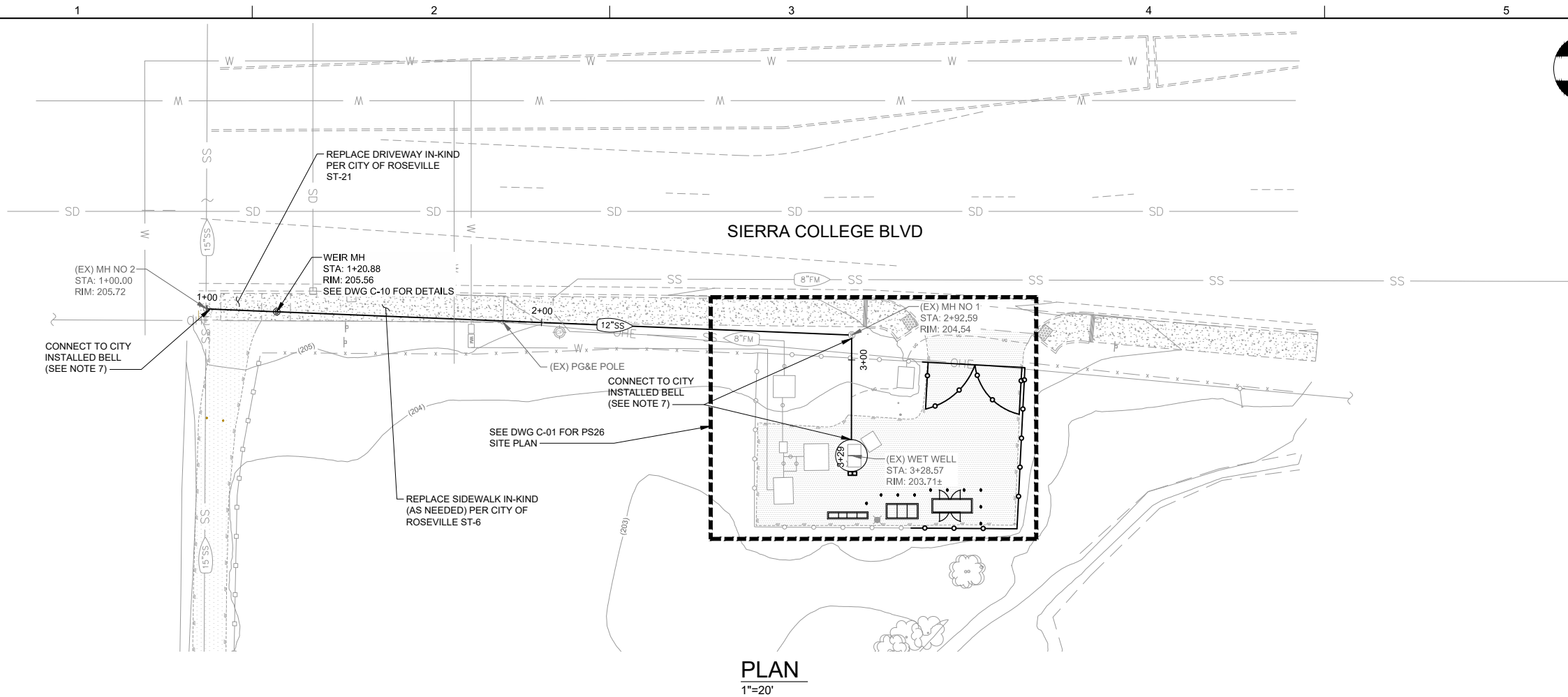


SECTION A
SCALE: 1/2"=1'-0" --

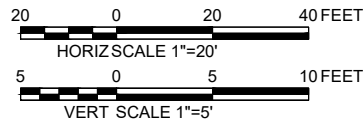
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	C-02
SHEET NUMBER	12

REGISTERED PROFESSIONAL ENGINEER
KRISTINA-MARIE P. ALCARAZ
No. C70952
CIVIL
STATE OF CALIFORNIA
12-09-2022

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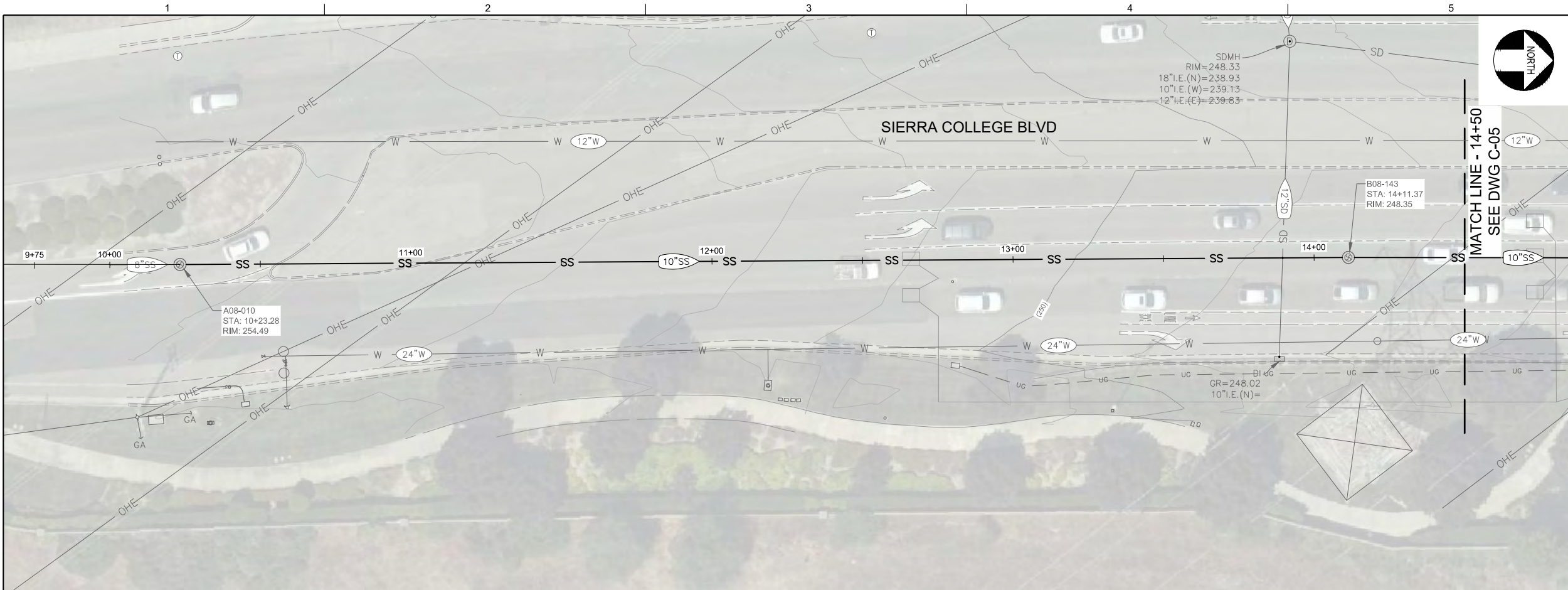


- SHEET NOTES:**
1. PROVIDE 12" MIN CLEARANCE FROM OTHER UTILITIES UNLESS OTHERWISE NOTED.
 2. CONTRACTOR SHALL EMPLOY BMP MEASURES TO PROTECT EXISTING STORM DRAINS FROM CONSTRUCTION RUNOFF.
 3. IT IS THE CONTRACTORS RESPONSIBILITY FOR DEVELOPING THE MEANS AND METHODS TO EMPLOY DURING CONSTRUCTION TO REDUCE RISKS ASSOCIATED WITH IMPINGEMENT INTO ADJACENT BURIED UTILITIES. CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION AND FACILITIES NOT DESIGNATED FOR REMOVAL.
 4. ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL CONTROLLING ELEVATIONS AND DIMENSIONS.
 5. (EX) 10" SS DIP TO BE REPLACED VIA PIPE BURSTING.
 6. VCP TO BE USED FOR OPEN CUT. WHERE OPTIONAL OPEN CUT AREAS ARE COMBINED WITH MANDATORY OPEN CUT AREAS BETWEEN MANHOLES, THE PIPE MATERIAL SHALL BE A SIMILAR MATERIAL ALONG THAT ENTIRE SEGMENT, MANHOLE TO MANHOLE. IF TRENCHLESS IS UTILIZED THROUGH THE OPTIONAL AREAS, THEN HDPE SHALL BE USED IN MANDATORY OPEN CUT AREA. IF OPEN CUT IS UTILIZED THROUGH OPTIONAL AREAS, THEN VCP SHALL BE USED IN THE MANDATORY OPEN CUT AREA.
 7. CITY TO CORE AND INSTALL BELLS AT EXISTING MANHOLES. CONTRACTOR SHALL COORDINATE WITH CITY AND WAIT 24-HOURS PRIOR TO CONNECTING TO BELL.
 8. OPEN CUT TRENCHING SHALL BE PER CITY OF ROSEVILLE STANDARD DETAIL SS-1.
 9. SEE WORK ZONE PLAN DRAWING WZ-1 FOR ALLOWABLE WORK AREAS FOR PIPE BURSTING AND OPEN CUT TRENCHING.
- KEY NOTES:**
(NOT ALL NOTES ARE REFERENCED ON EACH DRAWING)
- 1 CONTRACTOR TO POTHOLE AND LOCATE SAN JUAN WATER DISTRICT PIPE(S).

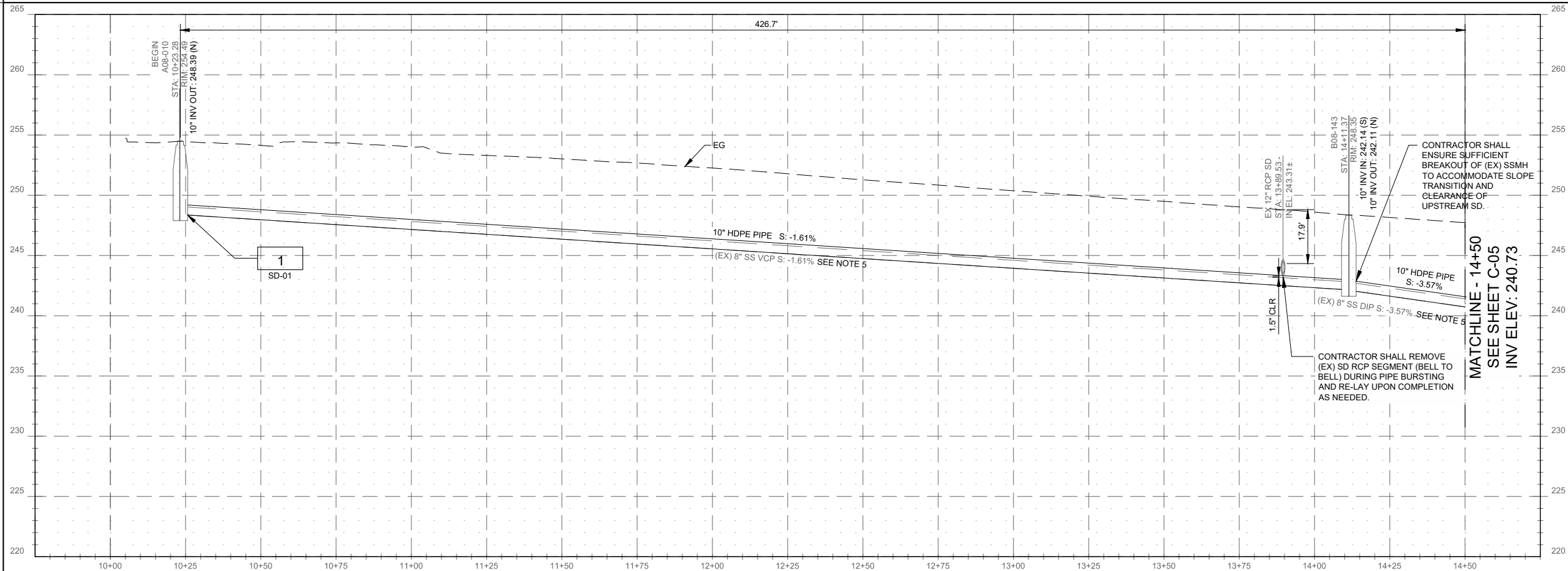


DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
			
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL PLAN AND PROFILE 0+50 TO 3+30±			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER C-03			
SHEET NUMBER 13			

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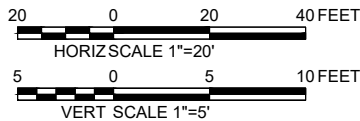
PLAN
1"=20'



PROFILE
1"=20' HORIZ
1"=5' VERT

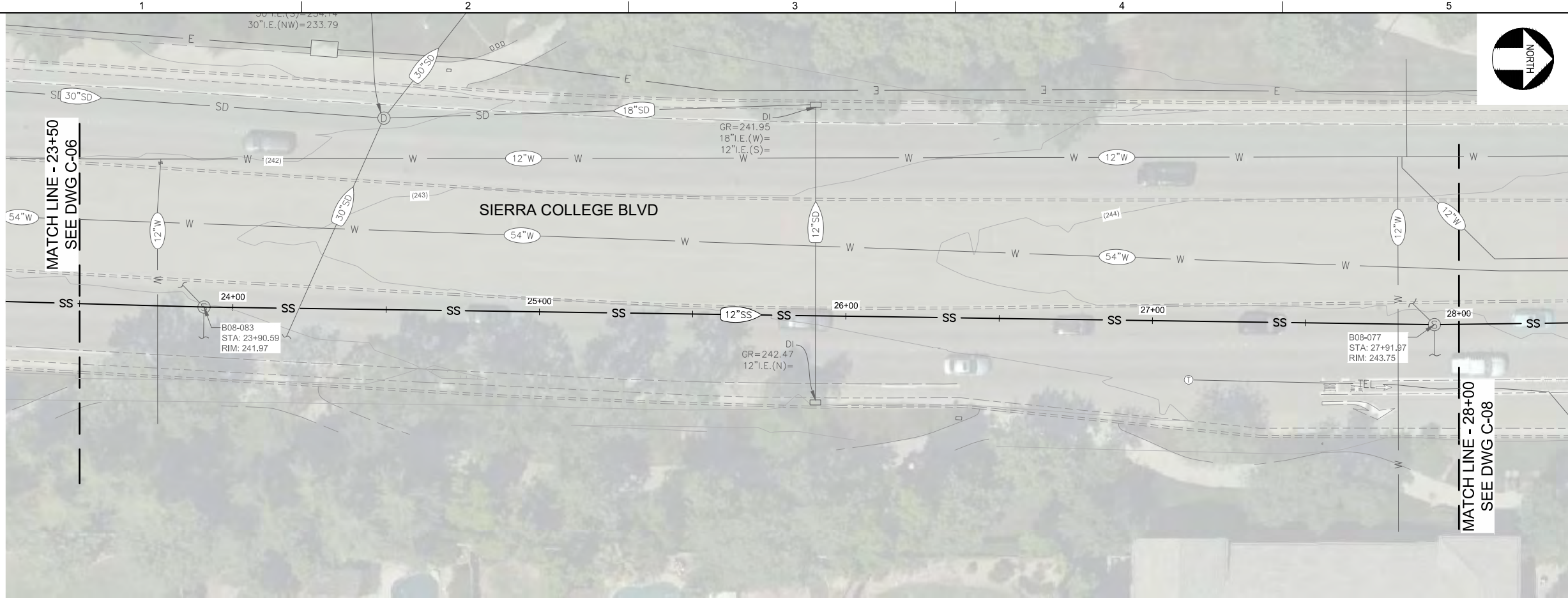
SHEET NOTES:

1. PROVIDE 12" MIN CLEARANCE FROM OTHER UTILITIES UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL EMPLOY BMP MEASURES TO PROTECT EXISTING STORM DRAINS FROM CONSTRUCTION RUNOFF.
3. IT IS THE CONTRACTORS RESPONSIBILITY FOR DEVELOPING THE MEANS AND METHODS TO EMPLOY DURING CONSTRUCTION TO REDUCE RISKS ASSOCIATED WITH IMPINGEMENT INTO ADJACENT BURIED UTILITIES. CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION AND FACILITIES NOT DESIGNATED FOR REMOVAL.
4. ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL CONTROLLING ELEVATIONS AND DIMENSIONS.
5. (EX) 8" SS VCP TO BE REPLACED VIA PIPE BURSTING UNLESS OTHERWISE NOTED.
6. VCP TO BE USED FOR OPEN CUT. WHERE OPTIONAL OPEN CUT AREAS ARE COMBINED WITH MANDATORY OPEN CUT AREAS BETWEEN MANHOLES, THE PIPE MATERIAL SHALL BE A SIMILAR MATERIAL ALONG THAT ENTIRE SEGMENT, MANHOLE TO MANHOLE. IF TRENCHLESS IS UTILIZED THROUGH THE OPTIONAL AREAS, THEN HDPE/PPVC SHALL BE USED IN MANDATORY OPEN CUT AREA. IF OPEN CUT IS UTILIZED THROUGH OPTIONAL AREAS, THEN VCP SHALL BE USED IN THE MANDATORY OPEN CUT AREA.
7. SEE DRAWING WZ-1 AND WZ-2 FOR WORKZONE 2 PLAN.

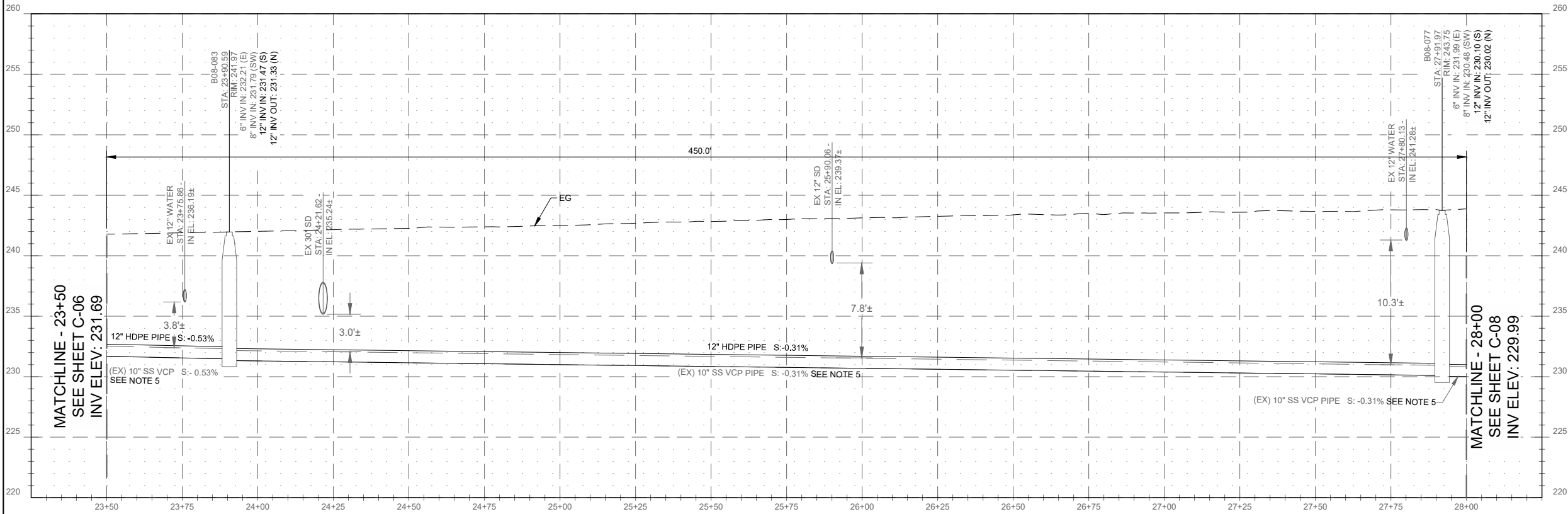


DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL PLAN AND PROFILE BEGIN TO 14+50±			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER C-04			
SHEET NUMBER 14			

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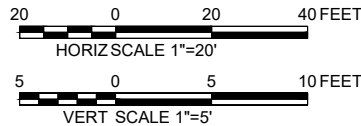
PLAN
1"=20'



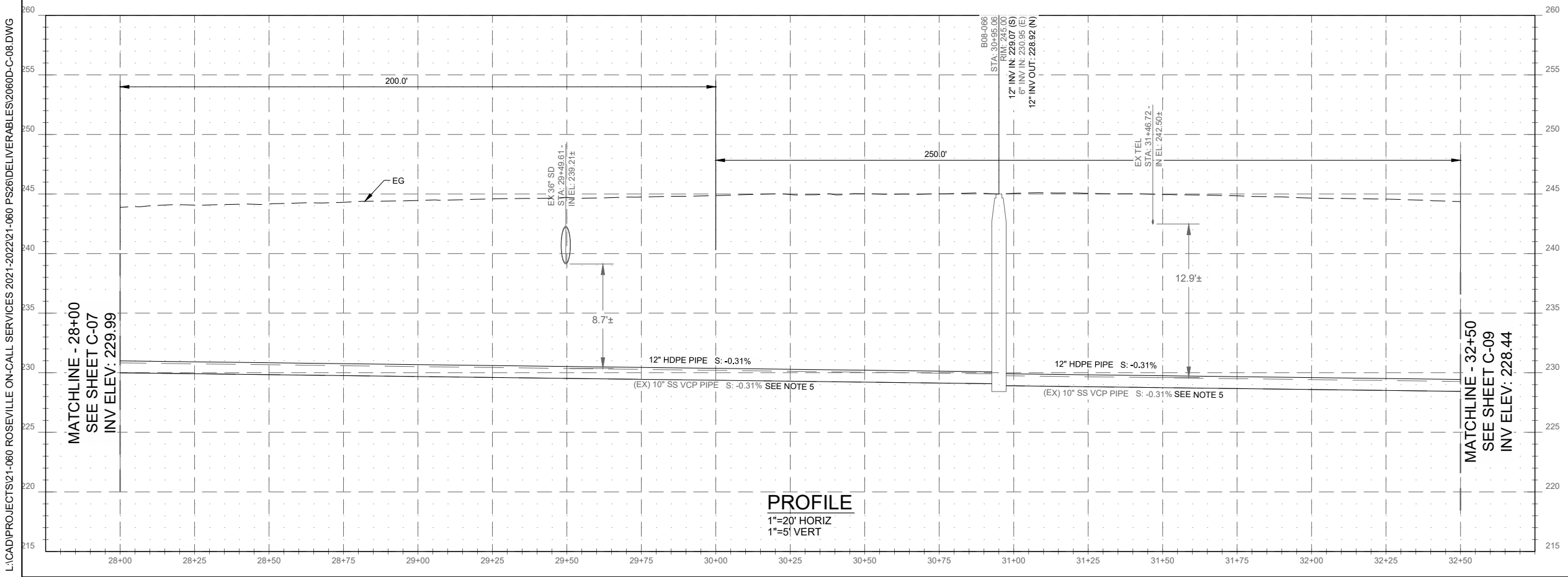
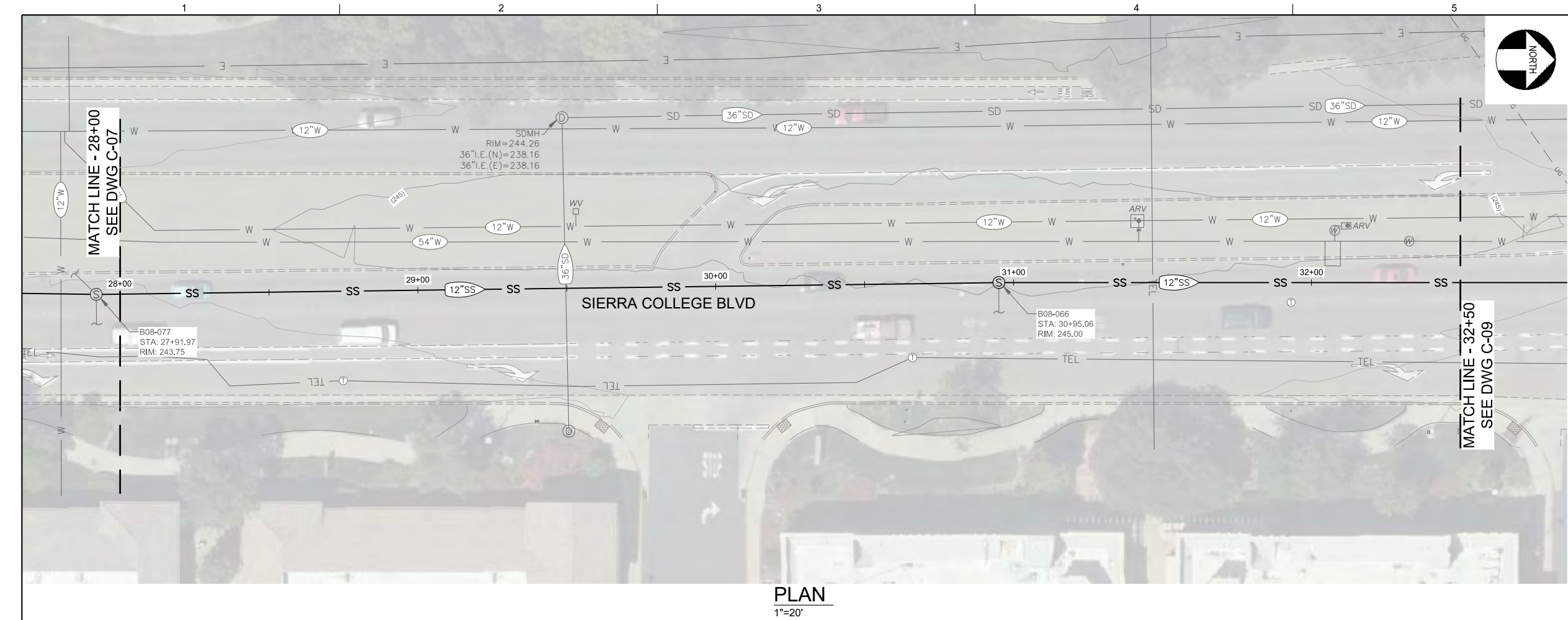
PROFILE
1"=20' HORIZ
1"=5' VERT

SHEET NOTES:

1. PROVIDE 12" MIN CLEARANCE FROM OTHER UTILITIES UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL EMPLOY BMP MEASURES TO PROTECT EXISTING STORM DRAINS FROM CONSTRUCTION RUNOFF.
3. IT IS THE CONTRACTORS RESPONSIBILITY FOR DEVELOPING THE MEANS AND METHODS TO EMPLOY DURING CONSTRUCTION TO REDUCE RISKS ASSOCIATED WITH IMPINGEMENT INTO ADJACENT BURIED UTILITIES. CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION AND FACILITIES NOT DESIGNATED FOR REMOVAL.
4. ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL CONTROLLING ELEVATIONS AND DIMENSIONS.
5. (EX) 10" SS VCP TO BE REPLACED VIA PIPE BURSTING.
6. SEE DRAWING WZ-3 FOR WORK ZONE 4 PLAN.



DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
CITY OF ROSEVILLE ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL PLAN AND PROFILE 23+50 TO 28+00±			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER C-07			
SHEET NUMBER 17			



SHEET NOTES:

1. PROVIDE 12" MIN CLEARANCE FROM OTHER UTILITIES UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL EMPLOY BMP MEASURES TO PROTECT EXISTING STORM DRAINS FROM CONSTRUCTION RUNOFF.
3. IT IS THE CONTRACTORS RESPONSIBILITY FOR DEVELOPING THE MEANS AND METHODS TO EMPLOY DURING CONSTRUCTION TO REDUCE RISKS ASSOCIATED WITH IMPINGEMENT INTO ADJACENT BURIED UTILITIES. CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION.
4. ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL CONTROLLING ELEVATIONS AND DIMENSIONS.
5. (EX) 10" SS VCP TO BE REPLACED VIA PIPE BURSTING.
6. SEE DRAWING WZ-3 AND WZ-4 FOR WORK ZONE 4 AND 5 PLAN.

DESIGN
A CORREA

DRAWN
A CORREA

CHECKED
KALACON

APPROVED
KALACON

CITY OF ROSEVILLE
CALIFORNIA

WATERWORKS ENGINEERS
2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-760-2888

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

CIVIL
PLAN AND PROFILE
28+00 TO 32+50±

DATE
DECEMBER 2022

PROJECT NUMBER
21-060

DRAWING NUMBER
C-08

SHEET NUMBER
18

20 0 20 40 FEET
HORIZ SCALE 1"=20'

5 0 5 10 FEET
VERT SCALE 1"=5'

REGISTERED PROFESSIONAL ENGINEER
KRISTEN-MARIE P. ALACON
No. C70952
CIVIL
STATE OF CALIFORNIA
12-09-2022

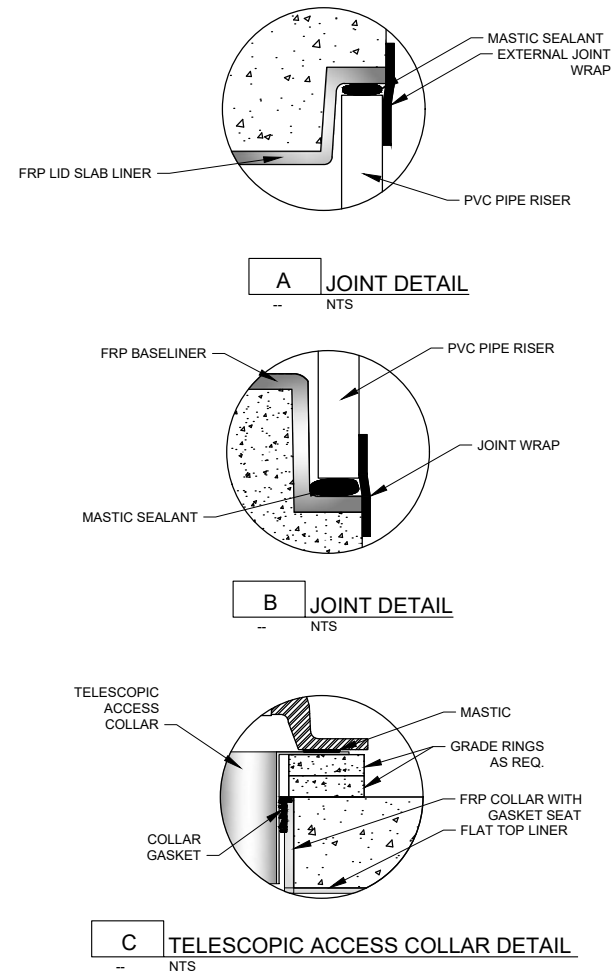
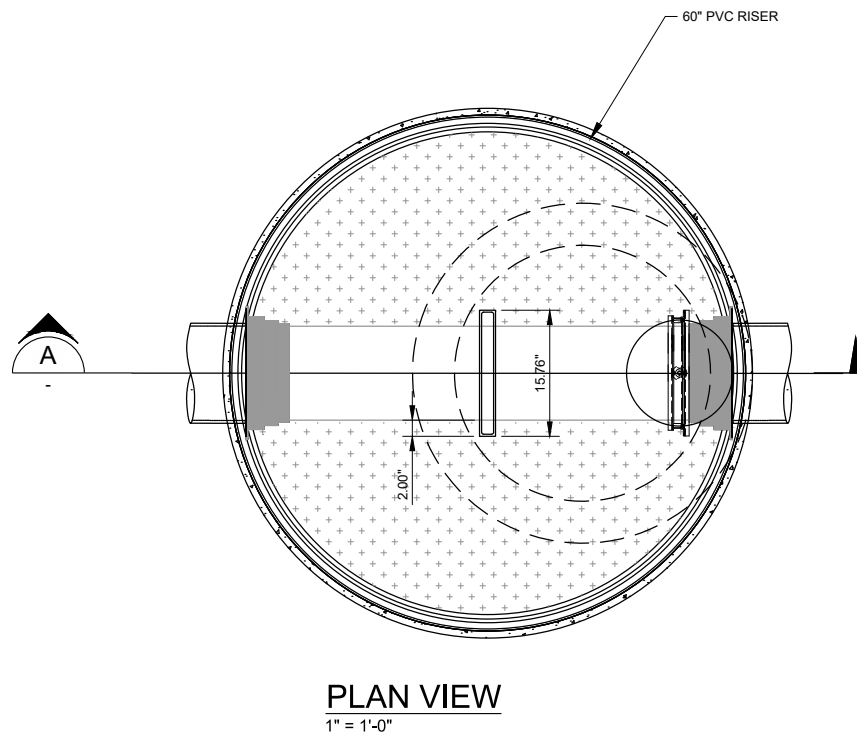
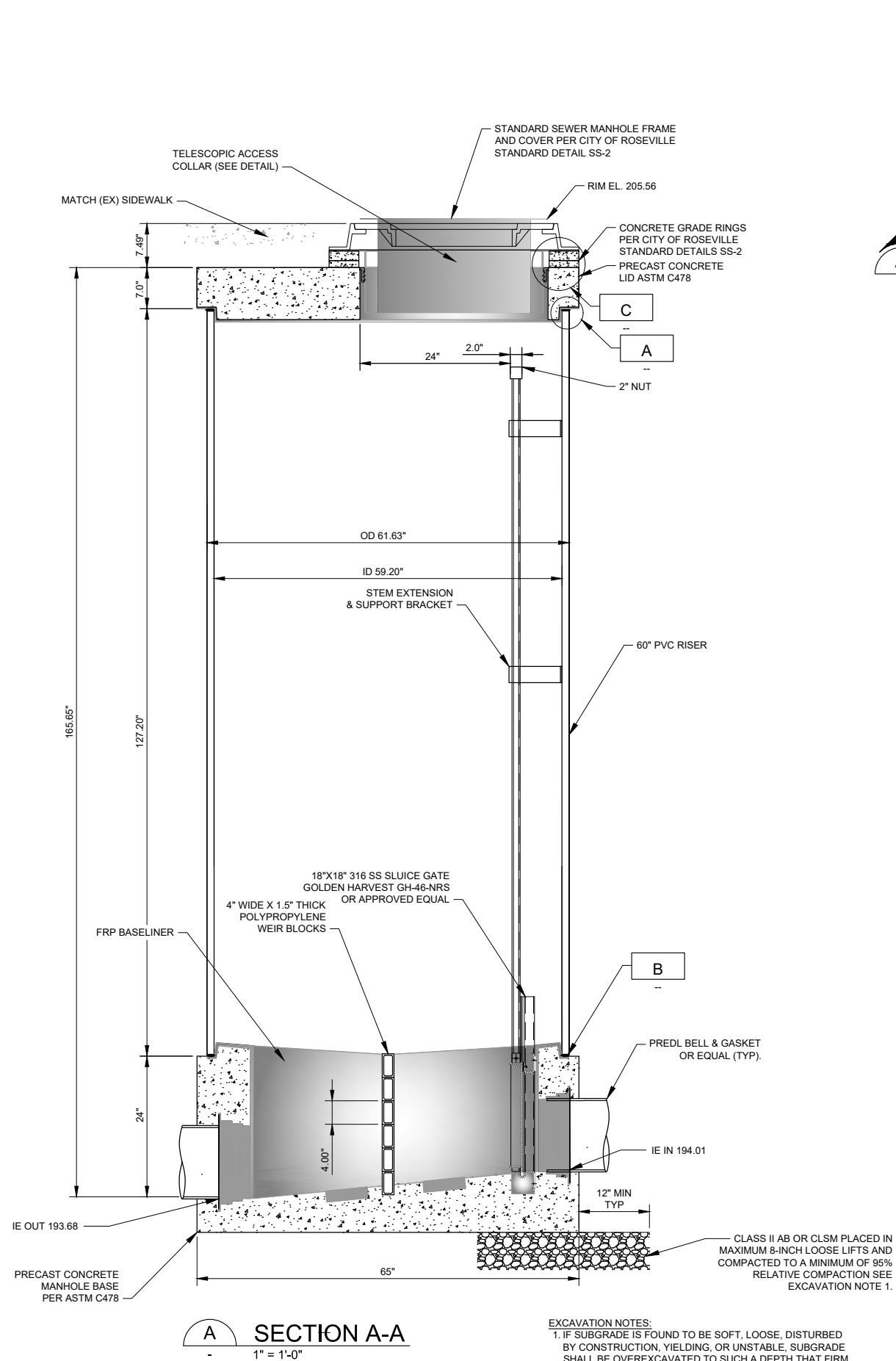
JOB NUMBER: 21-060

FILENAME: 2060D-C-08.DWG

PLOT DATE: 12/9/22

PLOT TIME: 08:35:44

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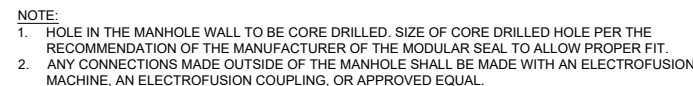


- PREDL PVC MANHOLE SPECIFICATIONS
ALL "PIPE TO MANHOLE" CONNECTIONS SHALL HAVE GASKETS AS SHOWN IN THE DRAWINGS UNLESS OTHERWISE NOTED. PREDL SYSTEMS OR APPROVED EQUAL WILL ONLY RECOMMEND WHAT TYPE OF GASKET SHALL BE USED.
1. ALL PIPE GASKETS SHALL BE INSTALLED USING THE MANDREL RECOMMENDED BY THE GASKET MANUFACTURER.
 2. ONLY PREDL CERTIFIED WELDERS AND FABRICATORS ARE AUTHORIZED TO FABRICATE, REPAIR, WELD, OR TEST THE BASELINER, TELESCOPIC ACCESS COLLAR, AND LID LINERS.
 3. ALL SECTIONS SHALL BE SEALED TOGETHER AS PER THE MANUFACTURER INSTRUCTIONS UNLESS OTHERWISE NOTED.
 4. LINER AND PVC RISER ARE NOT TO BE COMPROMISED BY DRILLING OR PUNCTURING UNLESS SPECIFIED AND APPROVED BY PREDL LINER MANUFACTURER OR APPROVED EQUAL. PERFORATION OF LINER TO INSTALL LADDER RUNGS IS NOT RECOMMENDED.
 5. ROUND PRECAST MANHOLES TYPICALLY DESIGNED TO ASTM C478. NON-ROUND MANHOLE STRUCTURES TYPICALLY DESIGNED TO ASTM C913.
 6. PRECAST CONCRETE STRUCTURE WITH INTEGRAL PREDL CPL OR APPROVED EQUAL TO BE VACUUM TESTED IN ACCORDANCE WITH ASTM C1244 PRIOR TO FINAL INSTALLATION AND SPARK TESTING OF CPL.

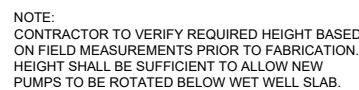
EXCAVATION NOTES:
1. IF SUBGRADE IS FOUND TO BE SOFT, LOOSE, DISTURBED BY CONSTRUCTION, YIELDING, OR UNSTABLE, SUBGRADE SHALL BE OVEREXCAVATED TO SUCH A DEPTH THAT FIRM AND UNYIELDING SUBGRADE CAN BE ESTABLISHED BY INSTALLING A MINIMUM OF 12 INCHES OF CLEAN, DURABLE, NATURAL, 1.5-INCH CRUSHED DRAIN ROCK WRAPPED WITH GEOTEXTILE FABRIC (MIRAFI 140N OR EQUAL).



DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
			
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL PUMP STATION 26 WEIR MANHOLE DETAIL			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER C-10			
SHEET NUMBER 20			



1	MANHOLE TO HDPE PIPE CONNECTION DETAIL
--	NTS



3 GUIDE RAIL ATTACHMENT BRACKET DETAIL

L:\CAD\PROJECTS\21-060 ROSEVILLE ON-CALL SERVICES 2021-2022\21-060 PS26\DELIVERABLES\2060D-SD-01.DWG

JOB NUMBER: 21-060

FILENAME: 2060D-SD-01.DWG

PLOT DATE: 12/9/22

PLOT TIME: 09:22:06

DESIGN
A CORREA
DRAWN
A CORREA
CHECKED
K ALACON
APPROVED
K ALACON



WATERWORKS
E N G I N E E R S

2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-786-2088

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

CIVIL
PUMP STATION 26
DETAILS

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	SD-01
SHEET NUMBER	21

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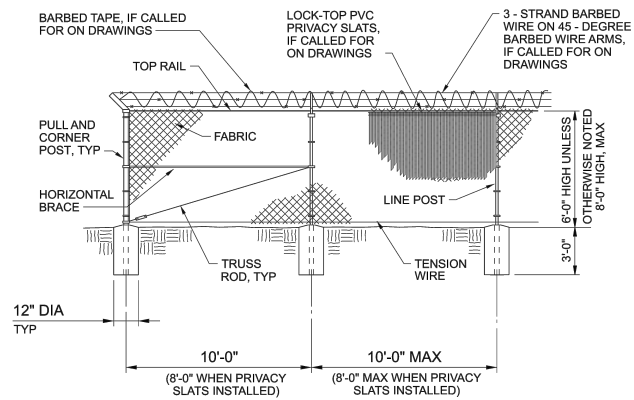
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REV DATE: 8/6/2021

CHAINLINK FENCE

NTS

32 31 13.01



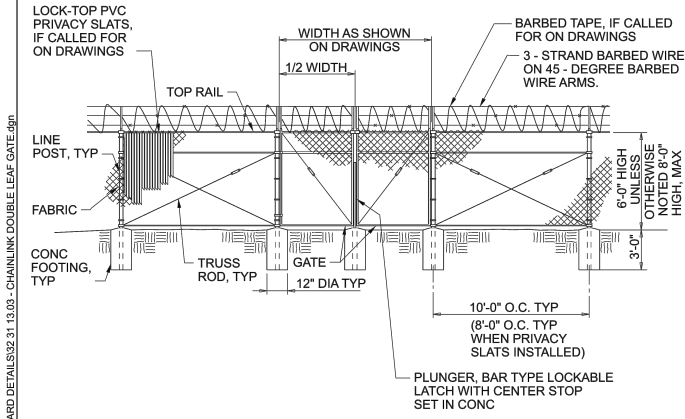
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REV DATE: 8/9/2021

CHAINLINK DOUBLE LEAF GATE

NTS

32 31 13.03



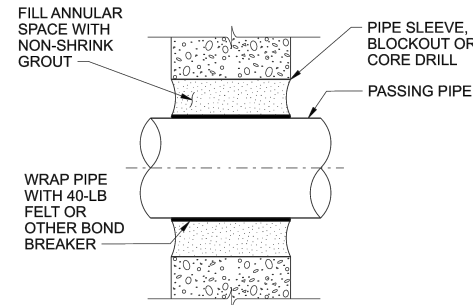
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REV DATE: 6/21/2021

WALL SLEEVE WITH GROUT SEAL

NTS

40 05 09.12



JOB NUMBER: 21-060

FILENAME: 2060D-SD-02.DWG

PLOT DATE: 12/9/22

PLOT TIME: 09:24:41

DATE
DECEMBER 2022
PROJECT NUMBER
21-060
DRAWING NUMBER
SD-02
SHEET NUMBER 22

CIVIL
PUMP STATION 26
STANDARD DETAILS

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

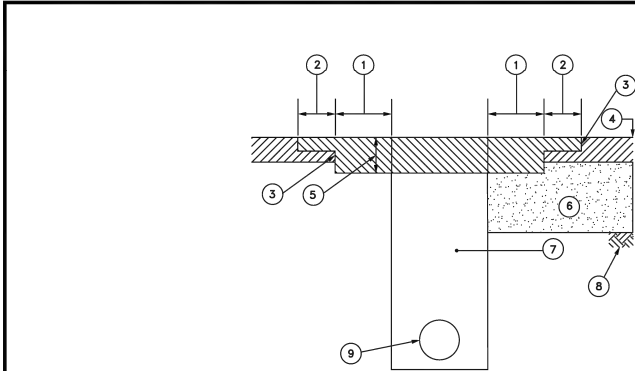


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ENGINEERS
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DESIGN
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APPROVED
KALACON

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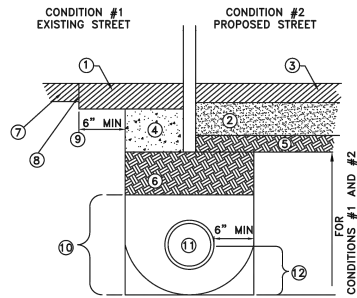
- NOTES:
- 18 INCH KEY OUTSIDE TRENCH LINE
 - FINAL LIFT, MINIMUM 2" THICK, SHALL EXTEND 12" BEYOND KEY LOCATION IDENTIFIED IN NOTE 1 OR ADJACENT LANE LINE AS DETERMINED BY THE STREETS DEPARTMENT.
 - COAT ALL EXISTING VERTICAL FACES WITH ASPHALTIC EMULSION (TACK) PRIOR TO PAVING
 - EXISTING PAVING
 - PATCH SHALL BE THICKNESS OF EXISTING SECTION PLUS 2 1/2 INCHES. PER CITY TRENCH CUT ORDINANCE (6 INCH MINIMUM THICKNESS).
 - AGGREGATE BASE/SUBBASE: RECOMPACT DISTURBED SURFACE AREAS TO 95%.
 - UTILITY TRENCH, CONSTRUCTED AS REQUIRED BY CITY STANDARDS
 - NATIVE SOIL
 - UTILITY

THE CONTRACTOR SHALL COORDINATE WITH STREETS DEPARTMENT PRIOR TO START OF RESTORATION WORK TO DETERMINE EXACT LIMITS OF RESTORATION.

WHERE ADJACENT SURFACE IS MICROSURFACED, CONTRACTOR SHALL MICROSURFACE AREA IDENTIFIED BY THE STREETS DEPARTMENT AND REPAIR STRIPING AS NECESSARY.

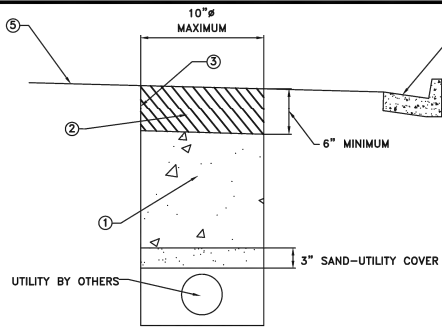
THE STREETS DEPARTMENTS RETAINS ALL RIGHTS TO INCREASE THE EXTENTS OF REPAIRS IDENTIFIED ABOVE.

	DEPARTMENT OF PUBLIC WORKS
TRENCH RESTORATION FOR MORATORUM STREET	
SCALE: NONE REVISED: AUGUST 2022 DRAWN BY: J. KHATKAR APPROVED BY:	



- NOTES:
- PAVEMENT PATCH, 6 INCHES THICK OR THAT OF EXISTING, WHICHEVER IS MORE.
 - AGGREGATE BASE OR AGGREGATE BASE AND SUBBASE SECTION PER APPROVED PLAN. 95% RELATIVE COMPACTION.
 - PAVEMENT SECTION PER APPROVED PLANS.
 - 24 INCHES OF TWO SACK CONCRETE SLURRY PER CALTRANS STANDARD SPEC 19-3.062
 - SIX INCHES OF SUBGRADE, PROCESSED TO 95% RELATIVE COMPACTION.
 - NATIVE BACKFILL MATERIAL, 90% RELATIVE COMPACTION.
 - EXISTING STREET PAVEMENT.
 - TACK COAT ON ALL VERTICAL PAVEMENT SAWCUTS, OR SAWCUT CONCRETE PER STREETS DETAIL ST-54.
 - TYPICAL EACH SIDE OF TRENCH IN EXISTING STREET.
 - FOR PIPE EMBEDMENT SEE TB-2 FOR PLASTIC STORM DRAIN, W-1 FOR WATER PIPE, SS-1 FOR SANITARY SEWER PIPE, OF THESE CONSTRUCTION STANDARDS.
 - PIPE
 - FOR REINFORCED CONCRETE PIPE EMBEDMENT: PLACE 1/2 OR 3/4 INCH CRUSHED ROCK UP TO SPRING LINE WITH MINIMUM OF FOUR (4) INCHES OF 1/2 OR 3/4 INCH CRUSHED ROCK BEDDING. MAINTAIN MINIMUM OF SIX (6) INCHES OF CLEARANCE BETWEEN THE PIPE AND THE TRENCH WALL.
 - ALTERNATE TRENCH BOTTOM. THE DIAMETER OF THE ALTERNATE ROUNDED TRENCH BOTTOM SHALL EQUAL THE WIDTH OF THE TRENCH.
- NOTE: IN CONDITION #1, TRENCH CUT FEE MAY APPLY PER CITY ORDINANCE.

	DEPARTMENT OF PUBLIC WORKS
UTILITY TRENCH PAVING BACKFILL AND EMBEDMENT	
SCALE: NONE REVISED: FEBRUARY 2021 DRAWN BY: R MEDINA APPROVED BY: JASON SHYKOWSKI	TB-1



- LEGEND:
- "MINOR CONCRETE" CONFORMING TO THE PROVISIONS IN SECTION 71-5B, "CONCRETE", WITH FINE AGGREGATE (PEA GRAVEL MIX).
 - A) FOR ASPHALT CONCRETE, 1/2" ASPHALT PER CONSTRUCTION STANDARDS SECTION 71-4.D. (93% RELATIVE COMPACTION).
B) FOR PORTLAND CEMENT CONCRETE, SEE CONSTRUCTION STANDARDS SECTION 71-4.
 - A) FOR ASPHALT CONCRETE, PLACE BINDER (TACK COAT) ON ALL SURFACES PRIOR TO PAVING PER SECTION 39 OF STATE STANDARD SPECIFICATIONS.
B) FOR PORTLAND CEMENT CONCRETE, SAWCUT PER DETAIL ST-54 AND COAT ALL SURFACES WITH TWO-PART EPOXY PRIOR TO PLACING CONCRETE PAVEMENT.
 - EXISTING CURB AND GUTTER
 - SURFACE EXISTING STREET SECTION (PAVEMENT)

- NOTES
- ASPHALT CONCRETE ROADWAY SURFACE POTHOLE SHALL BE SAW CUT OR JACKHAMMERED IN A UNIFORM FASHION. FOR PORTLAND CEMENT CONCRETE ROADWAYS, BRING CONCRETE BACKFILL TO SURFACE, AND FINISH WITH MEDIUM BROOM FINISH PARALLEL TO PATH OF TRAVEL.
 - MAXIMUM POTHOLE SIZE SHALL BE 10" DIAMETER. SHOULD POTHOLE SIDEWALL CAVE-IN OCCUR DURING JET-VAC EXCAVATION ADDITIONAL EXCAVATION MAY BE REQUIRED (AT THE DISCRETION OF THE DEVELOPMENT SERVICES INSPECTOR).
 - REPLACE ALL PAVEMENT MARKINGS AND THERMOPLASTIC LEGENDS THAT WERE DAMAGED.
 - POTHOLE EXCAVATION MUST BE TEMPORARILY BACKFILLED SAME DAY AS EXCAVATION AND PERMANENTLY WITHIN SEVEN CALENDAR DAYS.
 - TEMPORARY STEEL COVERS ARE REQUIRED WHEN POTHOLING IS LOCATED WITHIN THE TRAVEL LANES, WHEN OPEN TO TRAFFIC.

	DEPARTMENT OF PUBLIC WORKS
POTHOLE RECONSTRUCTION	
SCALE: NONE REVISED: FEBRUARY 2021 DRAWN BY: N. SIVIGLIA APPROVED BY: JASON SHYKOWSKI	TB-5

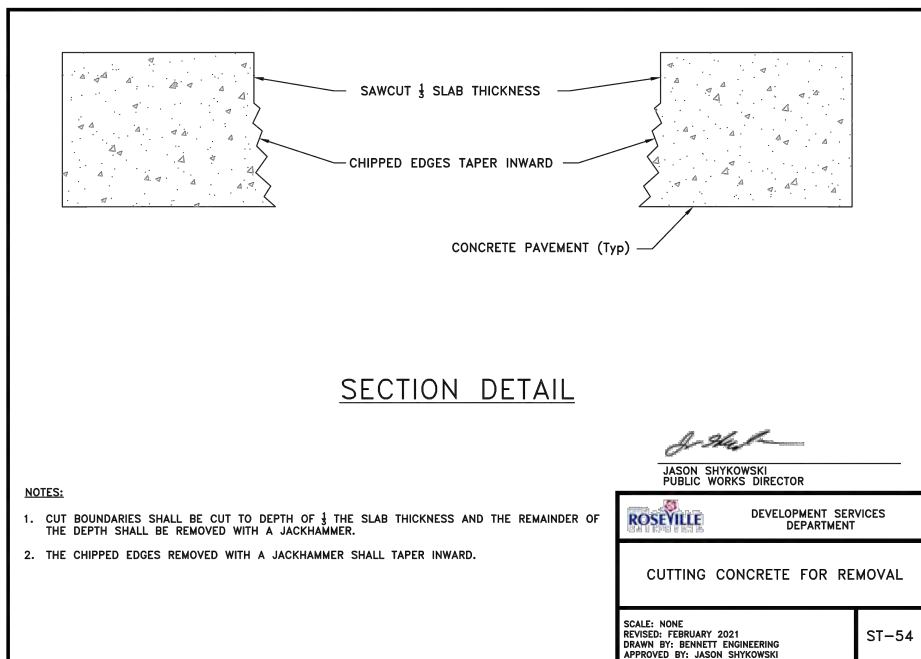
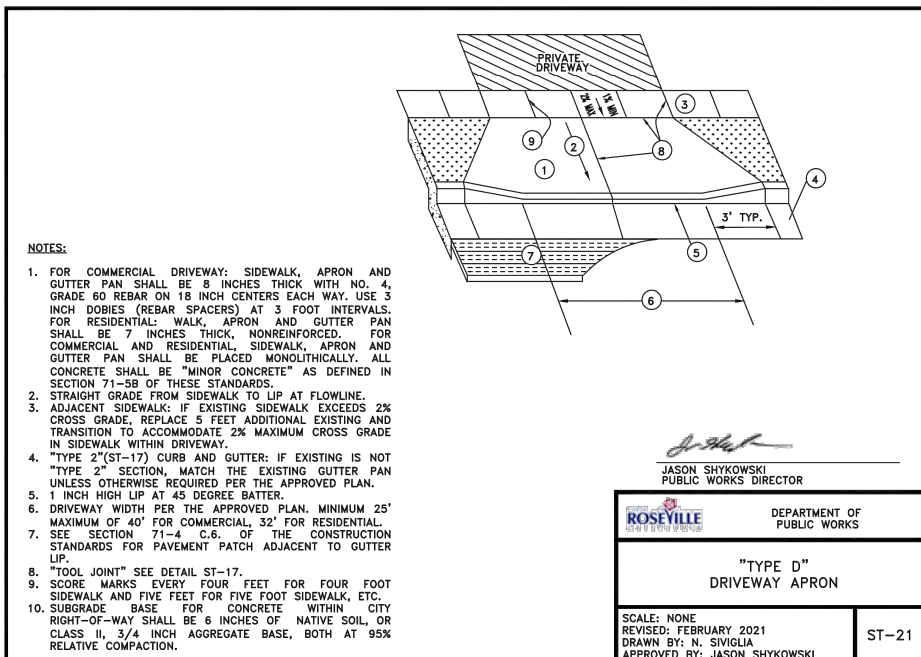


CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

CIVIL
CITY OF ROSEVILLE
TRENCH BACKFILL STANDARD DETAILS

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	SD-03
SHEET NUMBER	23

DESIGN	A CORREA
DRAWN	A CORREA
CHECKED	KALACON
APPROVED	KALACON



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Public Works
Engineering
3111 Vernon Street
Roseville, California 95678-2649

INTERSECTION RED FLASH APPROVAL

With stamped approval of this letter by the Traffic Section, Red Flash/Dark Signal is approved for the following intersection as specified below:

LOCATION: _____

PROJECT ACCOUNT NUMBER: _____

DATE: _____

TIME/DURATION: _____

☐ RED FLASH APPROVED:

1. Contractor shall submit the completed Intersection Red Flash Approval Form to the City Inspector and to RedFlashRequests@roseville.ca.us 72 hours prior to needing the intersection in red flash. Signal shutdown shall be performed only by City personnel, unless otherwise directed by the Engineer.
2. During normal working hours (M-F, 7am-5pm) the contractor shall contact the Traffic Signal Technician either by telephone at (916) 746-1760 or by email or text message at pagesignaltechnicians@roseville.ca.us one hour prior to needing the traffic signal placed into or removed from red flash. Outside of normal working hours - no phone call required.
3. The traffic signal will not be permitted to be placed in red flash during rain, lightning, or inclement weather conditions (including wet pavement conditions).
4. The Contractor shall reimburse the City for the actual cost of all inspection, including City Traffic Signal Technician time as required.
5. "Road Work Ahead" Signs required at all approaches to intersection when in red flash.
6. The Contractor shall furnish and place 36" "Stop" signs on arterial roadway approaches. Signs shall be mounted at a height of 84".

☐ DARK SIGNAL APPROVED – ADDITIONAL REQUIREMENTS

1. The Contractor shall place "Stop Ahead" C-W17 and "Stop" R-1 signs to direct vehicle and pedestrian traffic through the intersection during traffic signal system shutdown. Temporary "Stop Ahead" and "Stop" signs shall be removed when the system is turned on.
2. "Stop Ahead" and "Stop" signs shall be furnished by the Contractor. Minimum size of "Stop" signs shall be 36" for single sign placements and 24" for dual sign placements. Signs shall be mounted at a height of 84".
3. One "Stop Ahead" sign and one "Stop" sign shall be placed for each direction of traffic. For approaches with two or more through or left turn lanes, two "Stop" signs shall be placed. Typical sign placement should be between the left turn and through lanes. Additional "Stop" signs should be placed on the shoulder. No "Stop" signs shall be placed in a manner that blocks bike lanes.
4. "Stop Ahead" and "Stop" signs shall be in place in each direction immediately prior to the intersection going dark and removed immediately after the intersection is placed back into red flash.
5. Red flashing beacons or flares shall be placed and maintained at each "Stop" sign during nighttime (dark) hours.
6. Traffic control must be verified by the Public Works Construction Inspector prior to the signal being deactivated.

☐ I have read the above Intersection Red Flash Approval requirements.

REQUESTOR
INFO: _____
Name of Company

Print Name of Requestor Contact Phone Number

SIGNATURE: ☒ _____
Date

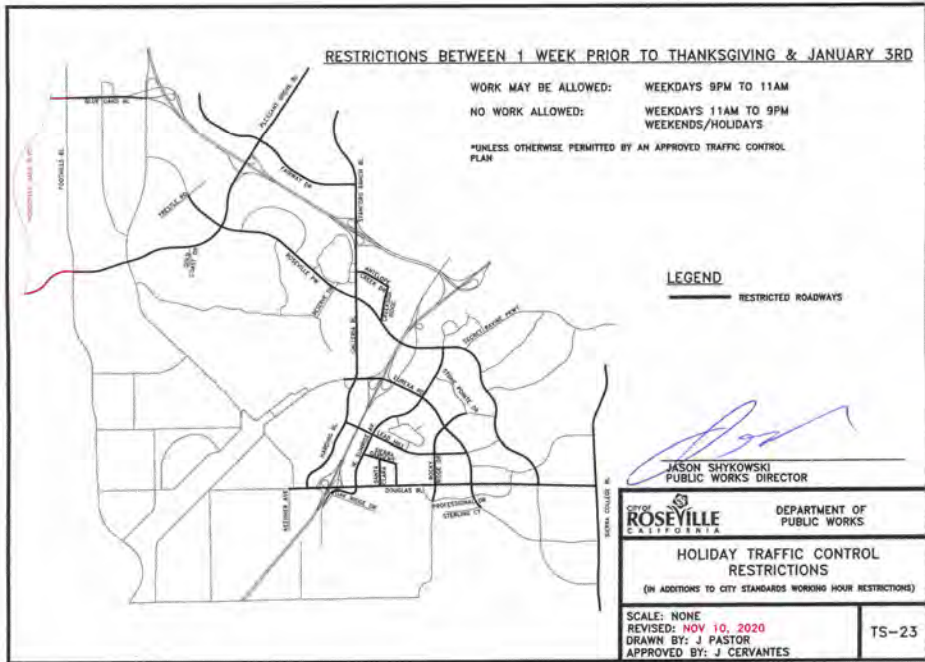
INSPECTOR NAME: _____ Inspector, Phone #: _____

Copy To: Contractor, Public Works Inspector, Signal Technicians, NOTE: Contractor is required to follow all requirements of this letter and keep a signed and stamped copy at job site.

(916) 746-1300 • (916) 746-1339 Fax • (916) 774-5220 TDD • engineering@roseville.ca.us • www.roseville.ca.us/engineering

B:\CommunityDevelopment\Engineering\PW-TRAFFIC\Red Flash Letters\Red Flash Form_rev 08-20.pdf

TS-21
Rev. 08/20



DESIGN	A CORREA
DRAWN	A CORREA
CHECKED	KALACON
APPROVED	KALACON

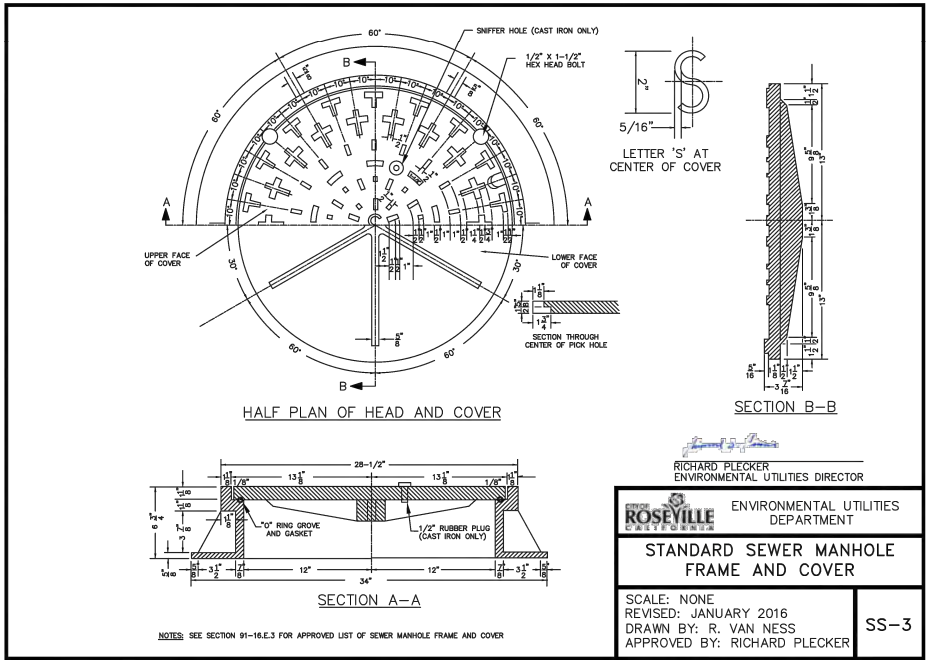
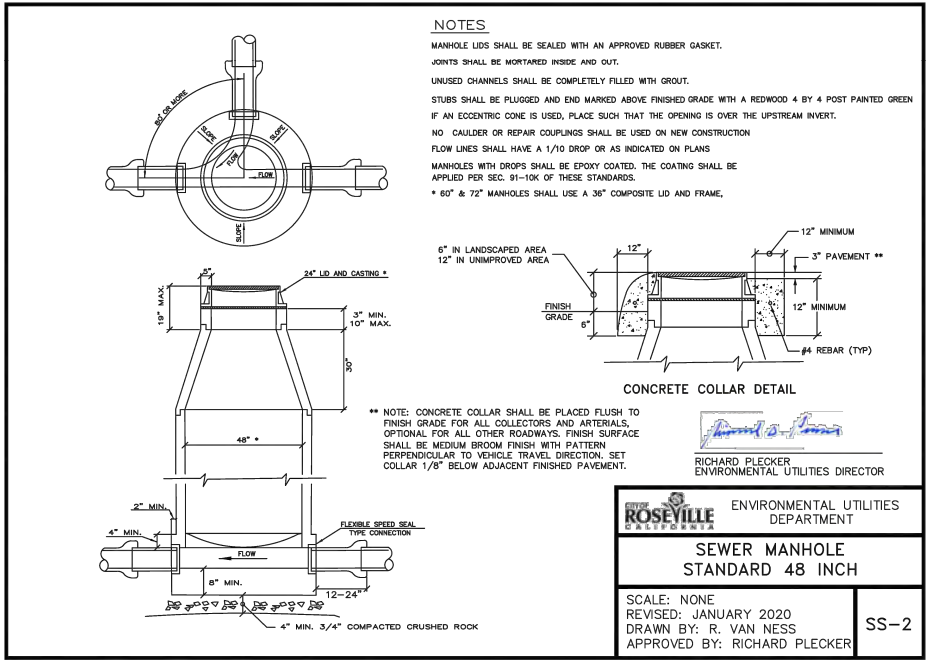
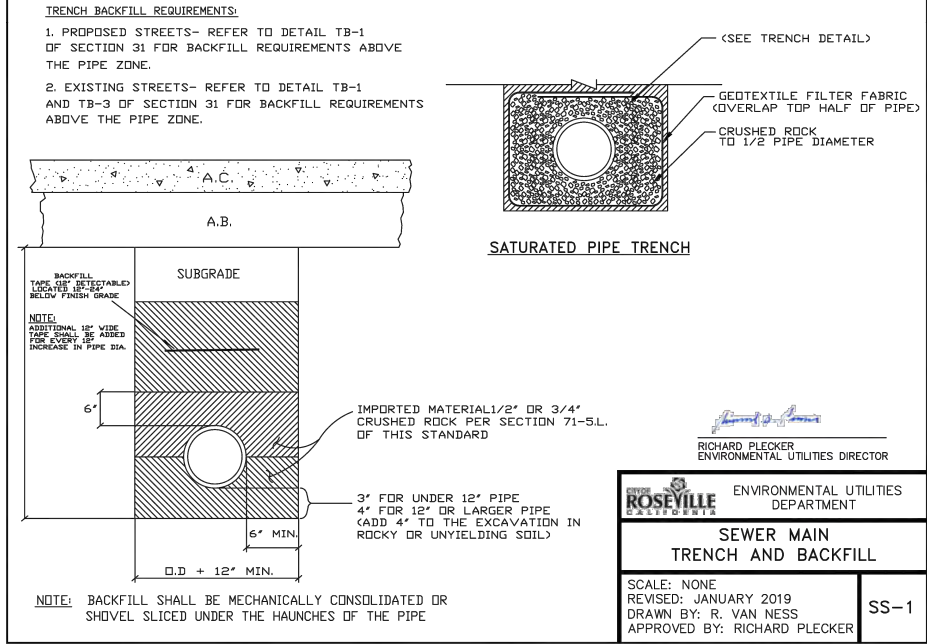


CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

CIVIL
CITY OF ROSEVILLE
TRAFFIC SIGNAL STANDARD DETAILS

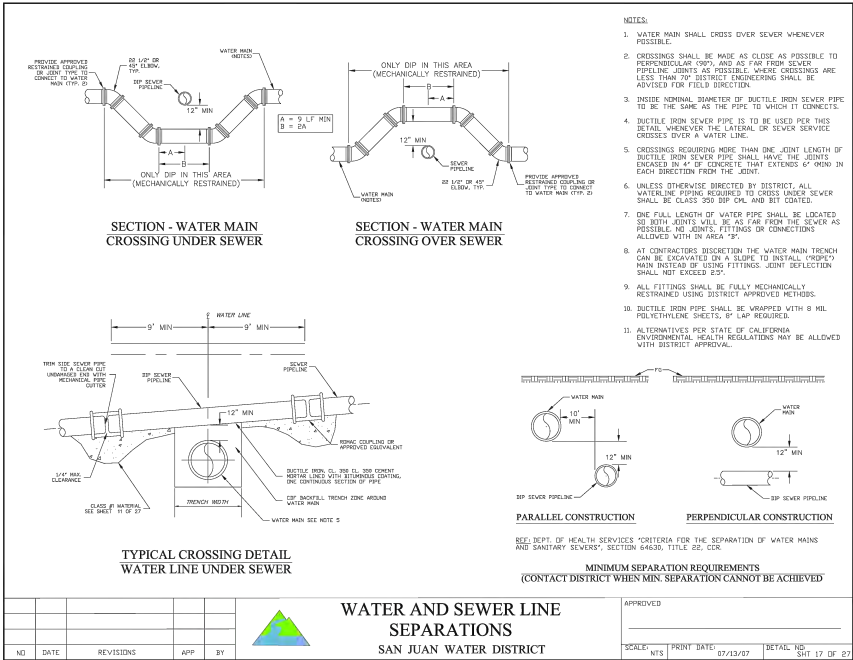
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	SD-05
SHEET NUMBER	25

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DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL CITY OF ROSEVILLE SANITARY SEWER STANDARD DETAILS			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER SD-06			
SHEET NUMBER 26			

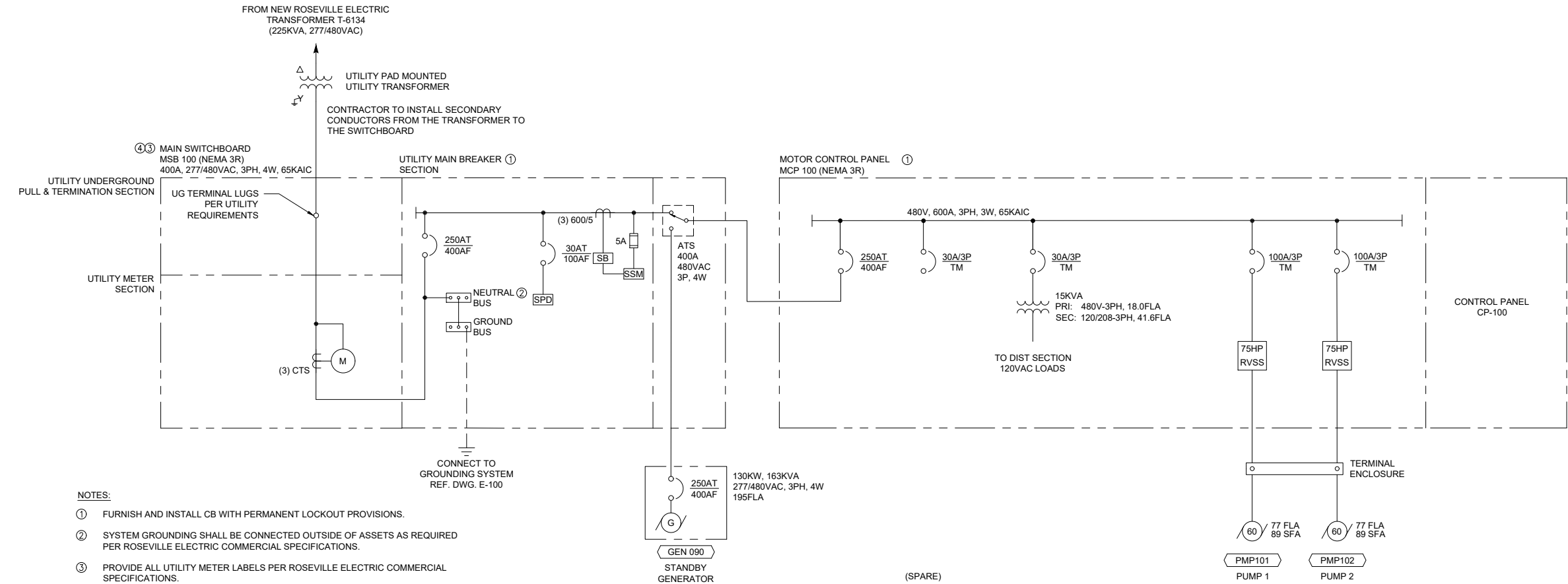
L:\CAD\PROJECTS\21-060 ROSEVILLE ON-CALL SERVICES 2021-2022\21-060 PS26\DELIVERABLES\2060D-SD-07.DWG



SINGLE LINE DIAGRAM SYMBOLS	SINGLE LINE DIAGRAM SYMBOLS (CONT.)	SCHEMATIC DIAGRAM SYMBOLS	SCHEMATIC DIAGRAM SYMBOLS (CONT.)	LIGHTING SYMBOLS
THERMAL MAGNETIC CIRCUIT BREAKER ← 30AT AMP TRIP ← 100AF AMP FRAME MCP CIRCUIT BREAKER ← 30AT TRIP SETTING BASED ON MOTOR HORSEPOWER ← 100AF CONTINUOUS AMPS LOW VOLTAGE DRAWOUT CIRCUIT BREAKER ← 20AT (L-S-I-G) L = LONG TIME S = SHORT TIME I = INSTANTANEOUS G = GROUND FAULT COMBINATION NEMA RATED STARTER X = NEMA SIZE Y = TYPE (FVNR, FVR) NEMA X VARIABLE FREQUENCY DRIVE X = HP RATING REDUCED VOLTAGE SOLID STATE STARTER X = HP RATING PACKAGED EQUIPMENT X = EQUIPMENT SIZE Y = TYPE (KW, KVA, OR HP AS INDICATED) KEY INTERLOCK TRANSFER SWITCH (MANUAL OR AUTOMATIC) AMMETER SWITCH CONTROL SWITCH SHORTING BLOCK VOLTMETER SWITCH METERING DEVICE X = METER TYPE WHM — WATT HOUR METER WM — WATT METER AM — AMMETER VM — VOLTMETER PFM — POWER FACTOR METER POTENTIAL TRANSFORMER RATIO AND NUMBER OF PT'S AS INDICATED CURRENT TRANSFORMER RATIO AND NUMBER OF CT'S AS INDICATED FUSE 5A FUSE SIZE AS INDICATED MOTOR X = HORSEPOWER DELTA-WYE TRANSFORMER WITH SECONDARY KVA SIZE AND VOLTAGE RATIO AS INDICATED	FUSED CONTROL POWER TRANSFORMER ELECTRICAL MOTOR OPERATED VALVE, WITH INTEGRAL REVERSING STARTER DISCONNECT SWITCH SIZE AS INDICATED 30A DISCONNECT SWITCH WITH EMERGENCY STOP SIZE AS INDICATED 30A FUSED DISCONNECT SWITCH SIZE AS INDICATED X CAPACITOR SURGE PROTECTIVE DEVICE SOLID STATE METERING DEVICE LIGHTNING ARRESTOR AND SURGE CAPACITOR POWER FILTER/CONDITIONER X	SINGLE POLE TOGGLE SWITCH VACUUM OR PRESSURE SWITCH CLOSE ON RISING PRESSURE VACUUM OR PRESSURE SWITCH OPEN ON RISING PRESSURE FLOAT LEVEL SWITCH CLOSE ON RISING LEVEL FLOAT LEVEL SWITCH OPEN ON RISING LEVEL NORMALLY OPEN NORMALLY CLOSED NORMALLY OPEN HELD CLOSED NORMALLY CLOSED HELD OPEN MAINTAINED POSITION TEMPERATURE SWITCH CLOSE ON RISING TEMPERATURE TEMPERATURE SWITCH OPEN ON RISING TEMPERATURE FLOW SWITCH CLOSE ON INCREASING FLOW FLOW SWITCH OPEN ON INCREASING FLOW TORQUE SWITCH OPEN ON INCREASING TORQUE SOLENOID VALVE E-STOP PUSHBUTTON DIGITAL INPUT TO PLC/RTU/DCS DIGITAL OUTPUT FROM PLC/RTU/DCS NORMALLY OPEN DIGITAL OUTPUT FROM PLC/RTU/DCS NORMALLY CLOSED ANALOG INPUT TO PLC/RTU/DCS 4-20 mA (UNLESS INDICATED OTHERWISE) ANALOG OUTPUT FROM PLC/RTU/DCS 4-20 mA (UNLESS INDICATED OTHERWISE) THREE - POSITION SELECTOR SWITCH TWO - POSITION SELECTOR SWITCH THREE - POSITION SPRING RETURN-TO-CENTER MOMENTARY CONTACT SWITCH	CONTROL RELAY OR COIL X = DEVICE OR CONTROL RELAY TD TIME DELAY RELAY (TIMING RANGE AS INDICATED) M MOTOR STARTER PC PHOTOCELL NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT NORMALLY OPEN CONTACT LINE REFERENCE XXXX NORMALLY CLOSED CONTACT LINE REFERENCE XXXX TIMED CONTACTS CONTACT ACTION IS DELAYED AFTER COIL IS: ENERGIZED NORMALLY OPEN WITH TIME DELAY CLOSING TD1 NORMALLY CLOSED WITH TIME DELAY OPENING TD1 DE-ENERGIZED NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING TD1 NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING TD1 NORMALLY OPEN PUSHBUTTON NORMALLY CLOSED PUSHBUTTON NO/NC MAINTAINED PUSHBUTTON PILOT LIGHT X = LENS COLOR R RED G GREEN A AMBER W WHITE PILOT LIGHT (PUSH-TO-TEST) X = LENS COLOR (SEE ABOVE) HORN ELAPSED TIME METER HEATER GROUND CONNECTION CROSSING OF CONDUCTORS - NOT CONNECTED CROSSING OF CONDUCTORS - CONNECTED FUSE VOLTAGE SURGE SUPPRESSOR	LUMINAIRE X = LIGHTING PANEL DESIGNATION # = CIRCUIT NUMBER a = SWITCH DESIGNATION WALL MOUNTED LUMINAIRE POLE, BRACKET, ARM, AND STREETLIGHT FLUORESCENT LUMINAIRE EMERGENCY LUMINAIRE BATTERY OPERATED EXIT LIGHT, SHOWN WITH TWO ILLUMINATED SIDES, ARROWS INDICATE DIRECTION OF EXIT LUMINAIRE CALLOUT A = LUMINAIRE TYPE * = APPROXIMATE MOUNTING HEIGHT AFF CLG = CEILING MOUNT (SEE LUMINAIRE SCHEDULE FOR MORE DETAILS) LIGHT SWITCH X = LIGHTING PANEL DESIGNATION # = CIRCUIT DESIGNATION a = SWITCH DESIGNATION * = SWITCH TYPE 3 3 WAY 4 4 WAY D DIMMER M MANUAL MOTOR STARTER 120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R (WALL MOUNT) X = PANELBOARD DESIGNATION # = CIRCUIT DESIGNATION * = TYPE WP WEATHERPROOF XP EXPLOSION PROOF GFCI GROUND FAULT CIRCUIT INTERRUPTER 120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R (FLOOR MOUNT) WELDING RECEPTACLE X = AMPERAGE SPECIAL PURPOSE RECEPTACLE, 480 VAC X = AMPERAGE



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	
ELECTRICAL SYMBOLS	
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	E-02
SHEET NUMBER	29



NOTES:

- ① FURNISH AND INSTALL CB WITH PERMANENT LOCKOUT PROVISIONS.
- ② SYSTEM GROUNDING SHALL BE CONNECTED OUTSIDE OF ASSETS AS REQUIRED PER ROSEVILLE ELECTRIC COMMERCIAL SPECIFICATIONS.
- ③ PROVIDE ALL UTILITY METER LABELS PER ROSEVILLE ELECTRIC COMMERCIAL SPECIFICATIONS.
- ④ METER/MAIN SECTIONS, CTS SPACING AND INSTALLATION SHALL CONFORM TO EUSERC STANDARDS AS REQUIRED ROSEVILLE ELECTRIC COMMERCIAL SPECIFICATIONS.

MCC-100 ONE LINE DIAGRAM

SCALE: NONE

LOAD CALCULATION										
LOAD CENTER: MCC				480 VAC, 3 PHASE SERVICE				3-WIRE		
FED FROM: MSB				CONNECTED		UTILITY		GENERATOR		
EQUIPMENT NUMBER	HP KVA	MOTOR CONTROL	EQUIPMENT DESCRIPTION	LOAD (AMPS)	QTY	LOAD (KVA)	LOAD QTY	LOAD (KVA)	LOAD QTY	LOAD (KVA)
PMP-101	60	RVSS	PUMP 1	77.0	1	64.0	1	64.0	1	64.0
PMP-102	60	RVSS	PUMP 2	77.0	1	64.0	1	64.0	1	64.0
120VAC	15 KVA	XFMR	120VAC LOADS	6.8	1	5.7	1	5.7	1	5.7
SUBTOTAL						133.7		133.7		133.7
LARGEST MOTOR @ 25%				60	HP			16.0		
TOTAL								149.7		133.7
3 PHASE CURRENT				180 AMPS						
CALCULATED SERVICE SIZE				100% MAXIMUM LOAD CURRENT						
MAIN BREAKER SIZE				180 AMPS						
% MAIN BREAKER LOAD				250 AMPS						
				72%						



DESIGN	J. POLLET
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APPROVED	J. POLLET

CITY OF ROSEVILLE
CALIFORNIA

WATERWORKS
ENGINEERS
2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-790-3888

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

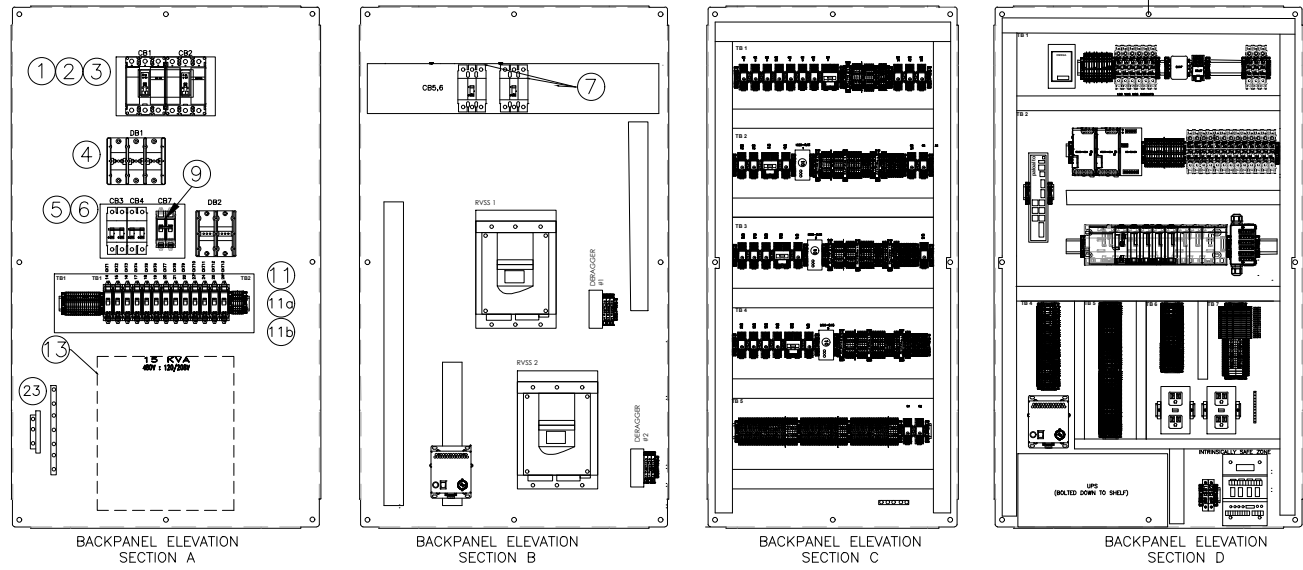
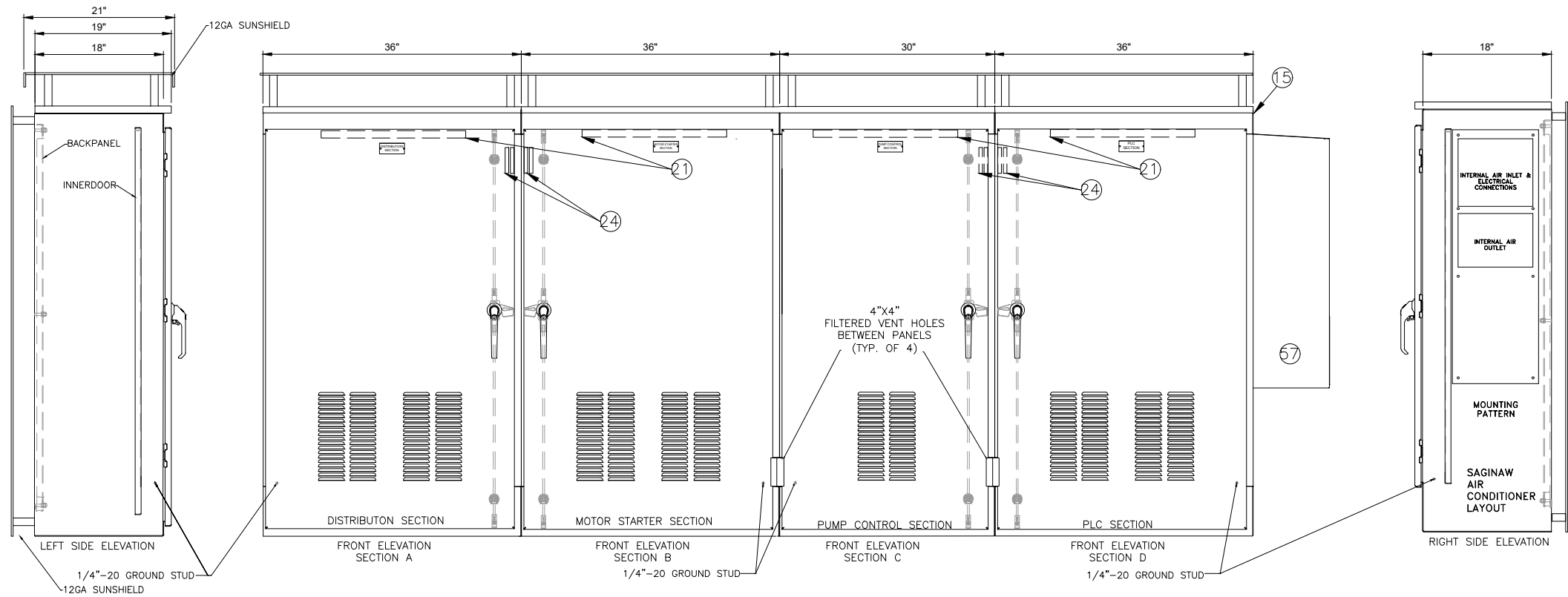
**ONE LINE DIAGRAM
& LOAD CALCULATIONS**

DATE
DECEMBER 2022

PROJECT NUMBER
21-060

DRAWING NUMBER
E-03

SHEET NUMBER 30



- PEDESTAL PANEL SPECIFICATIONS:
1. NEMA 3R WEATHERPROOF FOR OUTDOOR INSTALLATION.
 2. OUTER DOORS SHALL BE SEALED WITH RUBBERIZED FOAM GASKET.
 3. EXTERIOR FABRICATED FROM GALVANIZED SHEET STEEL.
 4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
 5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
 6. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY PADLOCK HASPS.
 7. DOOR HANGES AND PINS SHALL BE 316 STAINLESS STEEL.
 8. NO SCREWS, RIVETS OR BOLTS SHALL PROTRUDE EXTERNALLY.
 9. INTERNAL SCREWS, RIVETS, BOLTS AND NUTS SHALL BE STAINLESS STEEL.
 10. FABRICATION SHALL CONFORM TO UL, NEC AND NEMA STANDARDS.

- PEDESTAL PANEL PAINT APPLICATION:
1. TWO STAGE CHEMICAL BATH CLEANING.
 2. ELECTROSTATICALLY APPLIED POWER COAT PAINT FINISH.
 3. OVEN CURED FOR TWO HOURS.
 4. INTERIOR DEADFRONT DOOR COLOR: WHITE.
 5. EXTERIOR COLOR SHALL BE ANSI 61 GRAY.



DESIGN J. POLLET	DRAWN J. FERNANDEZ	CHECKED J. POLLET	APPROVED J. POLLET		WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-3888		CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	MCC & CONTROL PANEL ELEVATIONS	DATE DECEMBER 2022
									PROJECT NUMBER 21-060
									DRAWING NUMBER E-04
									SHEET NUMBER 31

1

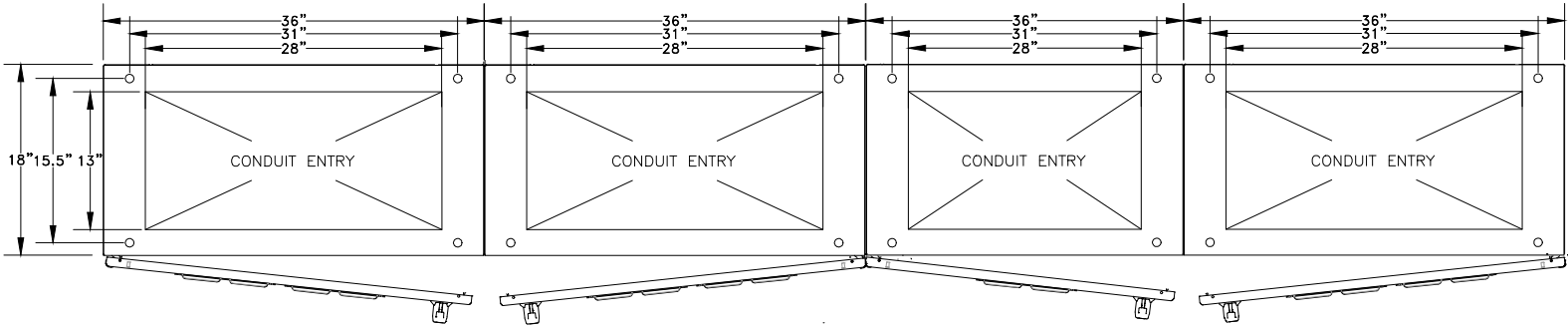
2

3

4

5

6



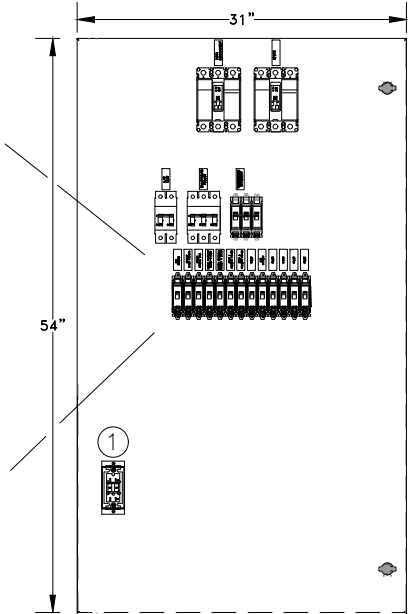
SECTION A
BASE PLAN
4EA. 1/2" MOUNTING HOLES

SECTION B
BASE PLAN
4EA. 1/2" MOUNTING HOLES

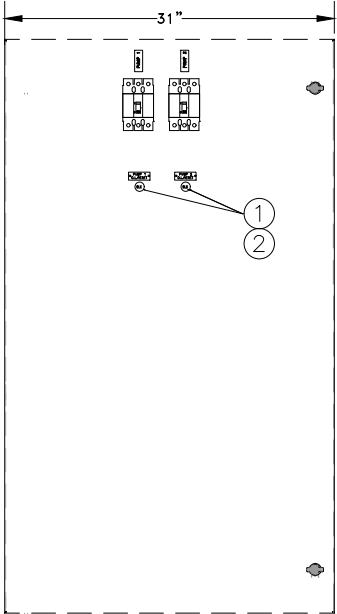
SECTION C
BASE PLAN
4EA. 1/2" MOUNTING HOLES

SECTION D
BASE PLAN
4EA. 1/2" MOUNTING HOLES

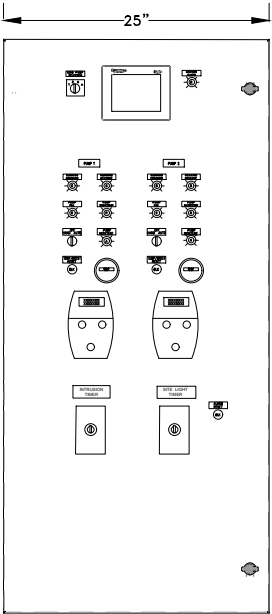
NO.	AMP.	POLE	DESCRIPTION
14	20	1	PLC SECTION
15	20	1	BACKUP FLOAT CONTROL
16	20	1	UTILITY SECTION AUX.
17	20	1	MOTOR CONTROL LIGHTS & FANS
18	20	1	MOTOR CONTROL HEATERS & RECEP.
19	20	1	PUMP 1 CONTROL POWER
20	20	1	PUMP 2 CONTROL POWER
21	20	1	SPARE
22	20	1	SITE LIGHTING
23	20	2	GENERATOR BLOCK HEATER
24	20	1	GENERATOR BATTERY CHARGER
25	20	1	SPARE
*26	20	1	SPARE
* GFIC BREAKERS			



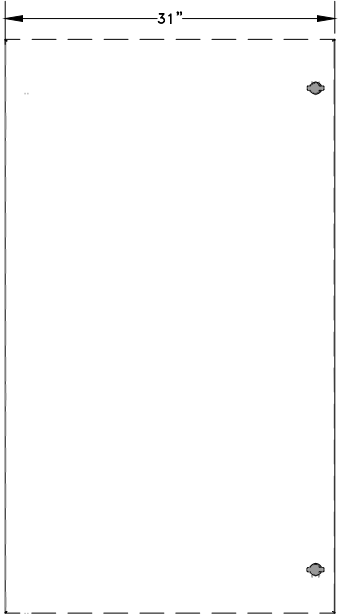
INNER DOOR ELEVATION
SECTION A



INNER DOOR ELEVATION
SECTION B



INNER DOOR ELEVATION
SECTION C



INNER DOOR ELEVATION
SECTION D

MOTOR CONTROL PANEL - INTERIOR ELEVATION

SCALE: NONE

A
E-05



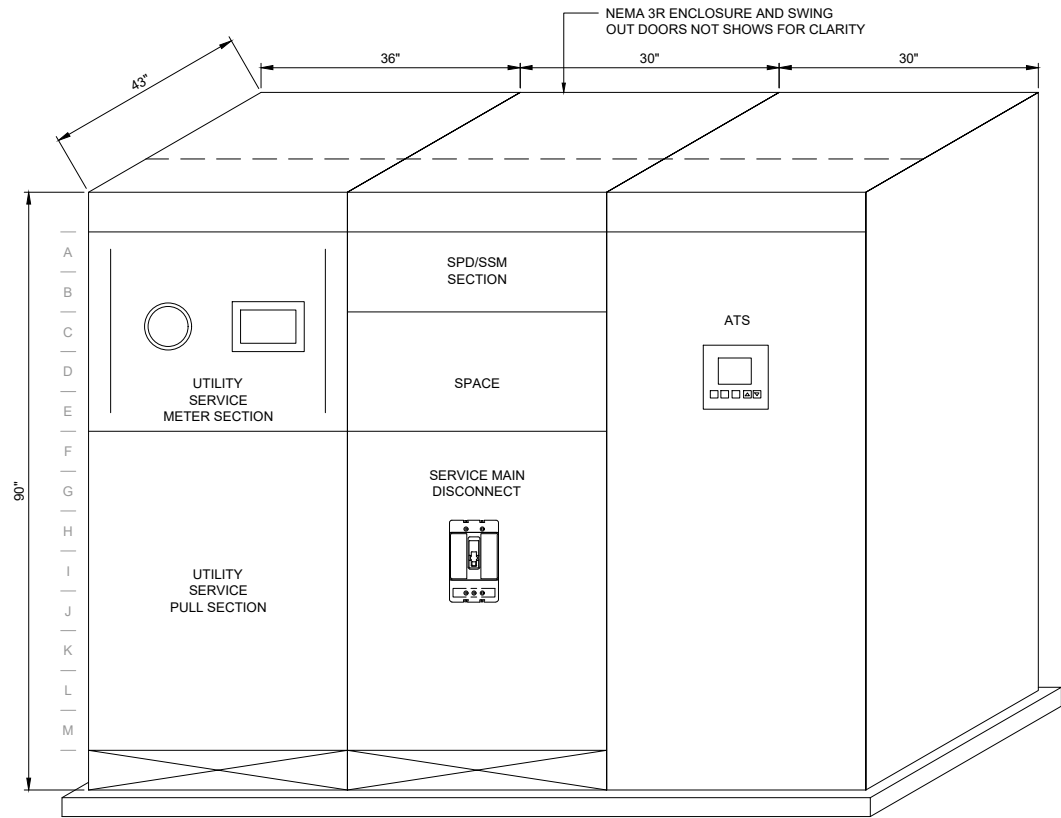
DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET



CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

MOTOR CONTROL PANEL
INTERIOR ELEVATIONS

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	E-05
SHEET NUMBER	32

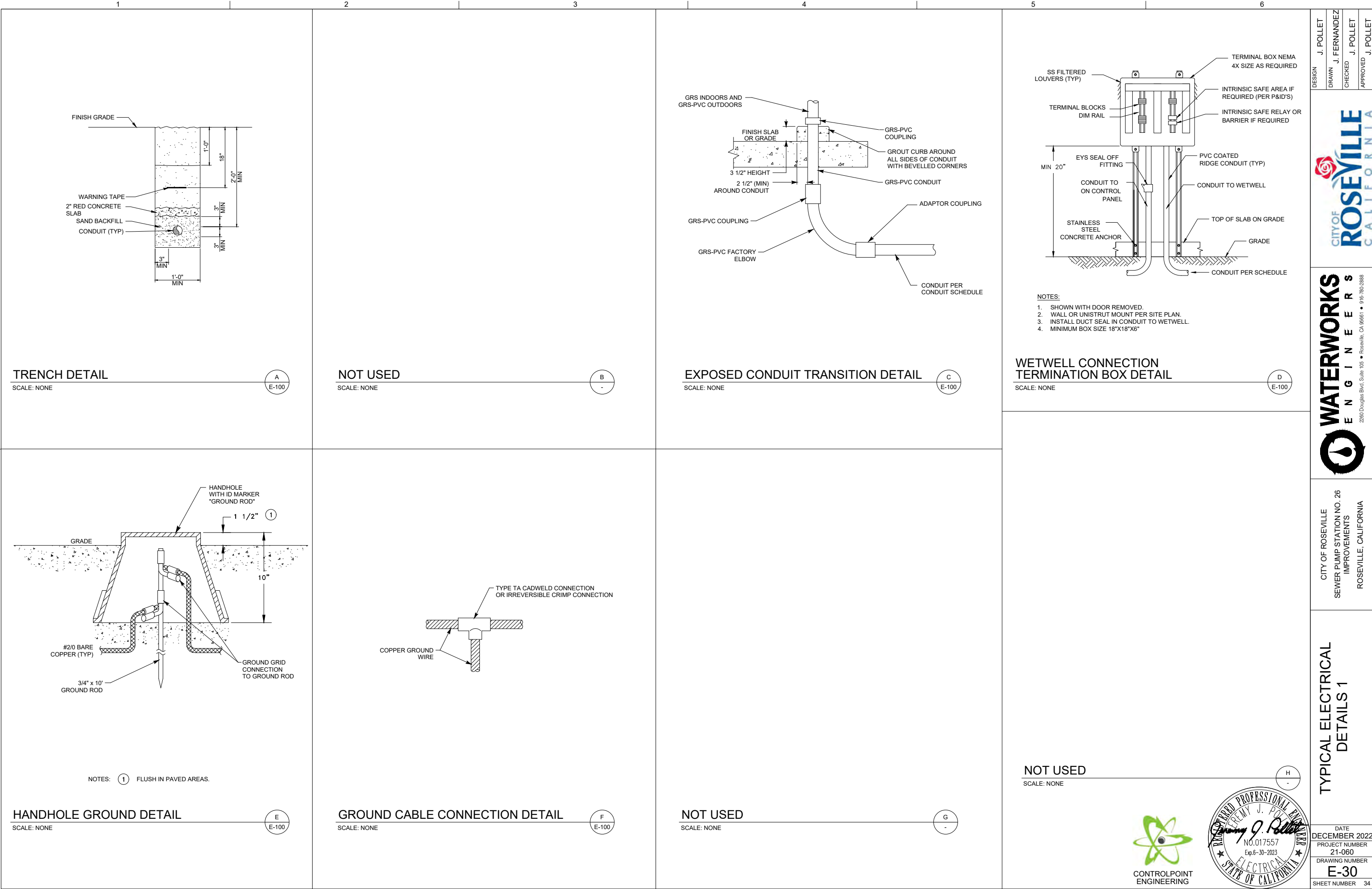


MSB-100 ELEVATION
SCALE: NONE

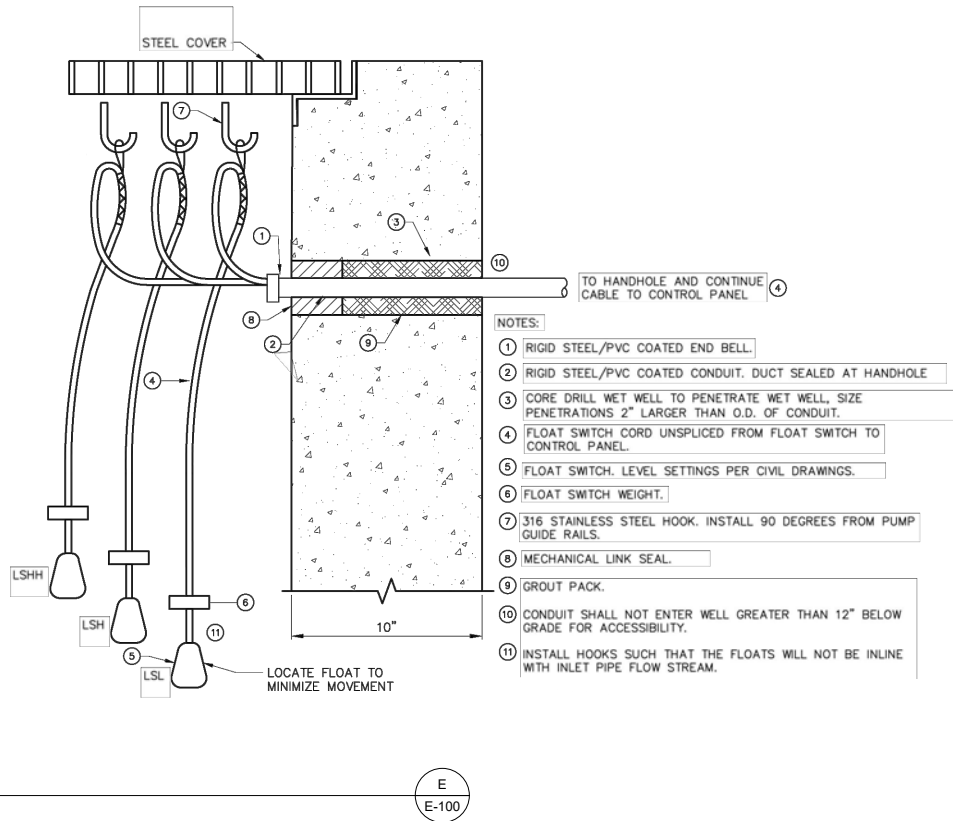
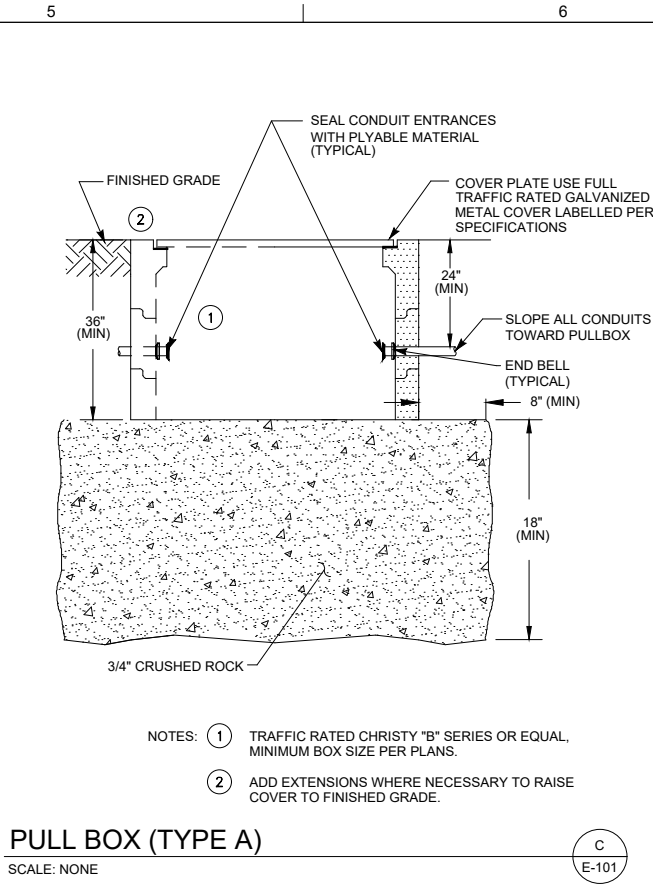
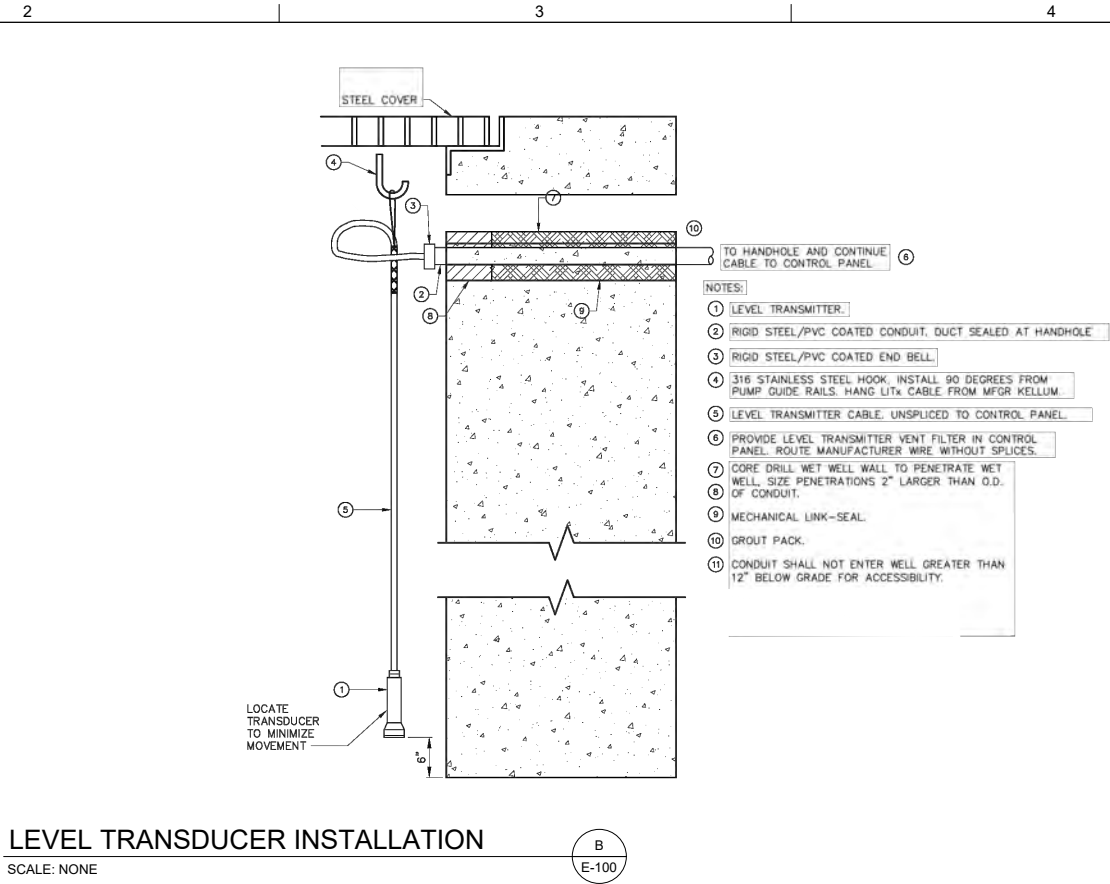
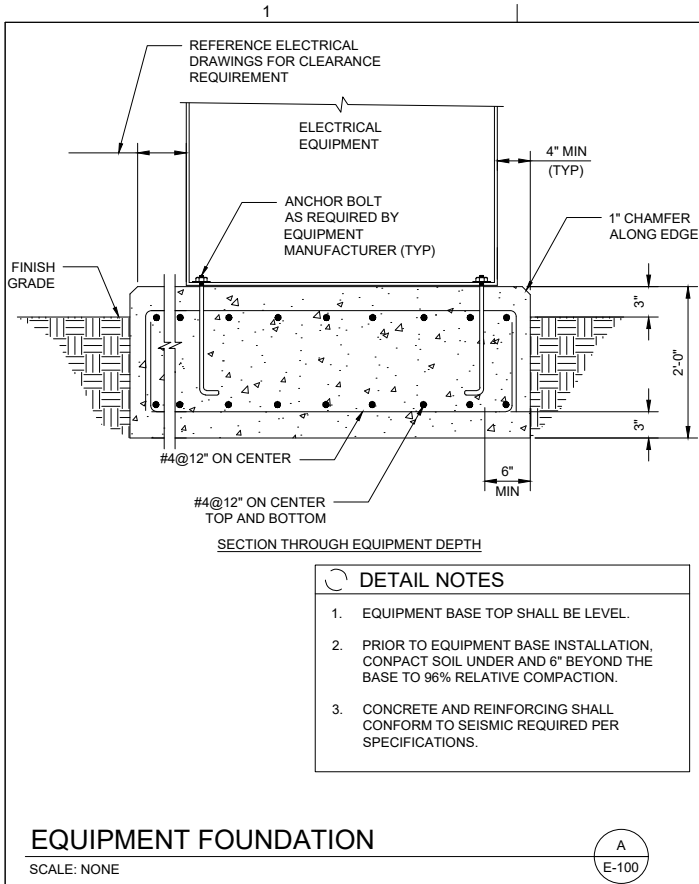
A
E-06



MAIN SWITCHBOARD ELEVATIONS	DATE DECEMBER 2022	
	PROJECT NUMBER 21-060	
	DRAWING NUMBER E-06	
	SHEET NUMBER 33	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	DESIGN J. POLLET	
	DRAWN J. FERNANDEZ	
	CHECKED J. POLLET	
	APPROVED J. POLLET	
WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-790-2888	CITY OF ROSEVILLE CALIFORNIA	
	A	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	B	
	C	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	D	
	A	



DESIGN J. POLLET	DRAWN J. FERNANDEZ	CHECKED J. POLLET	APPROVED J. POLLET
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
TYPICAL ELECTRICAL DETAILS 1			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER E-30			
SHEET NUMBER 34			



NOT USED

SCALE: NONE

F
E-102

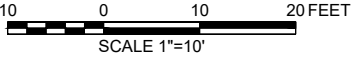
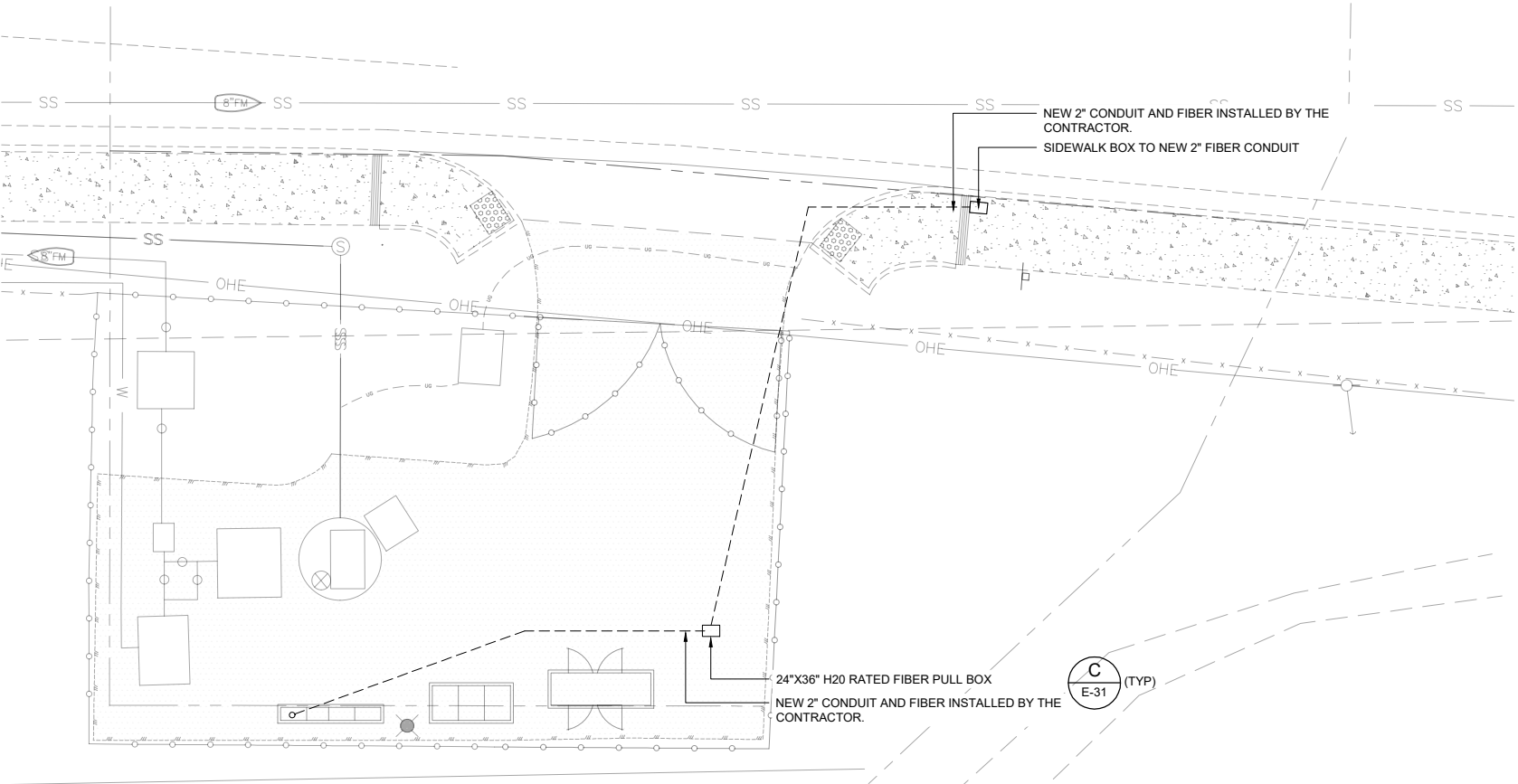
CONTROLPOINT ENGINEERING

REGISTERED PROFESSIONAL ENGINEER
J. POLLET
NO. 017557
Exp. 6-30-2023
STATE OF CALIFORNIA

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

TYPICAL ELECTRICAL
DETAILS 2

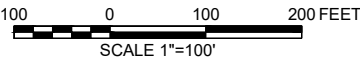
DATE
DECEMBER 2022
PROJECT NUMBER
21-060
DRAWING NUMBER
E-31
SHEET NUMBER
35



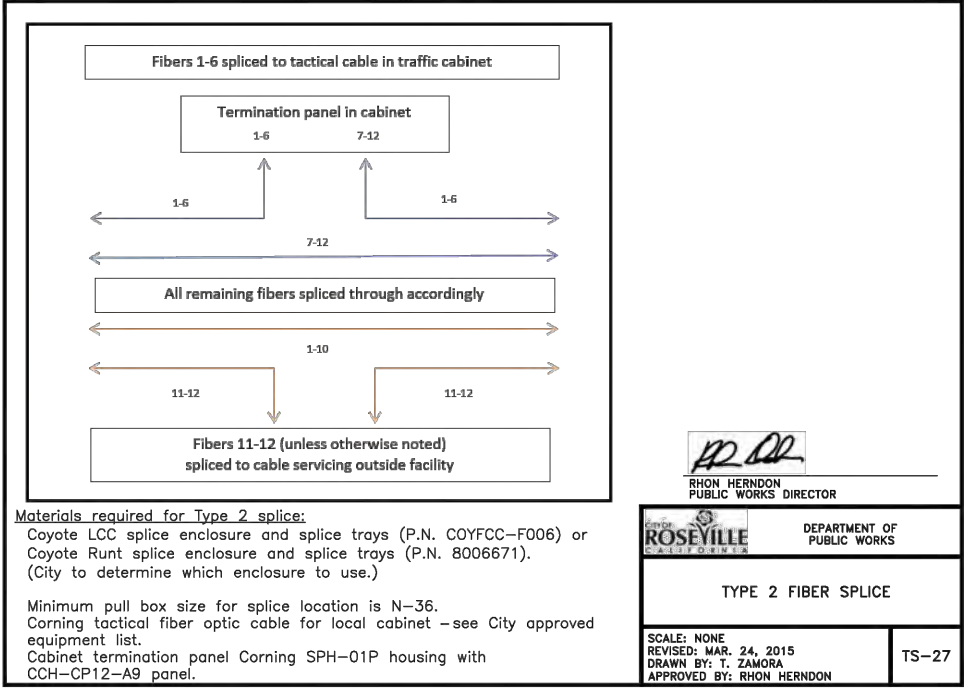
COMMUNICATION PLAN
SCALE: 1"=10'

C
E-31 (TYP)

A
E-101



OVERALL COMMUNICATION PLAN
SCALE: 1"=100'



TYPE 2 FIBER SPLICE DETAIL
SCALE: 1"=10'

B
E-101



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET



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CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

COMMUNICATION
SITE PLAN

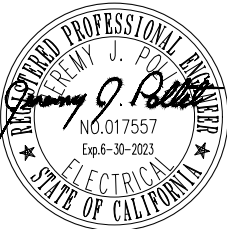
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	E-101
SHEET NUMBER	37

1		2		3		4		5		6	
ELECTRICAL SYMBOLS				INSTRUMENTATION SYMBOLS				INSTRUMENT IDENTIFICATION LETTERS			
90% TORQUE											

DESCRIPTION	PHASE/CODE LETTER	FIELD WIRE OR TAPE COLOR	NON-FIELD WIRE COLOR	SIZE
480V, 3 PH	A	BROWN	BROWN	
	B	ORANGE	ORANGE	
	C	YELLOW	YELLOW	
	NEUTRAL	GRAY	GRAY	
240V/208V 3 PH	A	BLACK		
	B	RED (ORANGE IF HIGH LEG)		
	C	BLUE		
240V/120V 1 PH	L1	BLACK	BLACK	
	L2	WHITE		
24V POSITIVE	24+	RED	RED	(#14)
24V NEGATIVE	24-	GRAY	GRAY	(#14)
12V POSITIVE	12+	PINK	PINK/WHITE	(#14)
12V NEGATIVE	12 -	BLACK	BLACK/WHITE	(#14)
AC CONTROL		VIOLET	VIOLET (YLW FOR FOREIGN CIRCUITS)	(#14)
NEUTRAL	N	WHITE	WHITE	(#14)
GROUND	G	GREEN	GREEN	(#14)
SHIELDED PAIR	+	CLEAR	CLEAR	(#18)
	-	BLACK	BLACK	(#18)

GENERAL NOTES

- A. GENERAL NOTES APPLY TO ALL DRAWINGS UNLESS OTHERWISE SPECIFIED.
- B. ALL CONTACTS ARE SHOWN IN THEIR DE-ENERGIZED STATE.
- C. WIRE IDENTIFICATION NUMBERS CORRESPOND WITH TERMINAL BLOCK NUMBERS.
- D. WHEN WIRES CROSS ON A DRAWING, THERE IS NO CONNECTION UNLESS INDICATED WITH A DOT.
- E. DEVICES SHOWN WITH DASHED LINES ARE LOCATED IN DIFFERENT PANEL OR FIELD LOCATION.
- F. CONTROL WIRING #14 AWG TYPE THHN 600 VOLT CLASS B STRANDED.
- G. PLC I/O WIRING #16 AWG TYPE THHN 600 VOLT CLASS B STRANDED.
- H. ANALOG WIRING #18 TWISTED SHIELD PAIR.
- I. WIRE MARKERS ARE MACHINE IMPRINTED, HEAT-SHRINKABLE, WHITE WITH BLACK TEXT.
- J. PLASTIC SHIELDING ON TRANSFORMERS.



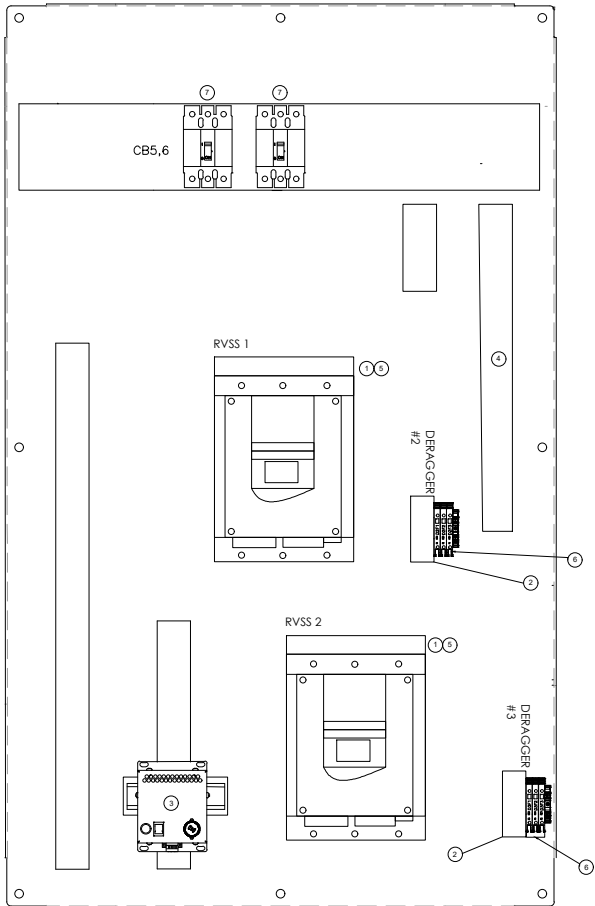
DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET



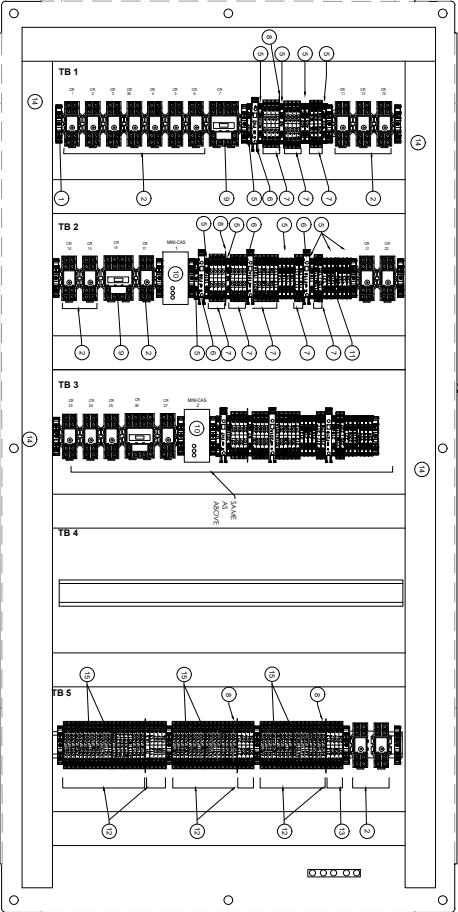
CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

GENERAL WIRE
COLOR LEGEND

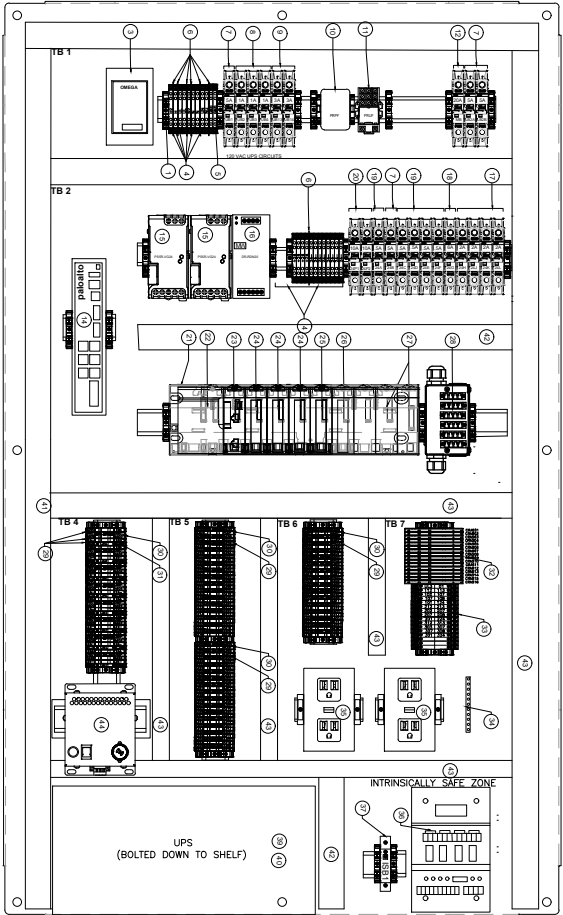
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-02
SHEET NUMBER	39



MOTOR RVSS SECTION



PUMP CONTROL SECTION



PLC SECTION

- PANEL SIZING AND BUILD REQUIREMENTS:
- ENCLOSURE SHALL BE SIZED TO MEET SPECIFIC PROJECT REQUIREMENTS CONSIDERING PANEL PURPOSE AND SPACE CONTRAINTS.
 - PANEL ENCLOSURE SHALL ADHERE TO THE FOLLOWING SPECIFIC DEPTH REQUIREMENTS:
 - PLC PANEL SHALL BE NO GRATER THAN 16-INCH DEEP, WITH PLC MOUNTED BETWEEN 42-INCHES AND 60-INCHES ABOVE FINISHED FLOOR.
 - OTHER CONTROL PANEL, NOT CONTAINING PLC'S, SHALL BE A MAXIMUM OF 18-INCHES DEEP WHEREVER POSSIBLE.
 - PANEL SHALL BE DESIGNED SUCH THAT THERE IS SUFFICIENT CLEARANCE TO ALLOW AIR FLOW FOR COOLING, HEATING, AND CONDENSATE PREVENTION, WITHIN THE MAXIMUM DEPTH REQUIREMENT.
 - PANELS SHALL BE SIZED SUCH THAT ALL TERMINAL STRIPS AND COMPONENTS SUCH AS RELAYS AND ISOLATORS ARE MOUNTED ON THE ENCLOSURE BACK PANEL. MOUNTING OF WIRING TERMINAL STRIPS AND PANEL COMPONENTS ON SIDE WALLS IS NOT ALLOWED.



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET
	
	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	
CONTROL PANEL BACKPAN ELEVATION AND BILL OF MATERIAL	
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-03
SHEET NUMBER	40

Item	Manufacturer	Part Number	Description	Vendor	Qty
1	GAYLORD		60"x138"wx18"4 EDU3 DOOR	GAYLORD	1
2	ABB		CB 3P 400AF AD, JST TO 250A 65X15IG	BAY POWER	2
3	ABB	1SDA066637R	NTC BLOCKING MOUNTING PLATE	BAY POWER	1
4	ABB	1SDA06645R1	MOUNTING BRACKET/PLATE	BAY POWER	2
5	EATON	HFC2035	CH CIRCUIT BREAKER 2P 15A 480V 65X	BAY POWER	1
6	EATON	HFC2030	CH CIRCUIT BREAKER 2P 30A 480V 65X	BAY POWER	1
7	EATON	QC2050	CH CIRCUIT BREAKER 2P 50A 120/240V 10X	BAY POWER	1
8	EATON	A1X1P<	CH A JK SW TCH 225A 600V	BAY POWER	3
9	EATON	QC1015	CH CIRCUIT BREAKER 1P 15A 120/240V 10X	BAY POWER	1
10	EATON	QC1020	CH CIRCUIT BREAKER 1P 20A 120/240V 10X	BAY POWER	10
11	EATON	QC6F1020	CH CB 1P 20 120/240V 10K GFC	BAY POWER	2
12	EATON	QCDINADAPT	CH QCD RAIL ADAPTER	BAY POWER	15
13	HAMMOND	C1015-15	TRANSFORMER 240X480 TO 120/240V 15KVA 1P	BAY POWER	1
14	EATON	Q1123PL	EATON HAND E PADLOCK	BAY POWER	14
15	EATON	PLK1	CH HANDLE FRAME PADLOCKABLE	BAY POWER	3
16	MERSEN	Z5CC37	POWER DIST 3, CCK 760A 3P		1
17	MERSEN	MP3RC6869	SAFETY COVER		3
18	EDISON	HPB106-2	POWER DISTRIBUTION BLOCK 2P	AUTOMATION	1
19	EDISON	PRC32	POWER DISTRIBUTION BLOCK COVER	AUTOMATION	1
20	GRACEPORT	H-RE20-K3	GFC 20A OLT CT PANEL MOUNT	NEWARK	1
21	STEGO	025423-10	110VAC LED ENCLOSURE LIGHT	AUTOMATION DIRECT	1
22	JMAC	GRI 200-36HD	ENCLOSURE DOOR SWITCH SET	JMAC.com	1
23	SIEMENS	ECLX071M	ENCLOSURE DOOR SWITCH KIT	AMAZON	1
24	HONEYWELL	13AC1	DOOR SWITCH		1

DISTRIBUTION SECTION BOM

Item	Manufacturer	Part Number	Description	Vendor	Qty
1	SCHNEIDER	A-T-START48	REDUCED VOLTAGE STARTER W/ REVERSING CONTACTORS		2
2			DERAGGER PACKAGE CWC DRG+ 1/2 1 100A		2
3	SAGINAW	SCE-H-1251A	HEATER		1
5	STEGO	025423-10	110VAC LED ENCLOSURE LIGHT		1
6	EATON	H-MCP100B3C	CH MCP 3P 100A 480V 65X		2
7	JMAC	GRI 200-36HD	ENCLOSURE DOOR SWITCH SET		1
8	SCHNEIDER	90663A1	EXTERNAL RESET BUTTON		1
9	HONEYWELL	13AC1	DOOR SWITCH		1
10	SIEMENS	52P-M8A1K	BLACK PUSH BUTTON		2
11	SIEMENS	5B535	1NC CONTACT BLOCK		2
12	SIEMENS	5B536	1NO CONTACT BLOCK		4
13	GFC	CR324XRMO2	OVERLOAD RELAY		2
14	RS PRO	1B69154	2X3 WIREWAY		2

RVSS SECTION BOM

Item	Manufacturer	Part Number	Description	Vendor	Qty
1	ALLEN BRADLEY	1492-FAJ35	END BLOCK	BUCKLES-SM TH	15
2	IDEC	RH2B-U.C-AC120	RELAY 2P 120VAC	STEVEN ENGINEERING	20
3	IDEC	RI12B-05C	SOCKET	STEVEN ENGINEERING	20
4	IDEC	RH1B-U.C-AC120	RELAY 1P 120VAC	STEVEN ENGINEERING	0
5	IDEC	RH1B-05C	SOCKET	STEVEN ENGINEERING	0
6	IDEC	RH3B-U.C-AC120	RELAY 3P 120VAC	STEVEN ENGINEERING	0
7	IDEC	RH3B-05C	SOCKET	STEVEN ENGINEERING	0
8	ALLEN BRADLEY	1492-J4	TERMINAL 1P	BUCKLES-SM TH	37
9	ALLEN BRADLEY	1492-FBJ3	END BARRIER	BUCKLES-SM TH	20
10	ALLEN BRADLEY	1492-J46	FUSE HOLDER	BUCKLES-SM TH	10
11	ALLEN BRADLEY	1492-N37	END BARRIER	BUCKLES-SM TH	10
12	ALLEN BRADLEY	1492-J24C	TERMINAL 2L 1C	BUCKLES-SM TH	48
13	ALLEN BRADLEY	1492-FBJD4	END BARRIER	BUCKLES-SM TH	20
14	ALLEN BRADLEY	1492-PJD3	PARTITION PLATE	BUCKLES-SM TH	10
15	IDEC	RH4B-U.C-AC120	RELAY 4P 120VAC	STEVEN ENGINEERING	4
16	IDEC	RH4B-05C	SOCKET	STEVEN ENGINEERING	4
17	OTEC		MILCAS MOTOR MONITOR	(SUPPLIED BY OTHER)	3
18	ALLEN BRADLEY	1492-J2G4	TERMINAL GND 1P	BUCKLES-SM TH	3
19	ALLEN BRADLEY	1492-J24	TERMINAL 2L 2C	BUCKLES-SM TH	50
20	ALLEN BRADLEY	1492-FBJD4	END BARRIER	BUCKLES-SM TH	10
21	IBOCO	OMEGA 3A	DIN RAIL		105IN.
22	RS PRO	1369154	WIREWAY 2"X3" W/COVER		256IN.
23	ALLEN BRADLEY	1492-C-J6-10	102 JUMPER	BUCKLES-SM TH	20
24	SCHNEIDER	HMI81U855	SCHNEIDER MAGELIS OIT	GRAYBAR	1
25	SIEMENS	52PT6E3A8	GREEN INDICATOR PUSH-TEST		4
26	SIEMENS	52PT6E2A8	RED INDICATOR PUSH-TEST		4
27	SIEMENS	52SA2CABA1	HQA		2
28	SIEMENS	52PM8A1K	BLACK PUSH BUTTON		4
29	DERAGGER	SUPPLIED WITH KIT	REMOTE STATION		2
30					
31	SIEMENS	52PT6E9A8	AMBER INDICATOR PUSH-TEST		2
32	ENVI	T50B52	HOUR METER		2
33	STEGO	025423-10	110VAC LED ENCLOSURE LIGHT	AUTOMATION DIRECT	1
34	JMAC	GRI 200-36HD	ENCLOSURE DOOR SWITCH SET	JMAC.com	1
35	SIEMENS	52B-K	AUXILIARY CONTACT NO. NC		1
36	HONEYWELL	13AC1	DOOR SWITCH		1
37	SIEMENS	5BGU8	4 POSITION SELECTOR SWITCH		1
38	SIEMENS	5B535	1NC CONTACT BLOCK		2
39	SIEMENS	5B536	1NO CONTACT BLOCK		4
40	INTERMATIC	IT32H	TIMER	0-2 HOURS	2

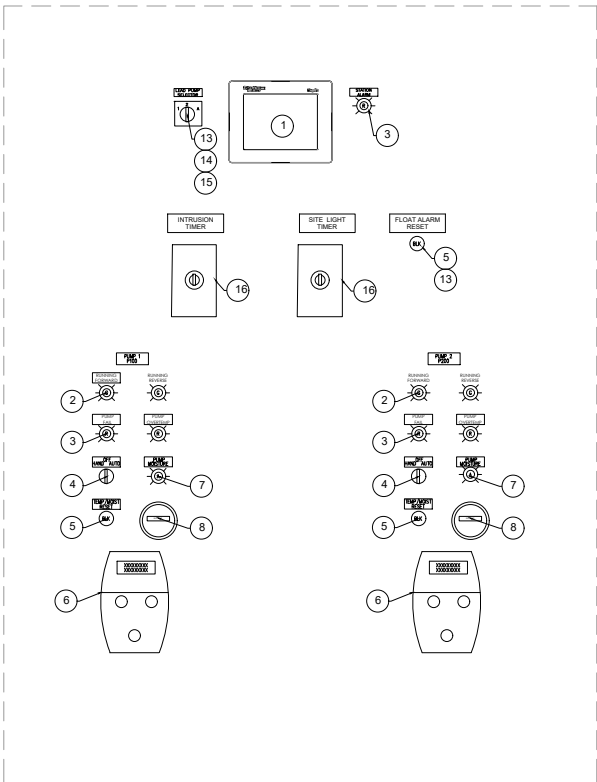
PUMP CONTROL SECTION (BACKPAN) BOM

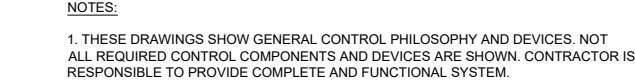
Item	Manufacturer	Part Number	Description	Vendor	Qty
1	ALLEN BRADLEY	1492-FAJ35	END BLOCK	BUCKLES-SM TH	33
2	OMEGA	EW5-TX	TEMPERATURE TRANSMITTER	OMEGA	1
3	OMEGA	EW5-MB	WALL MOUNT	OMEGA	1
4	ALLEN BRADLEY	1492-JD4C	TERMINAL 2L 1C	BUCKLES-SM TH	27
5	ALLEN BRADLEY	1492-FBJD4	END BARRIER	BUCKLES-SM TH	52
6	ALLEN BRADLEY	1492-JD6A	TERMINAL 2L 1C GAD	BUCKLES-SM TH	12
7	ALLEN BRADLEY	1492-FBJD4-Y	END BARRIER	BUCKLES-SM TH	2
8	ALLEN BRADLEY	1492-PJD3	PARTITION PLATE	BUCKLES-SM TH	7
9	ABB	SU201M-K5	CIRCUIT BREAKER 5A 1P	BAY POWER	3
10	ABB	SU201M-K1	CIRCUIT BREAKER 1A 1P	BAY POWER	3
11	ABB	SU201M-K3	CIRCUIT BREAKER 3A 1P	BAY POWER	2
12	TIME MARK	16-1-H-P	120VAC MONITOR	CONTROL COMPONENTS	1
13	TIME MARK	51X170	SOCKET	CONTROL COMPONENTS	1
14	SCHNEIDER	389FXCXC-120A	RELAY	ALLIED ELECTRONICS	2
15	SCHNEIDER	70-78REL11-1	SOCKET	ALLIED ELECTRONICS	1
16	ABB	SU201M-K70	CIRCUIT BREAKER 70A 1P	BAY POWER	1
17	PALOALTO	PAN-PA-220R	FIBER OPTIC SWITCH	CDW	1
18	IDEC	P5SR-VG24	POWER SUPPLY 24VDC 10A	STEVEN ENGINEERING	2
19	MEAN WELL	DR-RDN20	REDUNDANCY MODULES	BAY POWER	1
20	ABB	SU201M-K2	CIRCUIT BREAKER 2A 1P	BAY POWER	4
21	ABB	SU201M-K6	CIRCUIT BREAKER 6A 1P	BAY POWER	1
22	ABB	SU201M-K0.5	CIRCUIT BREAKER 0.5A 1P	BAY POWER	5
23	ABB	SU201M-K10	CIRCUIT BREAKER 10A 1P	BAY POWER	2
24	MODICON	3MXB8P0800	8 SLOT /O RACK	GRAYBAR	1
25	MODICON	3MXCP52010	POWER SUPPLY MODULE	GRAYBAR	1
26	MODICON	3MXP342020	PROCESSOR MODULE	GRAYBAR	1
27	MODICON	3MXDD11602	INPUT MODULE	GRAYBAR	3
28	MODICON	3MXDD11602	OUTPUT MODULE	GRAYBAR	1
29	MODICON	3MXAMID810	ANALOG INPUT MODULE	GRAYBAR	1
30	MODICON	3MXCFM010	COVER KIT OF SFA	GRAYBAR	1
31	MODICON	3MXRMS008MP	MEM CARD 8MB	GRAYBAR	1
32	MODICON	3MXCAUSBD18	USB GROUND PROGRAMMING	GRAYBAR	1
33	MODICON	3MXITB2010	SCREW TERM. NAL. STR P 20 CIR	GRAYBAR	4
34	MODICON	3MXFTB2800	SCREW TERM. NAL. STR P 28 STD	GRAYBAR	4
35	DINSPACE	SNAP-12LC-SM	COMPACT FIBER OPTIC PATCH	DINSPACE.COM	1
36	ALLEN BRADLEY	1492-J4	TERMINAL 1P	BUCKLES-SM TH	72
37	ALLEN BRADLEY	1492-FBJ3	END BARRIER	BUCKLES-SM TH	20
38	ALLEN BRADLEY	1492-JD4	TERMINAL 1N FE DISCONNECT	BUCKLES-SM TH	56
39	IDEC	RV84-L-AD24	DIN RAIL RELAY 24VDC	STEVEN ENGINEERING	16
40	ALLEN BRADLEY	1492-JD4	TERMINAL 2L 2C	BUCKLES-SM TH	16
41	SQUARE D	PK7GTAC2	GROUND BAR	AMAZON	1
42	WIEDMULLER	6720005423	20A DUPLEX GFI RECEPTACLE	BUCKLES-SM TH	2
43	WARRICK ISR	67E1C0A	DUPLEX PUMP CONTROL	Calpatric Equipment Co.	1
44					
45	EATON	MTL7787+	ANALOG INPUT BARRIER		1
46	APC	UPS-SMCL500C	UPS-APC 1500SMART	AMAZON	1
47	ASC	TBD	UPS SHELF	ASC	1
48	IBOCO	OMEGA 3A	DIN RAIL		152IN.
49	RS PRO	1369154	WIREWAY 2"X3" W/COVER		205IN.
50	RS PRO	1369111	WIREWAY 1X3" W/COVER		152IN.
51	BUSSMANN	7085K81	10AMP PKGS	McMASTER-CARR	1
52	BUSSMANN	7085K46	1A AMP PKGS	McMASTER-CARR	1
53	IDEC	RR2P-ULAC120V	120VAC RELAY		1
54	IDEC	SR2P-05C	RELAY SOCKET		1
55	SAGINAW	SCE-HIT-1251A	HEATER		1
56	STEGO	025423-10	110VAC LED ENCLOSURE LIGHT	AUTOMATION DIRECT	1
57	SAGINAW	SCE-AC3400B450V	AIR CONDITIONER 340BTU	450VAC 2P	1
58	JMAC	GRI 200-36HD	ENCLOSURE DOOR SWITCH SET	JMAC.com	1
59	HONEYWELL	13AC1	DOOR SWITCH		1

PLC SECTION BOM

Item	Manufacturer	Part Number	Description	Vendor	Qty
1	SCHNEIDER	HMI81U855	SCHNEIDER MAGELIS OIT	GRAYBAR	1
2	SIEMENS	52PT6E3A8	GREEN INDICATOR PUSH-TEST		4
3	SIEMENS	52PT6E2A8	RED INDICATOR PUSH-TEST		4
4	SIEMENS	52SA2CABA1	HQA		2
5	SIEMENS	52PM8A1K	BLACK PUSH BUTTON		3
6	DERAGGER	SUPPLIED WITH KIT	REMOTE STATION		2
7	SIEMENS	52PT6E9A8	AMBER INDICATOR PUSH-TEST		2
8	ENVI	T50B52	HOUR METER		2
9					
10					
11					
12	HONEYWELL	13AC1	DOOR SWITCH		1
13	SCHNEIDER		3 POSITION SELECTOR SWITCH		1
14	SCHNEIDER		1NC CONTACT BLOCK		2
15	SCHNEIDER		1NO CONTACT BLOCK		4
16	INTERMATIC	FF32H	TIMER	0-2 HOURS	2

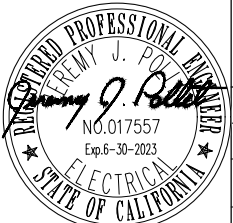
PUMP CONTROL SECTION (DOOR) BOM





NOTES:

1. THESE DRAWINGS SHOW GENERAL CONTROL PHILOSOPHY AND DEVICES. NOT ALL REQUIRED CONTROL COMPONENTS AND DEVICES ARE SHOWN. CONTRACTOR IS RESPONSIBLE TO PROVIDE COMPLETE AND FUNCTIONAL SYSTEM.



DATE DECEMBER 2022 PROJECT NUMBER 21-060 DRAWING NUMBER I-05 SHEET NUMBER 40	PLC LOGIC CONTROL WIRING DIAGRAM	CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	 WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-790-2888		DESIGN	J. POLLET
					DRAWN	J. FERNANDEZ
					CHECKED	J. POLLET
					APPROVED	J. POLLET

1

2

3

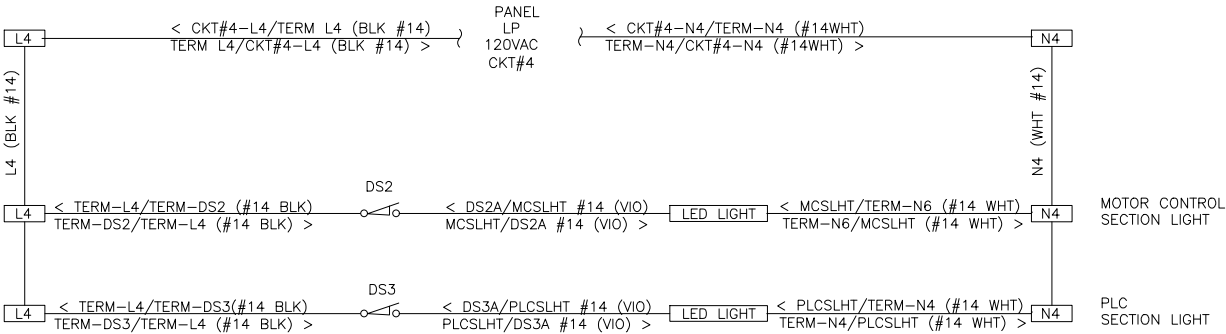
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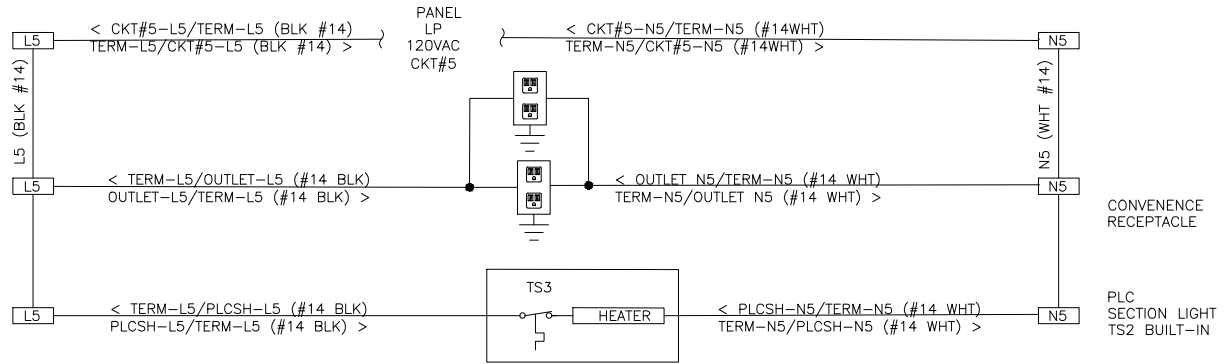
NOTES:

1. THESE DRAWINGS SHOW GENERAL CONTROL PHILOSOPHY AND DEVICES. NOT ALL REQUIRED CONTROL COMPONENTS AND DEVICES ARE SHOWN. CONTRACTOR IS RESPONSIBLE TO PROVIDE COMPLETE AND FUNCTIONAL SYSTEM.



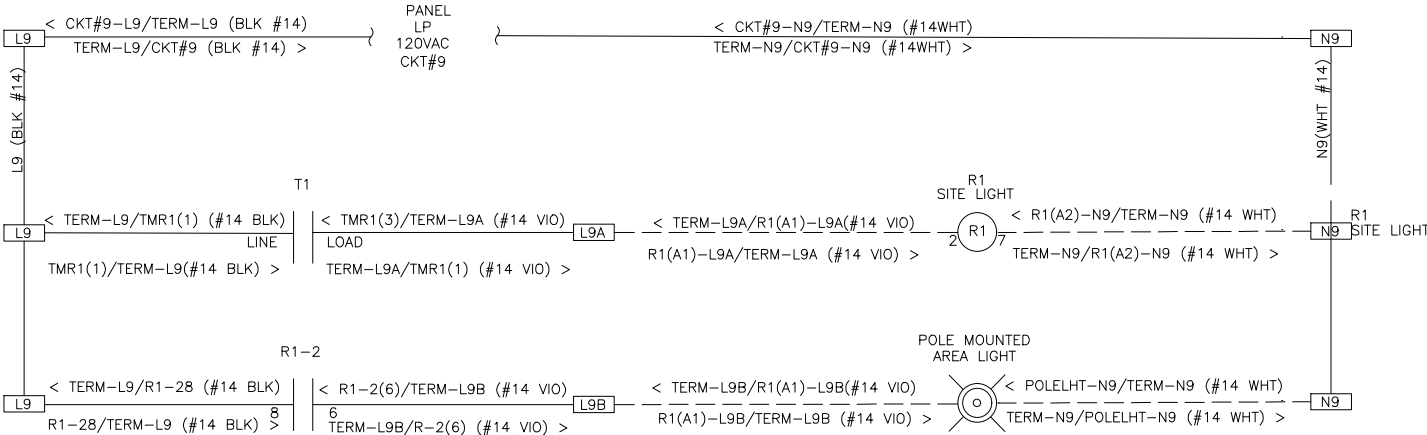
CONTROL PANEL LIGHTING CONTROLS

SCALE: NONE



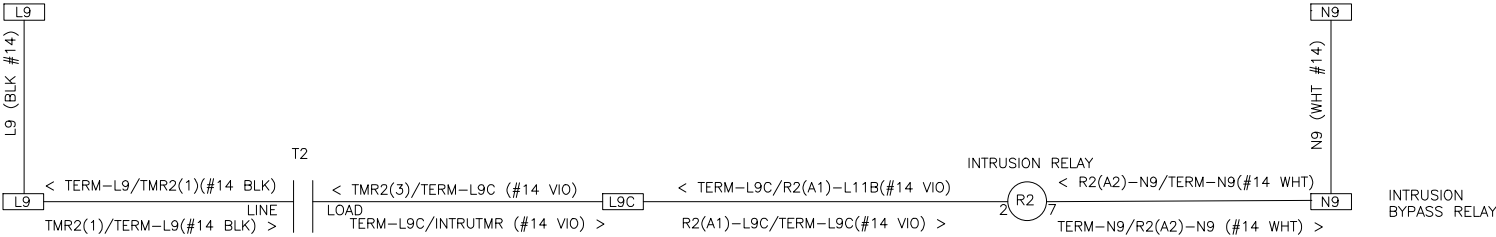
CONTROL PANEL HEATERS AND RECEPTACLE

SCALE: NONE



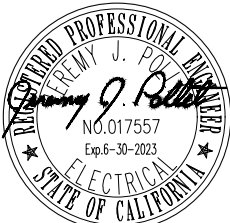
SITE LIGHTING CONTROLS

SCALE: NONE

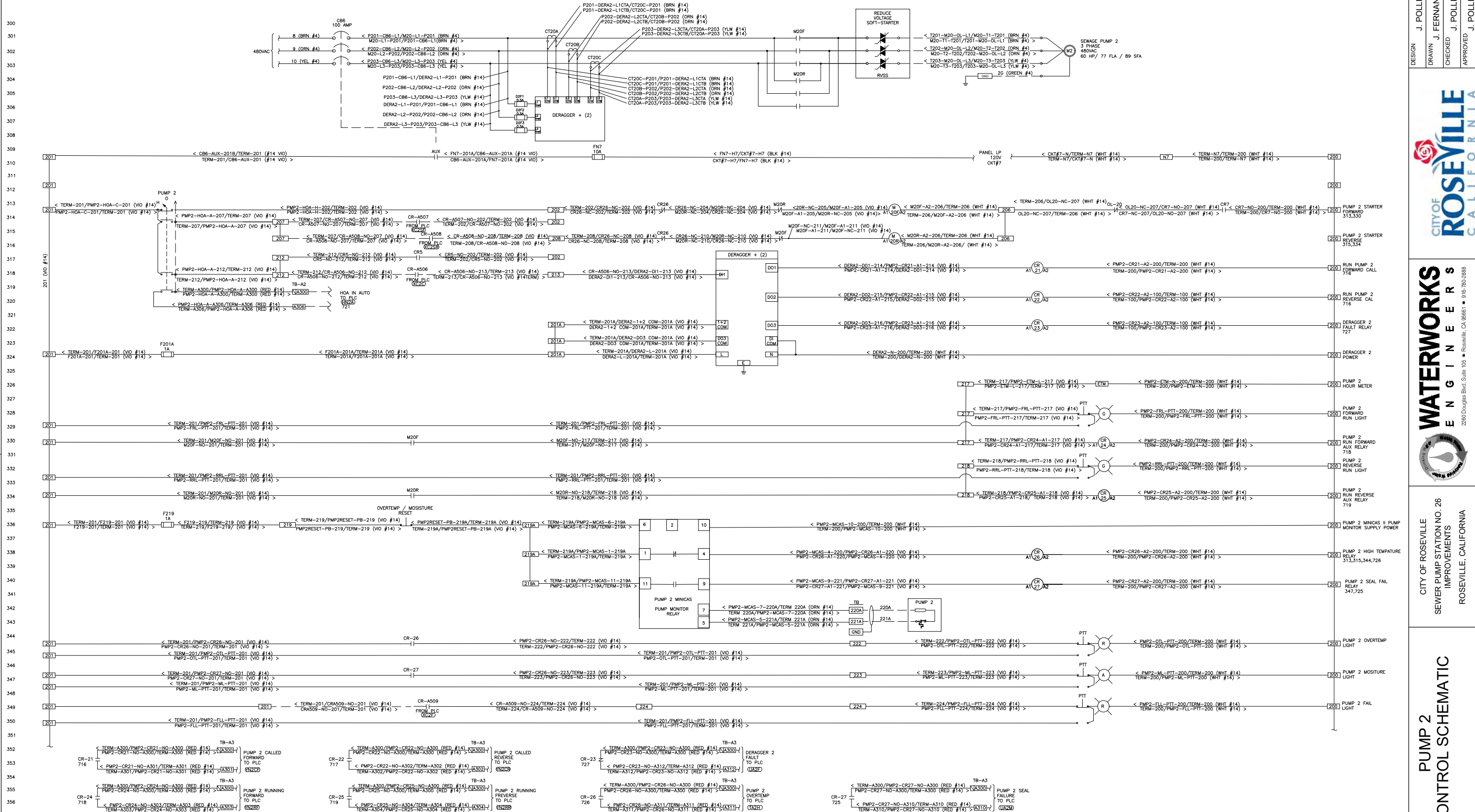


INTRUSION BYPASS CONTROLS

SCALE: NONE

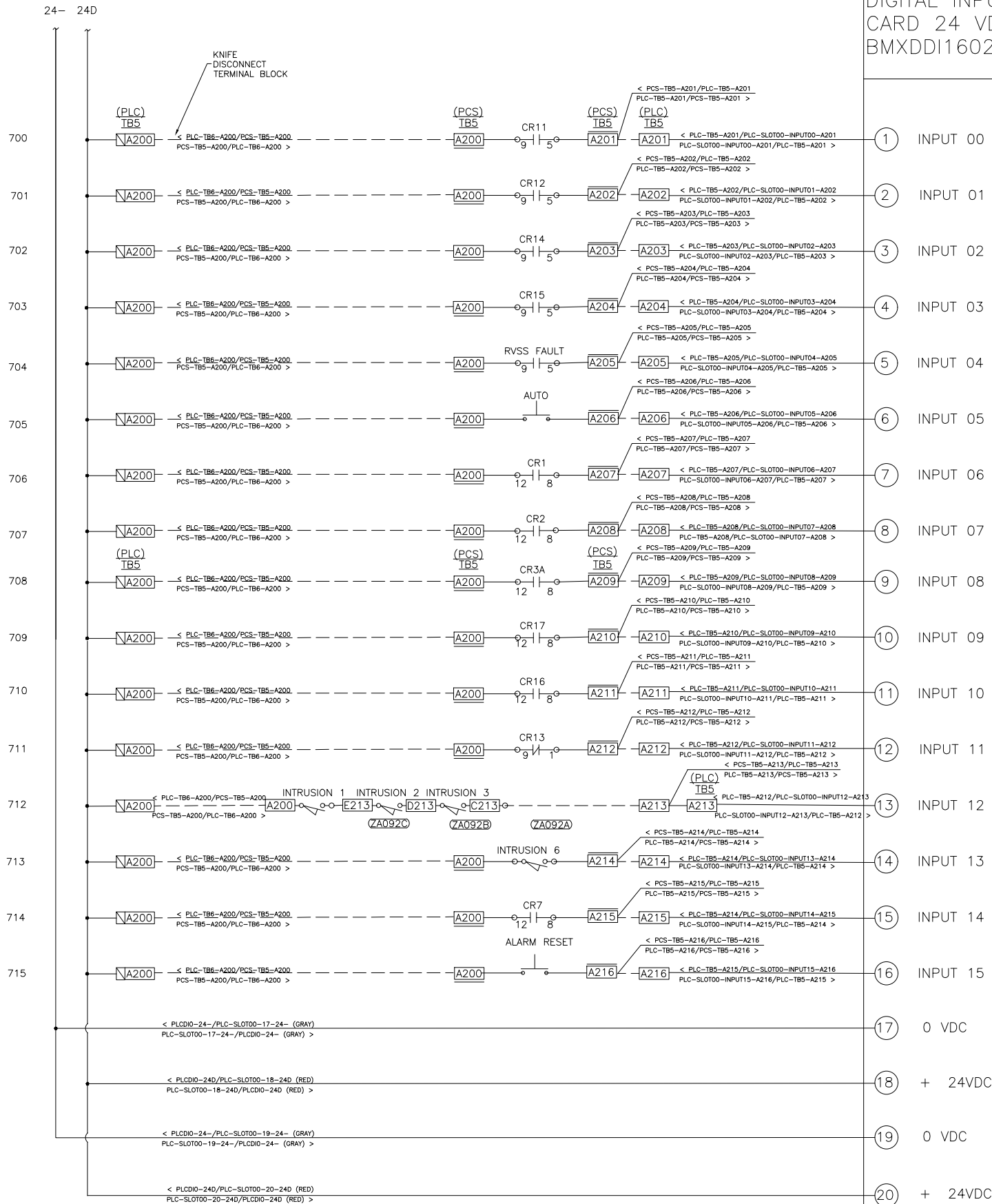


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CHECKED	J. POLLET
APPROVED	J. POLLET
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WATERWORKS ENGINEERS 2660 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-790-3888	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	
CONTROL PANEL AUX CONTROLS AND AREA LIGHT	
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-07
SHEET NUMBER	44



SLOT NO. 01

DIGITAL INPUT
CARD 24 VDC
BMXDDI1602



PUMP 1 CALLED
FORWARD
TO PLC
(N1C0)
218

PUMP 1 CALLED
REVERSE
TO PLC
(N1C0)
220

PUMP 1 RUNNING
FORWARD
TO PLC
(N1R0)
230

PUMP 1 RUNNING
REVERSE
TO PLC
(N1R0)
234

PUMP 1
RVSS FAULT
TO PLC
(UA1)
238

PUMP 1 HOA
IN AUTO
TO PLC
(N1A)
213

LOW LEVEL
ALARM
TO PLC
(LA052D)
509

HIGH LEVEL
ALARM
TO PLC
(LA052H)
512

HIGH HIGH LEVEL
ALARM
TO PLC
(LA052HH)
517

PUMP 1 SEAL
FAILURE
TO PLC
(UA1M)
240

PUMP 1
OVERTEMP
TO PLC
(UA1H)
239

DERAGGER 1
FAULT
TO PLC
(UA1F)
222

MSB/MCC/CP
INTRUSION
(ZA092A)

SITE
INTRUSION
(ZA093A)

VOLTAGE MONITOR
ALARM
TO PLC
(EA099L)

ALARM RESET
TO PLC



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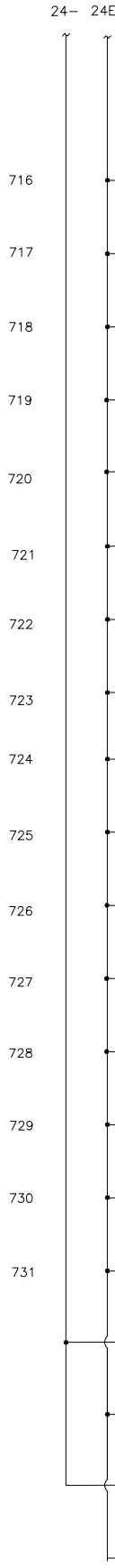
CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

PLC DIGITAL INPUTS
CARD 1 WIRING DIAGRAM

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-12
SHEET NUMBER	49

SLOT NO. 02

DIGITAL INPUT
CARD 24 VDC
BMXDDI1602



PUMP 2 CALLED
FORWARD
TO PLC
(N2CD)
318

PUMP 2 CALLED
REVERSE
TO PLC
(N2CB)
320

PUMP 2 RUNNING
FORWARD
TO PLC
(N2RD)
320

PUMP 2 RUNNING
REVERSE
TO PLC
(N2RB)
334

PUMP 2
RVSS FAULT
(UA2)
313

PUMP 2 HOA
IN AUTO
TO PLC
(N2A)
313

SPARE
DIGITAL INPUT

SPARE
DIGITAL INPUT

SPARE
DIGITAL INPUT

PUMP 2 SEAL
FAILURE
TO PLC
(UA1M)
340

PUMP 2
OVERTEMP
TO PLC
(A2H)
338

DERAGGER 2
FAULT
TO PLC
(UA2F)
322

120VAC POWER
FAIL
TO PLC
(EA095A)
607

UPS POWER
FAIL
TO PLC
(EA095B)
614

24VDC POWER
SUPPLY 1 FAIL
TO PLC
(EA096A)
630

24VDC POWER
SUPPLY 2 FAIL
TO PLC
(EA096B)
630



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET

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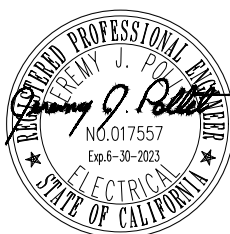
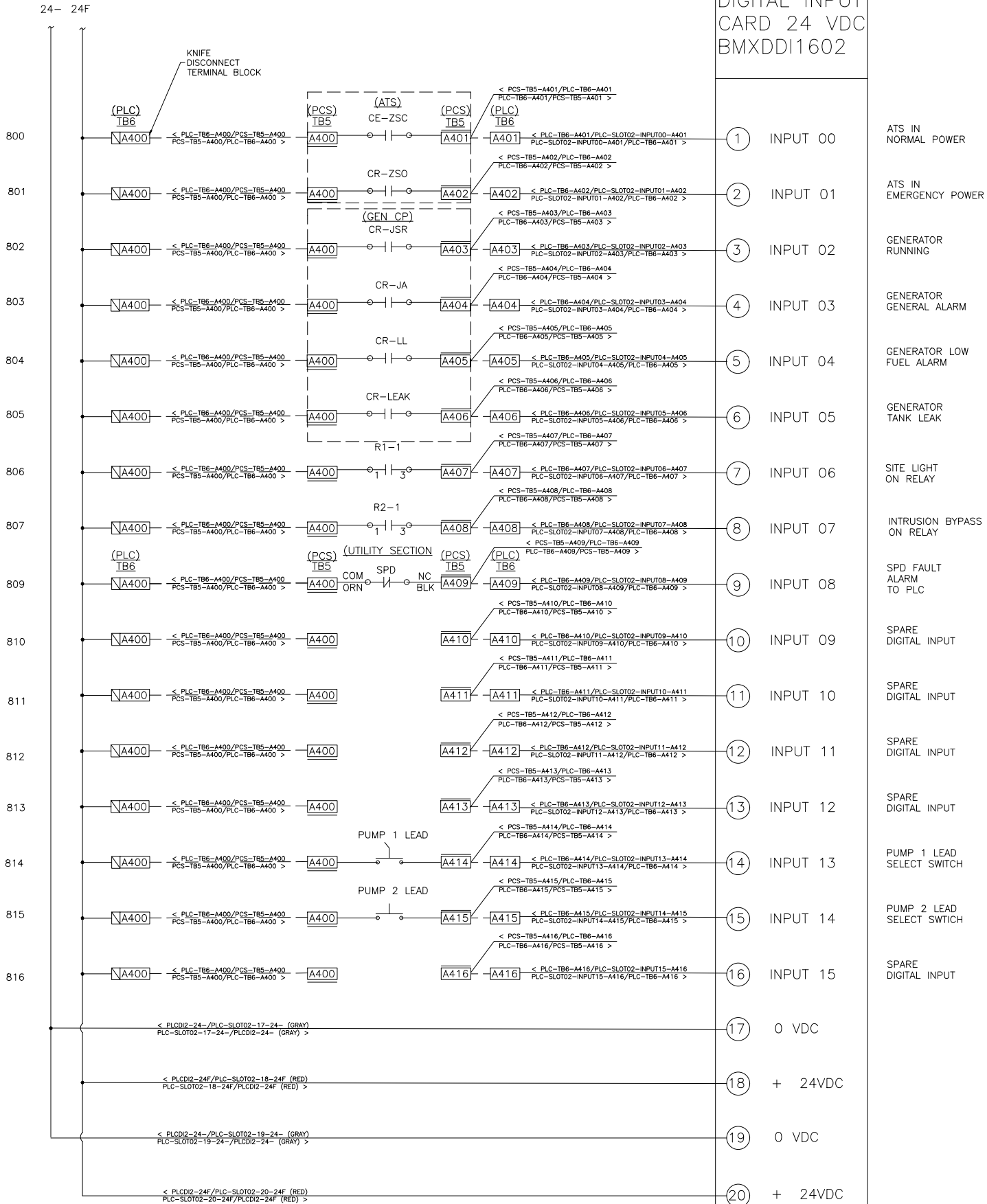
CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

PLC DIGITAL INPUTS
CARD 2 WIRING DIAGRAM

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-13
SHEET NUMBER	50

SLOT NO. 03

DIGITAL INPUT
CARD 24 VDC
BMXDDI1602



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET

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ENGINEERS
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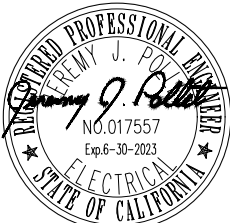
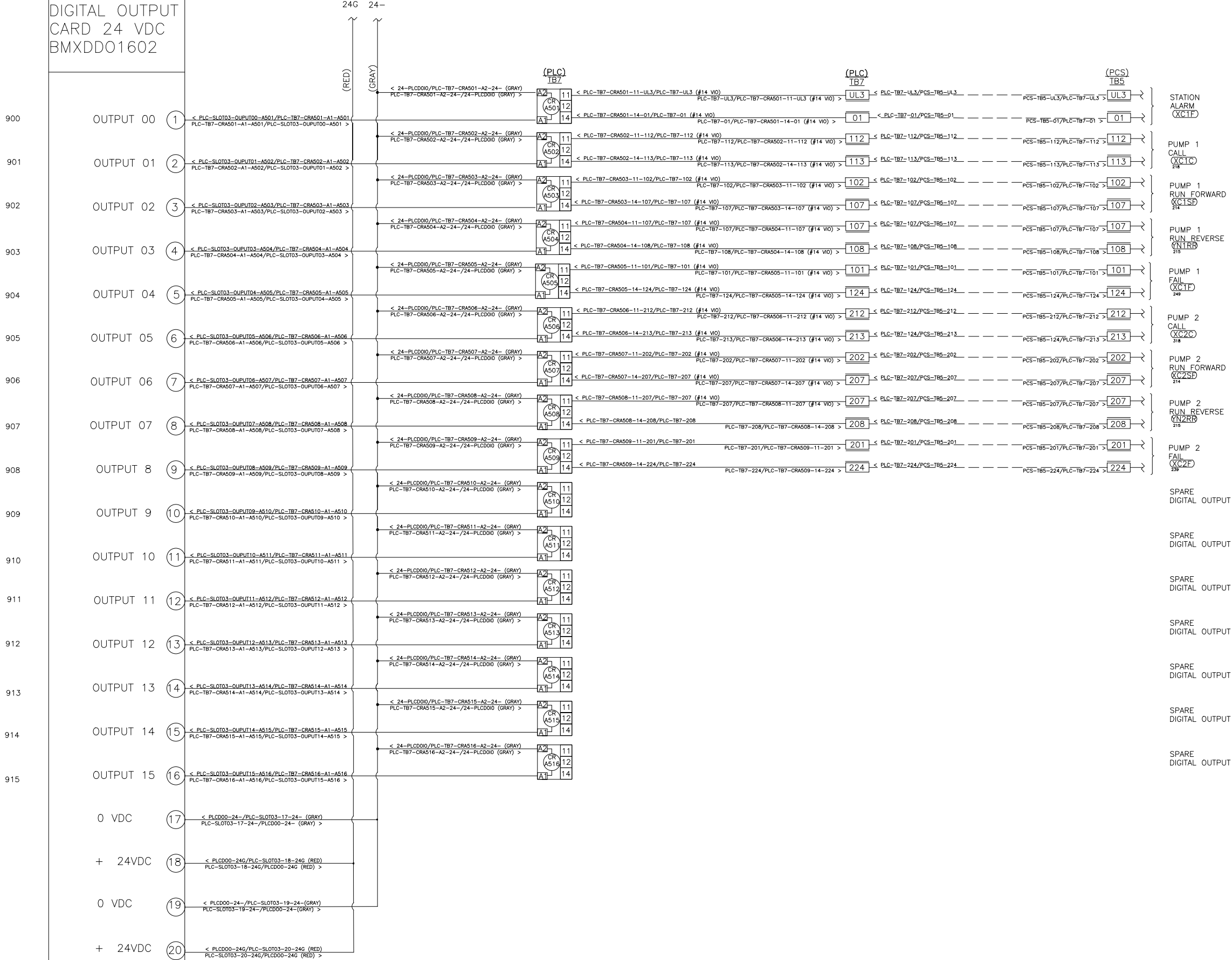
CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

PLC DIGITAL INPUTS
CARD 3 WIRING DIAGRAM

DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-14
SHEET NUMBER	51

SLOT NO. 04

DIGITAL OUTPUT
CARD 24 VDC
BMXDD01602



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET

CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

PLC DIGITAL OUTPUTS
CARD 1 WIRING DIAGRAM

DATE
DECEMBER 2022

PROJECT NUMBER
21-060

DRAWING NUMBER
I-15

SHEET NUMBER
52

1

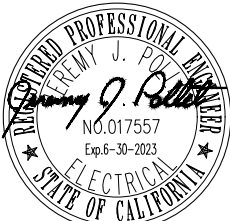
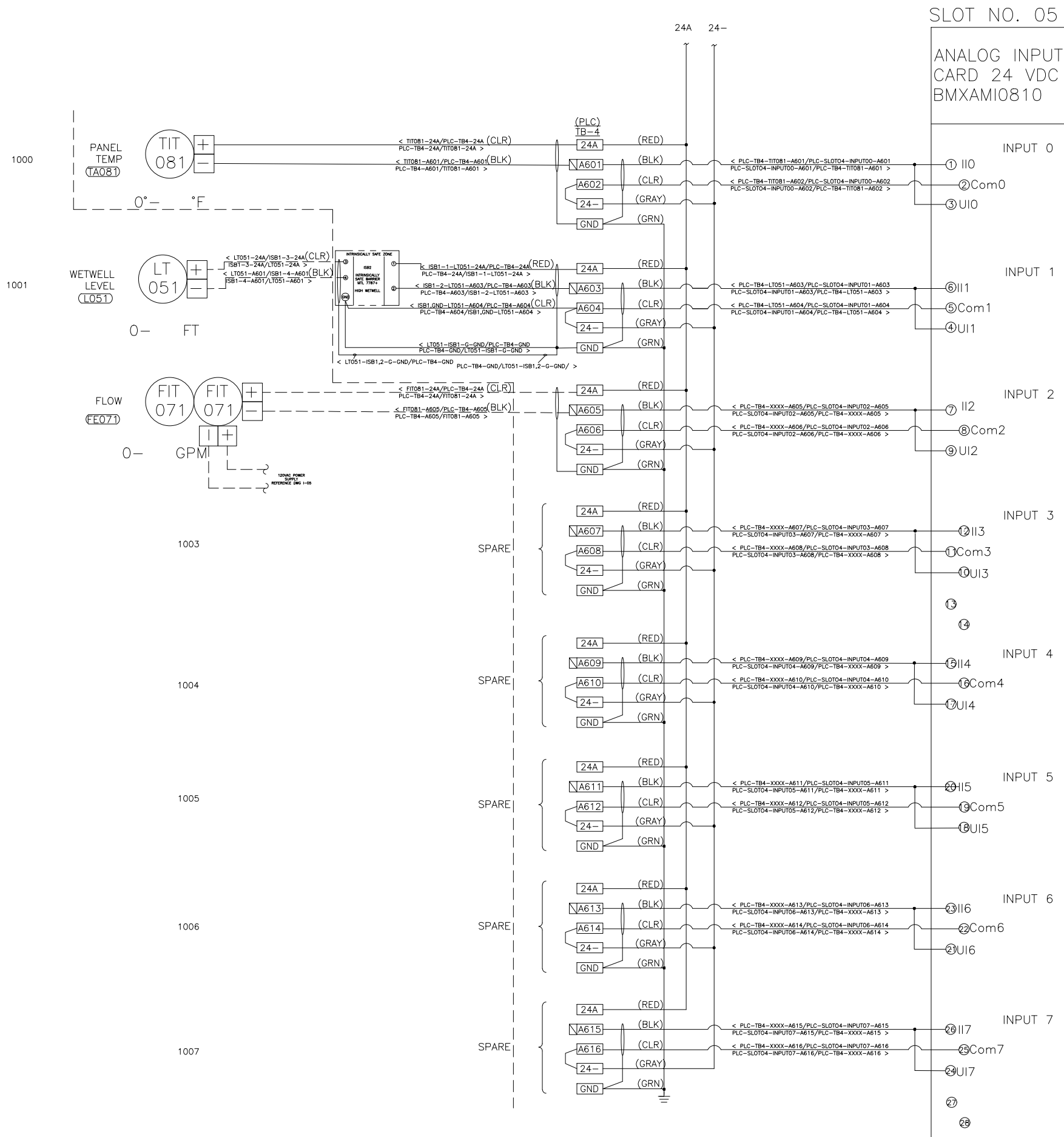
2

3

4

5

6



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DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
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CALIFORNIA

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CITY OF ROSEVILLE
SEWER PUMP STATION NO. 26
IMPROVEMENTS
ROSEVILLE, CALIFORNIA

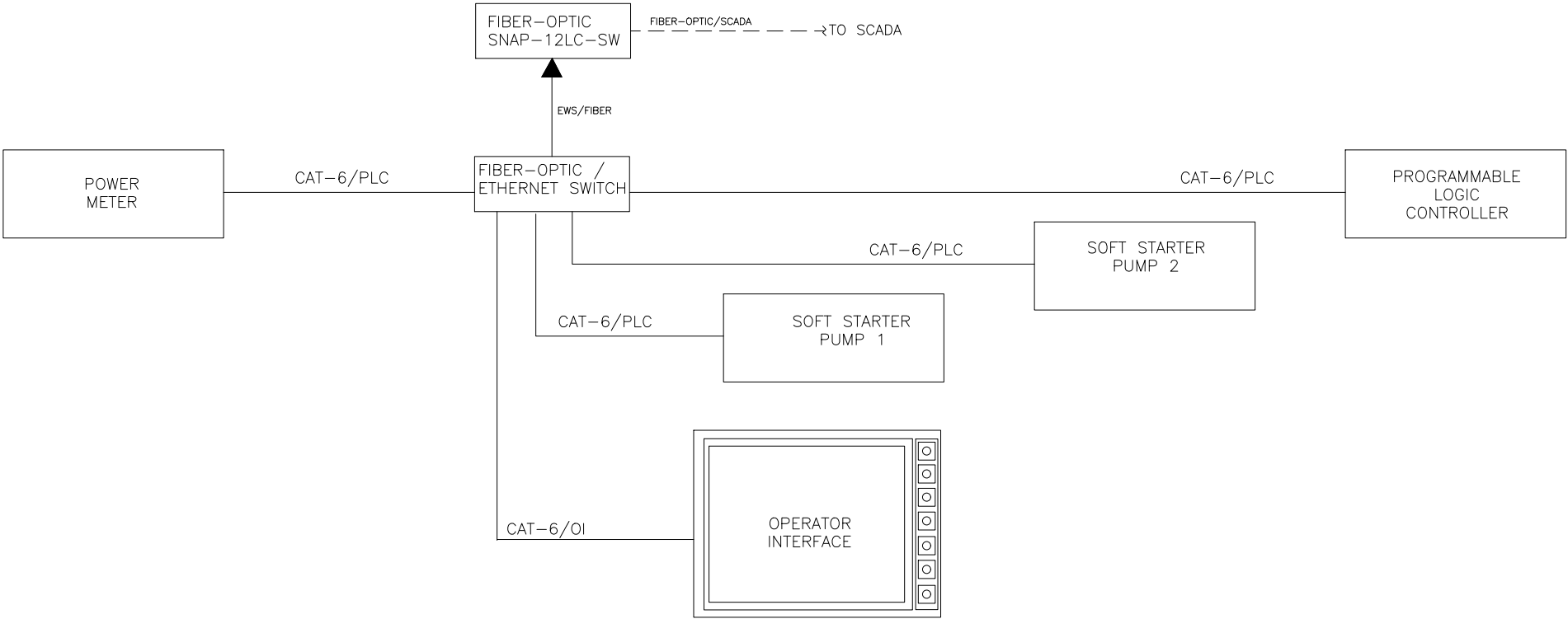
**PLC ANALOG INPUTS
CARD 1 WIRING DIAGRAM**

DATE
DECEMBER 2022

PROJECT NUMBER
21-060

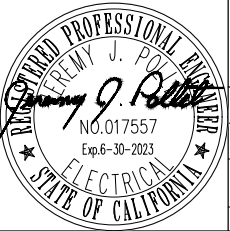
DRAWING NUMBER
I-16

SHEET NUMBER
53

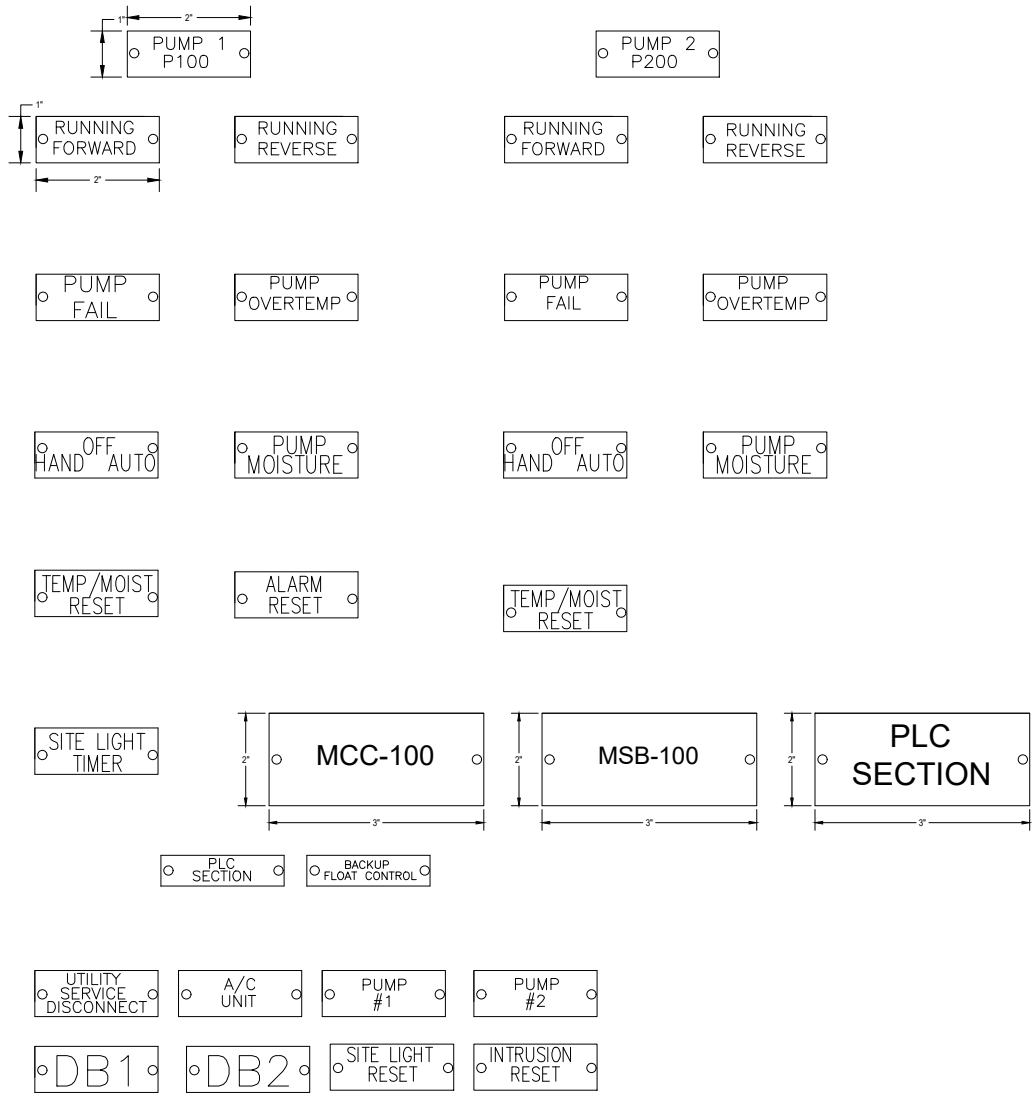


COMMUNICATION BLOCK DIAGRAM

SCALE: NONE



DESIGN	J. POLLET
	J. FERNANDEZ
	J. POLLET
	J. POLLET
CITY OF ROSEVILLE ROSEVILLE, CALIFORNIA	
WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-790-2888	
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	
COMMUNICATION CAT6 AND FIBER DIAGRAM	
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-17
SHEET NUMBER	54



SECURED WITH STAINLESS STEEL #4 FASTENERS
ALL BLACK LEGEND PLATES
TO BE PLASTIC LAMACOID
WITH 3/16" OR 1/4" HELVETICA FONT
WHITE LETTERS



DESIGN	J. POLLET
DRAWN	J. FERNANDEZ
CHECKED	J. POLLET
APPROVED	J. POLLET
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	
LEGEND PLATE SCHEDULE	
DATE	DECEMBER 2022
PROJECT NUMBER	21-060
DRAWING NUMBER	I-18
SHEET NUMBER	55

L:\CAD\PROJECTS\21-060 ROSEVILLE ON-CALL SERVICES 2021-2022\21-060 PS26\DELIVERABLES\2060D-C-11.DWG



WORK ZONE 1 PLAN
1"=40'



WORK ZONE 2 PLAN
1"=40'

LEGEND

- WORK ZONE
- TRAFFIC/BIKE LOOP
- CONDUIT
- STAGING AREA

NOTES:

1. SEE SPECIFICATION SECTION 01 14 03 FOR ADDITIONAL CONSTRAINTS.

STAGING AREA NOTES:

1. PLACE BRIGHTLY COLORED ESA FENCING ALONG THE BOUNDARY AREA OF WHAT IS UNSUITABLE FOR CONSTRUCTION/LAYDOWN AREA.

2. ADDITIONAL LAYDOWN AREA IS AVAILABLE AT 1800 BOOTH ROAD. CONTRACTOR TO COORDINATE WITH CITY OF ROSEVILLE.

WORK ZONE 1 NOTES:

1. CONSTRUCTION WORK DAYS: SUNDAY-FRIDAY

2. WORK HOURS: DAY WORK IS ALLOWABLE

3. APPROX. WORK LENGTH: 438 LF

4. APPROX. WORK AREA: 13,000 SF

5. ANTICIPATED DURATION: 3 DAYS PLUS SURFACE RESTORATION

6. ANTICIPATED METHOD OF CONSTRUCTION: STATIC PIPE BURSTING AND OPEN CUT TRENCHING

7. ANTICIPATED TRAFFIC IMPACT: NONE

8. FLOW CONTROL: BYPASS PUMP

9. ANTICIPATED RESTORATION: SIDEWALK REPAIR AND LANDSCAPE RESTORATION.

WORK ZONE 2 NOTES:

1. CONSTRUCTION WORK DAYS: SUNDAY - FRIDAY

2. WORK HOURS: 9PM - 6AM; TCP IS TO BE TAKEN OUT BY 6AM

3. APPROX. WORK LENGTH: 723 LF

4. APPROX. WORK AREA: 36,174 SF

5. ANTICIPATED DURATION: 4-5 DAYS PLUS SURFACE RESTORATION

6. ANTICIPATED METHOD OF CONSTRUCTION: STATIC PIPE BURSTING

7. ANTICIPATED TRAFFIC IMPACT: LANE CLOSURES AND DETOURS AS SHOWN DURING NIGHT WORK; STEEL PLATES SHALL SIT FLUSH WITH EXISTING PAVEMENT AND BE PINNED AND STAKED

8. FLOW CONTROL: BYPASS PUMP AT NIGHT AND RECONNECT FOR DAY

9. RESTORATION PER "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON SD-03. MICROSURFACING PER CITY OF ROSEVILLE "DIVISION V - SURFACING AND PAVEMENTS" SPECIFICATION

40 0 40 80 FEET
HORIZ SCALE 1"=40'

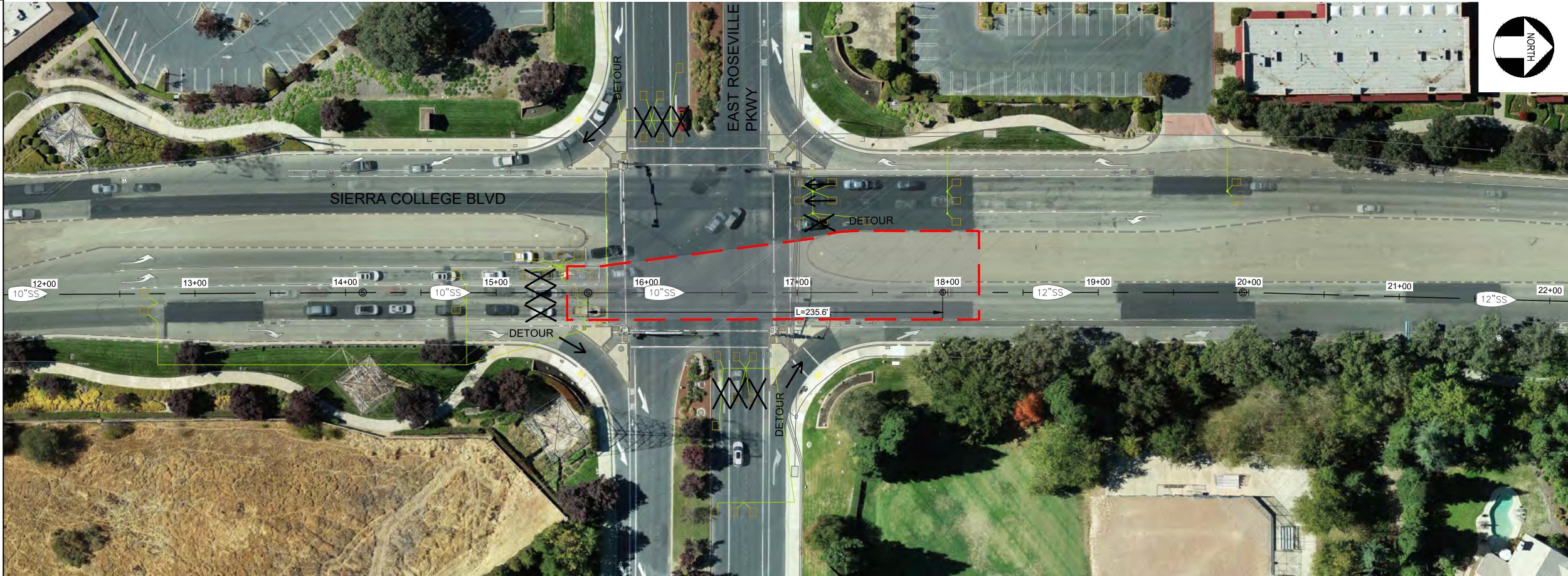


DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
			
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA			
CIVIL WORK ZONE 1 AND 2			
DATE DECEMBER 2022			
PROJECT NUMBER 21-060			
DRAWING NUMBER WZ-1			
SHEET NUMBER 56			

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WORK ZONE 2 PLAN ALT
1"=50'



WORK ZONE 3 PLAN
1"=40'

- LEGEND**
- WORK ZONE
 - TRAFFIC/BIKE LOOP
 - CONDUIT
- NOTES:**
- SEE SPECIFICATION SECTION 01 14 03 FOR ADDITIONAL CONSTRAINTS.
- WORK ZONE 2 (ALT) NOTES:**
- CONSTRUCTION WORK DAYS: SUNDAY - FRIDAY
 - WORK HOURS: 9PM - 6AM; TCP IS TO BE TAKEN OUT BY 6AM
 - APPROX. WORK LENGTH: 1,093 LF
 - APPROX. WORK AREA: 52,066 SF
 - ANTICIPATED DURATION: 4-5 DAYS PLUS SURFACE RESTORATION
 - ANTICIPATED METHOD OF CONSTRUCTION: STATIC PIPE BURSTING
 - ANTICIPATED TRAFFIC IMPACT: LANE CLOSURES AND DETOURS AS SHOWN DURING NIGHT WORK; STEEL PLATES SHALL SIT FLUSH WITH EXISTING PAVEMENT AND BE PINNED AND STAKED
 - FLOW CONTROL: BYPASS PUMP AT NIGHT AND RECONNECT FOR DAY
 - RESTORATION PER "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON SD-03. MICROSURFACING PER CITY OF ROSEVILLE "DIVISION V - SURFACING AND PAVEMENTS" SPECIFICATION.

- WORK ZONE 3 NOTES:**
- CONSTRUCTION WORK DAYS: SUNDAY - FRIDAY
 - WORK HOURS: 9PM - 6AM; TCP IS TO BE TAKEN OUT BY 6AM
 - APPROX. WORK LENGTH: 236 LF
 - APPROX. WORK AREA: 13,507 SF
 - ANTICIPATED DURATION: 3-5 DAYS PLUS SURFACE RESTORATION
 - ANTICIPATED METHOD OF CONSTRUCTION: OPEN CUT
 - ANTICIPATED TRAFFIC IMPACT: LANE CLOSURES AND DETOURS AS SHOWN DURING NIGHT WORK; STEEL PLATES SHALL SIT FLUSH WITH EXISTING PAVEMENT AND BE PINNED AND STAKED
 - FLOW CONTROL: BYPASS PUMP AT NIGHT AND RECONNECT FOR DAY
 - RESTORATION PER "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON SD-03. MICROSURFACING PER CITY OF ROSEVILLE "DIVISION V - SURFACING AND PAVEMENTS" SPECIFICATION.

40 0 40 80 FEET
HORIZ SCALE 1"=40'



DESIGN A CORREA		CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	CIVIL WORK ZONE 2 ALT AND 3	DATE DECEMBER 2022
DRAWN A CORREA				PROJECT NUMBER 21-060
CHECKED KALACON				DRAWING NUMBER WZ-2
APPROVED KALACON				SHEET NUMBER 57

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PLAN
1"=40'



PLAN
1"=40'

LEGEND

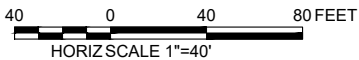
- WORK ZONE
- TRAFFIC/BIKE LOOP
- CONDUIT

NOTES:

- SEE SPECIFICATION SECTION 01 14 03 FOR ADDITIONAL CONSTRAINTS.

WORK ZONE 4 NOTES:

- CONSTRUCTION WORK DAYS: SUNDAY - FRIDAY
- WORK HOURS: 9PM - 6AM; TCP IS TO BE TAKEN OUT BY 6AM
- APPROX. WORK LENGTH: 1,294 LF
- APPROX. WORK AREA: 61,550 SF
- ANTICIPATED DURATION: 4-5 DAYS PLUS SURFACE RESTORATION
- ANTICIPATED METHOD OF CONSTRUCTION: STATIC PIPE BURSTING
- ANTICIPATED TRAFFIC IMPACT: LANE CLOSURES AND DETOURS AS SHOWN DURING NIGHT WORK; STEEL PLATES SHALL SIT FLUSH WITH EXISTING PAVEMENT AND BE PINNED AND STAKED
- FLOW CONTROL: BYPASS PUMP AT NIGHT AND RECONNECT FOR DAY
- RESTORATION PER "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON SD-03. MICROSURFACING PER CITY OF ROSEVILLE "DIVISION V - SURFACING AND PAVEMENTS" SPECIFICATION.



CIVIL		CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA	 WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95661 • 916-760-2888	 CITY OF ROSEVILLE CALIFORNIA	DESIGN A CORREA
					DRAWN A CORREA
WORK ZONE 4					CHECKED KALACON
DATE DECEMBER 2022					APPROVED KALACON
PROJECT NUMBER 21-060	DRAWING NUMBER WZ-3				SHEET NUMBER 58

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PLAN
1"=40'



PLAN
1"=40'

LEGEND

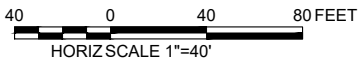
- WORK ZONE
- TRAFFIC/BIKE LOOP
- CONDUIT

NOTES:

- SEE SPECIFICATION SECTION 01 14 03 FOR ADDITIONAL CONSTRAINTS.

WORK ZONE 5 NOTES:

- CONSTRUCTION WORK DAYS: SUNDAY - FRIDAY
- WORK HOURS: 9PM - 6AM; TCP IS TO BE TAKEN OUT BY 6AM
- APPROX. WORK LENGTH: 927 LF
- APPROX. WORK AREA: 38,369 SF
- ANTICIPATED DURATION: 4-5 DAYS PLUS SURFACE RESTORATION
- ANTICIPATED METHOD OF CONSTRUCTION: STATIC PIPE BURSTING
- ANTICIPATED TRAFFIC IMPACT: LANE CLOSURES AND DETOURS AS SHOWN DURING NIGHT WORK; STEEL PLATES SHALL SIT FLUSH WITH EXISTING PAVEMENT AND BE PINNED AND STAKED
- FLOW CONTROL: BYPASS PUMP AT NIGHT AND RECONNECT FOR DAY
- RESTORATION PER "TRENCH RESTORATION FOR MORATORIUM STREET" DETAIL ON SD-03. MICROSURFACING PER CITY OF ROSEVILLE "DIVISION V - SURFACING AND PAVEMENTS" SPECIFICATION.



DESIGN A CORREA	DRAWN A CORREA	CHECKED KALACON	APPROVED KALACON
			
WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-760-2888			
CITY OF ROSEVILLE SEWER PUMP STATION NO. 26 IMPROVEMENTS ROSEVILLE, CALIFORNIA		CIVIL WORK ZONE 5	
DATE DECEMBER 2022		PROJECT NUMBER 21-060	
DRAWING NUMBER WZ-4		SHEET NUMBER 59	

APPENDIX B

Biological Review

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Kristina Alacon

From: Moore, Rana <RCMoore@roseville.ca.us>
Sent: Tuesday, November 8, 2022 3:28 PM
To: Kristina Alacon
Subject: FW: 9713 Sierra College Blvd. Biological Field Review
Attachments: 9713 Sierra College Blvd Biologic Survey.pdf

From: Shirhall, Terri <tshirhall@roseville.ca.us>
Sent: Tuesday, August 30, 2022 3:47 PM
To: Moore, Rana <RCMoore@roseville.ca.us>
Subject: FW: 9713 Sierra College Blvd. Biological Field Review

Hi Rana,

Sarah provided a write-up summary of last week's survey of the Pump Station 26 Improvement project site.

Thank you, Terri

Terri Shirhall
Environmental Coordinator
Development Services Department
(916) 774-5536

Civic Center | 311 Vernon Street | Roseville, CA | 95678



From: Sarah Vonderohe <svonderohe@MadroneEco.com>
Sent: Friday, August 26, 2022 1:13 PM
To: Shirhall, Terri <tshirhall@roseville.ca.us>
Subject: 9713 Sierra College Blvd. Biological Field Review

EXTERNAL: This email originated from outside of the organization. Do not click on any links or open attachments unless you recognize the sender and know the content is safe.

Terri:

This email summarizes our field visit to the 9713 Sierra College Blvd. site. The City intends to use a portion of the site for materials laydown associated with the improvement of the adjacent, existing pump facility. The site will not be graded. I reviewed the potential laydown area for sensitive biological resources. The area is dominated by weedy ruderal vegetation and lacks nesting opportunities for burrowing owl. A transition from ruderal to a combination of non-native annual grassland plants with interspersed native plants occurs on the far eastern limit of the area. There are no elderberries shrubs present. Wetlands are absent from the site (however it was not staked in the field), but are

immediately adjacent to the east. There are also a number of protected native oak trees on the eastern boundary of the area (map attached).

We discussed the following in the field:

- 1) If the laydown area is established by continuing the eastern fencing of the facility due south (we are assuming you would put up brightly colored ESA fencing) and then using the area between that line and Sierra College Blvd., then the only follow up would be to conduct a pre-construction nesting bird survey. This nesting bird survey would only be needed if construction occurs between February 1st and August 30th.
- 2) If the laydown area needs to exceed the area described in 1), then we recommend the following:
 - a. Having Madrone return to the site to establish a larger area that excludes:
 - i. The dripline of protected native oaks
 - ii. A minimum 50-foot buffer from the wetlands located to the east
 - iii. Areas of non-ruderal vegetation that could be habitat for special status plants
 - b. Place brightly colored ESA fencing along the boundary of the area Madrone defines as unsuitable for construction/laydown area
 - c. Conduct a 10-minute worker awareness training at the start of construction (this is your choice – it's generally just a good idea)

Thank you for the opportunity to assist you with this project; please let me know if you have any questions.

Sarah VonderOhe

Principal/Senior Biologist



8421 Auburn Blvd., Suite 248
Citrus Heights, CA 95610

Office: (916) 822-3230

Direct: (916) 822-3225

Fax: (916) 822-3231

www.madroneeco.com

DGS SBE, SBA WOSB,
CPUC WBE, and SMUD SEED

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APPENDIX A
Geotechnical Report

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GEOTECHNICAL REPORT

Sewer Pump Station No. 26 Improvements City of Roseville, California



Submitted To:

Mr. Joe Ziemann, P.E. &

Ms. Kristina Alacon, P.E.

WATER WORKS ENGINEERS

2260 Douglas Boulevard, Suite 105

Roseville, California 95661



Prepared by:

Bajada Geosciences, Inc.



BAJADA
Geosciences, Inc.

December 7, 2022

Project No. 2101.0129



BAJADA
Geosciences, Inc.

1300 Market Street, Suite 201
Redding, CA 96001
(530) 638-5263

DBE #46532

December 7, 2022
2101.0129

Mr. Joe Ziemann, P.E. & Ms. Kristina Alacon, P.E.

WATER WORKS ENGINEERS

2260 Douglas Boulevard
Roseville, California 95661

Subject: Geotechnical Report
Sewer Pump Station No. 26 Improvements
City of Roseville, California

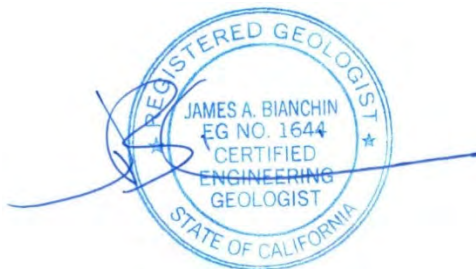
Dear Mr. Ziemann & Ms. Alacon:

Bajada Geosciences, Inc., is pleased to submit this geotechnical report to Water Works Engineers for the City of Roseville's Sewer Pump Station No. 26 Improvements located in Roseville, California. This geotechnical report discusses field mapping and explorations performed, laboratory testing results, subsurface conditions encountered, and geotechnical analyses associated with the study.

We appreciate the opportunity to perform this study. If you have any questions pertaining to this report, or if we may be of further service, please contact us at (530) 638-5263 at your earliest convenience.

Sincerely,

BAJADA GEOSCIENCES, INC.



James A. Bianchin, P.G., C.E.G.
Principal Engineering Geologist



Jon Everett, P.E., G.E.
Principal Geotechnical Engineer

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CITY OF ROSEVILLE, CALIFORNIA**

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CITY OF ROSEVILLE, CALIFORNIA

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Appendix A	Subsurface Exploration
Appendix B	Laboratory Test Results
Appendix C	Pump Station Geotechnical Study

1 GENERAL

Bajada Geosciences, Inc. (BAJADA), is pleased to present this geotechnical report for the City of Roseville's (City) Sewer Improvement Project. BAJADA has prepared this report at the request of Water Works Engineers, LLC (WWE), the project civil engineer. The location of the project site is shown on Plate 1 – Site Location Map. The following sections present our understanding of the project, the purpose of our study, the procedures we used to collect data, and our geotechnical findings, conclusions, and recommendations for the project.

1.1 PROJECT UNDERSTANDING

We understand that the City intends to improve a section of sewer trunk pipeline located within Sierra College Boulevard and portions of the existing pump station located south of the intersection of Sierra College Boulevard and Old Auburn Road. The proposed sewer trunk improvements will consist of using bursting methods to install new, larger-diameter pipe, as described below.

The existing PVC pipeline is about 2,392 feet long and consists of 8- and 10-inch-diameter pipe (WWE, 2022). The existing 8-inch-diameter pipeline begins south of East Roseville Parkway at approximately Station 10+23 and extends north for about 774 feet to approximately Station 17+97, where it transitions to 10-inch diameter and extends north for about 1,618 feet to approximately Station 34+15, just south of Eureka Road. We understand that the proposed project consists of bursting the entire pipeline segment length and upsizing the existing 8- and 10-inch-diameter pipe with new 10- and 12-inch-diameter pipe, respectively. Invert depths of the existing pipeline range from about 6.1 feet at the southern end of the segment to 16.0 feet at the northern segment terminus.

We understand that improvements at the existing pump station include at a minimum installation of a new manhole and bursting of a short segment of pipeline. Those improvements were not studied by BAJADA but a previous geotechnical report (Espana, 1999) was prepared at the pump station site and is included in Appendix C of this report.

1.2 PROJECT LOCATION

The project extends along Sierra College Boulevard from approximately 615 feet south of the East Roseville Parkway intersection, north to about 215 feet south of the intersection with Eureka Road, as shown on Plates 2.1 through 2.3 – Project Alignment. Latitude and longitude of an approximate mid-point along the alignment are as follows:

- Latitude: 38° 43' 59.27" N (38.7331°)
- Longitude: -121° 13' 33.38" W (-121.2259°)

1.3 STUDY PURPOSE

The purpose of our geotechnical study was to explore and evaluate selected site surface and subsurface conditions to collect and evaluate geotechnical data to assist WVE with the design and construction of the subject project.

1.4 SCOPE OF SERVICES

Our scope of services included:

- Reconnaissance of the site surface conditions;
- Acquisition of drilling permits from the City;
- Acquisition of an encroachment permit from the City for work within Sierra College Boulevard;
- Advancement of four sets of drill holes (8 total) at selected locations along the pipeline alignment. Locations of drill holes are shown on Plates 2.1 through 2.3. Exploration procedures and Logs of Drill Holes are presented in Appendix A – Subsurface Exploration;
- Performance of laboratory testing on selected samples obtained during our field investigation. Laboratory test procedures and results of those tests are presented in Appendix B – Laboratory Testing;
- Evaluation of the modulus of soil reaction (E') values for natural soils, backfill materials, and composite materials;
- Evaluation of estimated ground deformation associated with bursting operations;
- Preparation of this report, which includes:
 - A description of the proposed project;
 - A summary of our field exploration and laboratory testing programs;
 - A description of site surface and subsurface conditions encountered during our field investigation;
 - Maps showing approximate field exploration locations, presented as Plates 2.1 through 2.3
 - Geotechnical opinions regarding:
 - ♦ Subsurface soil types at each exploration location;
 - ♦ The presence of groundwater at each exploration location;
 - ♦ Excavatability of underlying soil or rock material;
 - ♦ Temporary excavations, shoring, and trench backfill;
 - ♦ Trench backfill and compaction recommendations;
 - ♦ Lateral earth pressures for shoring considerations;
 - Appendices that present a summary of our field investigation procedures and laboratory testing programs.

1.5 PREVIOUS WORK PERFORMED

We know of no geotechnical studies that have been performed along the subject pipeline alignment. A search of state databases (Geotracker, 2022; Envirostor, 2022; GeoDOG, 2022) found no data

performed in the subject area. Thus, no site-specific geotechnical or subsurface exploration was found that extended along or near the subject alignment.

A previous geotechnical report was performed at the existing pump station site (Espana, 1999) and is included in Appendix C.

2 FINDINGS

2.1 FIELD INVESTIGATION

BAJADA conducted investigations to evaluate selected subsurface soil and rock conditions at drill hole locations and to obtain samples for laboratory testing. Our field investigation consisted of subsurface exploration through advancement of four sets of explorations totaling eight drill holes. The drill holes were advanced on February 1 and 2, 2022. The exploration locations are shown on Plates 2.1 through 2.3. Descriptions of soils and rocks encountered are presented on the drill hole logs included in Appendix A. A summary of drill hole information is presented in the following table:

PARTIAL SUMMARY OF DRILL HOLE INFORMATION							
Drill Hole ¹	Date Drilled	Approximate Station ²	Total Drill Hole Depth (ft)	Approximate Pipeline Invert Depth (ft)	Depth of Encountered Groundwater (ft) ³	USCS Group Symbol ⁴	SPT Sampler Blow Count ⁵
DH-2	2/01/2022	18+14	3.5	6.4	NE	SC	24
DH-2.1	2/01/2022	18+14	10.5	6.4	NE	SC	>50
DH-3	2/01/2022	21+69	4.5	7.7	NE	SC	17
DH-3.1	2/01/2022	21+69	11.5	7.7	NE	CL	36
DH-4	2/01/2022	28+35	11.0	14.1	NE	SC	14
DH-4.1	2/01/2022	28+35	16.5	14.1	NE	SC	>50
DH-5	2/01/2022	32+85	11.5	15.0	NE	SC	7
DH-5.1	2/01/2022	32+85	19.5	15.0	NE	SC	>50
¹ – Drill hole DH-1 was not performed due to traffic control duration restrictions. ² – See Plates 2.1 through 2.3 for stationing. ³ – NE = not encountered. ⁴ – See Appendix A for description of USCS symbols. UK = pipeline depth unknown or possible pipe bridge crossing ⁵ – For drill holes above pipeline, blow count in soils closest to crown. For adjacent drill holes, blow count from the closest sample depth to the approximate springline of the proposed pipeline. Blow counts uncorrected for sampler types.							

For drill holes located directly over the pipeline (those denoted by a whole number, such as DH-2), sampling occurred at depths of every five feet, if possible. Where the pipeline obvert (crown) was shallower than a depth of 7 feet, then the sample was taken starting within 3.5 feet of the pipeline crown. For drill holes situated adjacent to the pipeline (those demarked by a decimal fraction, such as DH-2.1), samples were taken at depth intervals of every 5 feet until the drill hole had reached a depth of approximately 3.5 feet above the springline, at which point continuous sampling was performed until the hole was 3.5 feet below the springline. The drilling and sampling were then continued until the depth was at least 5 feet below the pipeline invert.

2.2 SITE CONDITIONS

2.2.1 Surface Conditions

The pipeline alignment evaluated during this study is entirely located beneath paved surfaces of Sierra College Boulevard, except for a small section between Stations 10+55 and 11+00 where it extends beneath a median island on Sierra College Boulevard. The paved roadway in the project area has two travel lanes in each direction, a center median of variable width, and local turn pockets. The road is paved with asphaltic concrete (AC). Curbs and gutters border portions of the roadway.

The roadway surface within the study area is relatively flat and level. Gradients of the paved surface in the project area are less than 5 percent and elevations range from about 241 to 254 feet at the north and south ends of the alignment, respectively (WWE, 2022). Drainage occurs as sheet flow to engineered catchments located along the road.

2.2.2 Subsurface Conditions

AC was encountered in each of the drill holes advanced for this study. The following table presents the AC and aggregate base thicknesses measured at the drill holes advanced for this study.

ASPHALT & AGGREGATE BASE THICKNESSES			
Location	Approximate Station Number ¹	Asphaltic Concrete Thickness (in)	Aggregate Base Thickness (in)
DH-2 & DH-2.1	18+14	6	6
DH-3 & DH-3.1	21+69	6	6
DH-4 & DH-4.1	28+35	6	6
DH-5 & DH-5.1	32+85	6	6
¹ – See Plates 2.1 through 2.3 for drill hole locations relative to stationing.			

Soils encountered within drill holes were relatively similar in composition. In those drill holes advanced directly over the pipeline, soils encountered consisted of clayey gravel and clayey sand. Those soils were dry to moist, loose to medium dense, fine to medium grained and contained varying amounts of fine to medium subangular to subrounded gravel.

Soils encountered in holes advanced adjacent to the pipeline consisted of clayey gravel and clayey sand, except for one interbed in drill hole DH-3.1 that consisted of silty clay. These soils were moist, medium dense to very dense, fine to medium grained with varying amounts of fine to medium subangular to subrounded gravel. Locally these soils were partially cemented and contained iron oxide staining.

2.3 GEOLOGIC CONDITIONS

2.3.1 Regional Geology

The project site is in the Sacramento Valley at the eastern margin of the Great Valley Physiographic province near the western margin of the Sierra Nevadan province. The Great Valley province is bordered to the north by the Klamath and Cascade Physiographic provinces, to the east by the Cascade and Sierra Nevada Physiographic provinces, to the west by the Klamath and Coast Ranges Physiographic provinces, and to the south by the Transverse Ranges Physiographic province.

The Great Valley Physiographic province is about 50 miles wide and 400 miles long. The Sacramento Valley, which forms the northern portion of the province, is about 150 miles long and 40 miles wide (Hinds, 1952). According to Hackel (1966), "The Great Valley is a large elongate northwest-trending asymmetric structural trough that has been filled with a tremendously thick sequence of sediments ranging from Jurassic to recent." Sediment thicknesses of up to 10 miles are reported within the Sacramento Valley; however, in the project area, being at the eastern margin of the valley, those thicknesses have been projected to be less than one mile (Hackel, 1966) and likely less than a few hundred feet. Sediments within the Great Valley consist of both marine and continental deposits, with most of the sediments underlying the project area consisting of continental deposits.

The Sierra Nevada Geologic/Geomorphic Province is dominated by the strongly asymmetric mountain range of the Sierra Nevada, which has a long, gentle western slope and a high, steep eastern escarpment (Bateman and Wahrhaftig, 1966). The geologic history of the Sierra Nevada can be divided into five broad phases. The first phase consisted of the formation and accretion of an assemblage of metamorphic rocks to the ancestral western North American continent during the Sonoman orogeny in latest Paleozoic to early Mesozoic time (Schwichert and Snyder, 1981). In later Mesozoic time, the Paleozoic rocks were intruded and further metamorphosed by large masses of granitic rock, and the area was eroded to a depth of approximately 5 miles (Bateman and Wahrhaftig, 1966). Later in Cenozoic time, after a short period of inactivity, the area was uplifted and tilted as west-flowing rivers cut valleys into the ancestral Sierra Nevada. This was followed by Late Cenozoic volcanic activity that delivered copious amounts of material from volcanoes positioned along the crest and east of the range. Lastly, the area has been eroded by fluvial and later glacial processes to form the landscape we see today.

Rocks within the Sierra Nevada are divided into two broad categories: the subjacent series and the superjacent series. The subjacent series rocks form the basement material of the Sierra Nevada and consist of Mesozoic granitic rocks and Mesozoic and Paleozoic metamorphic rocks. The superjacent series generally consist of Cenozoic sedimentary and volcanic rocks that now reside on the ridge tops.

2.3.2 Local Geologic Setting

Geologic mapping of the project area by Wagner et al. (1981) and Gutierrez (2011), indicate the project pipeline alignment is underlain by the Ione and Turlock Lake Formations, as shown on Plate 3 – Regional Geologic Map. Based upon the sediments encountered in our drill holes (see Appendix A), it is our opinion that the pipeline is located within only the Turlock Lake Formation and not the Ione Formation. We encountered granular sediments in each of our drill holes, which conform to the Turlock Lake Formation, and did not encounter fine-grained sediments that would be associated with the Ione Formation.

2.4 CBC Seismic Design Recommendations

We understand that the proposed project will be designed and constructed under the 2019 California Building Code (CBC) criteria. At a minimum, structures should be designed in accordance with the following seismic design criteria:

CBC SEISMIC DESIGN PARAMETERS		
California Building Code	Parameter	CBC Designation
Site Coordinates	Latitude	38.733131°
	Longitude	-121.225939°
Section 1613.5.1 Figure 1613.5	Site Class Designation	D
	Seismic Factor, Site Class D at 0.2 Seconds, S_s	0.426
	Seismic Factor, Site Class D at 1.0 Seconds, S_1	0.216
Section 1613.5.3	Site Specific Response Parameter for Site Class D at 0.2 Seconds, S_{MS}	0.621
	Site Specific Response Parameter for Site Class D at 1.0 Seconds, S_{M1}	0.468
Section 1613.5.4	$S_{DS}=2/3S_{MS}$	0.414
	$S_{D1}=2/3S_{M1}$	0.312
Per the 2019 CBC		

2.5 GROUNDWATER

Groundwater was not encountered in drill holes advanced for this study. The depth to groundwater in the project area is unknown.

Groundwater elevations beneath the project alignment will fluctuate over time. The depth to groundwater can vary throughout the year and from year to year. Intense and long duration

precipitation or drought conditions, modification of topography, groundwater extraction, and cultural land use changes can contribute to fluctuations in groundwater levels. Localized saturated conditions or perched groundwater conditions near the ground surface could be present during and following periods of heavy precipitation or if on-site sources contribute water.

3 GEOLOGICAL HAZARDS

3.1 FAULTING

The State of California designates faults as Holocene-age or Pre-Holocene-age depending on the recency of movement that can be substantiated for a fault. Fault activity is rated as follows:

FAULT ACTIVITY RATINGS		
Fault Activity Rating	Geologic Period of Last Rupture	Time Interval (Years)
Holocene-Active	Holocene	Within last 11,000 Years ¹
Pre-Holocene	Quaternary & Older	>11,000 Years ¹
Age Undetermined	Unknown	Unknown
¹ – Holocene is defined as 11,700 years before present by the International Commission on Stratigraphy. The California State Mining and Geology Board, which administers the review and application of the Alquist-Priolo Earthquake Fault Zoning Act, currently recognizes the Holocene as 11,000 years before present.		

The California Geologic Survey (CGS) evaluates the activity rating of a fault in fault evaluation reports (FERs). FERs compile available geologic and seismologic data and evaluate if a fault should be zoned as Holocene-active, pre-Holocene, or age undetermined. If an FER evaluates a fault as Holocene-active, then it is typically incorporated into a Special Studies Zone in accordance with the Alquist-Priolo Earthquake Fault Zoning Act (AP). AP Special Studies Zones require site-specific evaluation of fault location for structures for human occupancy and require a habitable structure setback if the fault is found traversing a project site.

The region is not located within an Alquist-Priolo Earthquake Fault Zone and no Holocene-active faults are known to pass through the proposed segment improvement locations (Jennings, 1994; California Geological Survey, 2022; U.S. Geological Survey, 2022). However, a number of Pre-Holocene and Age Undetermined faults are located in the project region, as shown on Plate 4 – Regional Fault Map. The closest fault is part of the pre-Holocene Foothills Fault system, located about 13 miles northeast of the area. The closest Holocene-active fault is the Greenville fault located about 55 miles southwest of the area.

3.2 LIQUEFACTION

Liquefaction is described as the sudden loss of soil shear strength due to a rapid increase of soil pore water pressures caused by cyclic loading from a seismic event. In simple terms, it means that a liquefied soil acts more like a fluid than a solid when shaken during an earthquake. In order for liquefaction to occur, the following conditions and characteristics are needed:

- Granular soils (sand, silty sand, sandy silt, and some gravels);
- A high groundwater table; and
- A low density in the granular soils underlying the site.

If those criteria are present, then there is a potential that the soils could liquefy during a seismic event. The adverse effects of liquefaction include local and regional ground settlement, ground

cracking and expulsion of water and sand, the partial or complete loss of bearing and confining forces used to support loads, amplification of seismic shaking, and lateral spreading. In general, the effects of liquefaction on the proposed project could include:

- Lateral spreading;
- Vertical settlement; and/or
- The soils surrounding lifelines can lose their strength and those lifelines can become damaged or severed.

Lateral spreading is defined as lateral earth movement of liquefied soils, or soil riding on a liquefied soil layer, down slope toward an unsupported slope face, such as a creek bank, or an inclined slope face. In general, lateral spreading has been observed on low to moderate gradient slopes but has been noted on slopes inclined as flat as one degree.

Medium dense to very dense granular soils were encountered within the explorations advanced for this study. Depth to groundwater is unknown but anticipated to be relatively deep. Due to the consistency of the granular soils and the lack of encountered groundwater, it is our opinion that there is a low potential for liquefaction and/or lateral spreading to adversely affect the pipeline segment.

3.3 LANDSLIDES

No landslides, incipient or otherwise, have been noted along the pipeline segment. It is our opinion that landsliding poses a low risk to the proposed project.

3.4 EXPANSION POTENTIAL

There is a direct relationship between the Plasticity Index (PI) of a soil and the potential for expansive behavior, with expansive soil generally having a high PI. Coarse-grained soils (i.e., > 50% sands/gravels) typically have a low PI and, therefore, a low potential to be expansive; whereas fine-grained (i.e., > 50% silt/clays), clay-rich soils generally have higher PIs and therefore can have a low to high potential to be expansive. Soils encountered in our drill holes were predominantly sands with fines content ranging from 22 to 30 percent for native soils. However, one drill hole, DH-3.1, had a silty clay interbed at a depth of about 7 feet with over 78 percent fines content.

According to the Natural Resources Conservation Service Soils Survey of the alignment, Plasticity Index (PI) values for soil types along the alignment range from 0 (i.e., nonplastic) to 16.2, with an average of about 10. Soils with those PIs correlate to soils with a very low to medium expansion potential, as noted in the following table (Day, 1999).

EXPANSION POTENTIAL – PLASTICITY INDEX CORRELATION	
Plasticity Index	Correlated Expansion Potential
0 – 10	Very Low
10 – 15	Low
15 – 25	Medium
25 – 35	High
35+	Very High
Taken from Day (1999)	

Because the soils along the pipeline alignment are predominantly coarse grained with only moderate amounts of clay, it is our opinion that expansive soils should have a low impact on the proposed project.

3.5 CORROSION

Soil chemistry tests for evaluation of corrosion potential were performed on two selected soil samples obtained during this study. The following table presents the results of those tests:

SOIL CHEMISTRY RESULTS					
Drill Hole	Depth (ft)	Sulfates (ppm)	Chlorides (ppm)	pH	Resistivity (ohm-cm)
DH-2.1	6	17.0	1.4	7.54	4,560
DH-4.1	13.5	20.8	19.6	7.43	3,220

According to the ACI-318, a sulfate concentration below 0.10 percent by weight (1,000 ppm) is negligible. A chloride content of less than 500 ppm is generally considered non-corrosive to reinforced concrete. Based on the results of the soil chemistry tests, the site soils have a low potential for corrosion of concrete due to sulfates and chlorides.

Resistivity testing was also performed on the two selected soil samples. As shown in the table above, the results ranged from 3,220 ohm-cm to 4,560 ohm-cm. A commonly accepted correlation between soil resistivity and corrosivity towards ferrous metals (NACE, 1984) is provided below.

RESISTIVITY & CORROSION CORRELATION	
Minimum Resistivity (ohm-cm)	Corrosion Potential
0 to 1000	Severely Corrosive
1,000 to 2,000	Corrosive
2,000 to 10,000	Moderately Corrosive
Over 10,000	Mildly Corrosive

Thus, according to the table above, site are estimated to be moderately corrosive to ferrous metal.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on the results of our study, it is our opinion that the proposed pipeline can be constructed as proposed provided that conclusions presented, herein, are utilized during design and construction of the project.

In addition, conclusions presented, herein, are based upon the preliminary site alignment plans and profiles provided by WWE (2022) along with stated assumptions. Changes in the configurations from those studied during this investigation may require supplemental recommendations.

4.2 GEOLOGIC HAZARDS

4.2.1 Faulting

As previously noted, the site is not located within an Alquist-Priolo Earthquake Fault Zone and no Holocene-active faults are known to pass through the project site (Jennings, 1994; California Geological Survey, 2022; U.S. Geological Survey, 2022). It is our opinion that faulting poses a low risk for the proposed project.

4.2.2 Landslides

Landslides were not observed underlying the project site. It is our opinion that natural landslides pose a low risk to the proposed project.

4.2.3 Liquefaction

It is our opinion that liquefaction has a low potential to adversely impact the proposed project.

4.2.4 Expansive Soils

The soils along the pipeline alignment are predominantly coarse-grained with little to moderate amounts of clay. Therefore, it is our opinion that expansive soils should have a low impact on the proposed project. Isolated interbeds of potentially expansive clay soils may be present below a depth of 5 feet but are not expected to adversely impact the project if the moisture content stays relatively constant.

4.3 EXCAVATABILITY

Drill holes were advanced for geotechnical studies along the proposed alignment using a CME-75 drill rig equipped with 8.25-inch diameter hollow-stem augers. Drill holes located in artificial fill above the pipeline were generally advanced with little to moderate difficulty. Drill holes located in undisturbed sediments adjacent to the existing pipeline were advanced with moderate difficulty. It is our opinion that the underlying soils should be excavatable using conventional heavy grading equipment in good working order operated by experienced personnel.

4.4 PIPELINE BURSTING CONSIDERATIONS

Pipe bursting can cause heave of the ground surface and deflection of nearby buried utilities. It is important to estimate the amount of ground deflection that can occur based on the upsizing of the pipelines in order to design methods to reduce the adverse impacts of the pipe bursting. The following sections discuss methods used to estimate ground deformations due to pipe bursting and present recommendations for mitigations, where needed, to decrease the potential of ground deformations to adversely affect the pavement within Sierra College Boulevard or buried utilities located above or adjacent to the burst alignment.

4.4.1 Proposed Upsizing

As stated in Section 1.1, we understand that the existing 8-inch-diameter pipeline that extends between Stations 10+23 and 17+97 will be upsized to a 10-inch-diameter pipeline using bursting methods. In addition, the 10-inch diameter pipeline that extends between Station 17+97 and 34+15 is proposed to be upsized to a 12-inch-diameter pipeline using bursting methods. For the upsizing of the 8- and 10-inch-diameter pipelines, it is anticipated that an expander cone with outside diameters of at least 12 and 15 inches, respectively, will be used during the bursting process.

According to the International Pipe Bursting Association (IPBA), the proposed project poses a moderate degree of difficulty. The following table ranks the IPBA's classification system:

IPBA CLASSIFICATION OF DIFFICULTY							
IPBA Classification	Degree of Difficulty	Depth of Pipe (ft)	Existing Pipe ID (in)	New Pipe Diameter Comparative to Existing Pipe	Burst Length (ft)	Original Trench Width	Soil Type
A	Minimal	<12	2-12	Size of Size	0-350	Relatively wide trench compared to expander head OD	Compressible soils outside trench (loose sand, gravel, soft clay)
B	Moderate	>12 to <18	12-18	Single Upsize	350-500	Trench width less than 4' wider than expander head OD	Moderately compressible soils outside of trench (medium dense to dense sand, medium to stiff clay)
C	Comprehensive	>18	20-36	Double/Triple Upsize	500-1,000	Constructed trench geometry (width less than or equal to bursting head OD)	Incompressible soils outside of trench
D	Developmental						

As noted in the IPBA table above, the proposed bursting for this project involves a single upsize for both the 8- and 10-inch-diameter pipelines, which places the IPBA difficulty classification as Type B.

4.4.2 Anticipated Geotechnical Conditions

Drill holes advanced for this study were performed in sets of two. Of those drill hole sets, one drill hole was advanced over the pipeline to evaluate the existing trench backfill consistency and materials. The other drill hole was advanced in soils adjacent to and outside of the trench backfill for the existing pipeline. In total, four sets of drill holes were completed during this study.

The material types encountered within the trench backfill soils were similar to the soils encountered in the undisturbed adjacent soils at each of the drill hole sets advanced for this study. This implies that the soils excavated during trenching to replace the existing pipeline were used as trench backfill soils. Blow counts for soils within the trench backfill were significantly lower than those for the undisturbed native soils adjacent to the trench. This is likely due to cementation within the native soils that was lost during the excavation and compaction efforts for backfill above the existing pipeline. The effect of this disparity in cementation is that ground deformation caused by bursting is likely to be predominantly upwards, especially where the relatively thinnest amounts of trench backfill are present above the pipeline.

4.4.3 Launching & Receiving Pits

We anticipate that excavation depths ranging from 6 to 18 feet will be required to construct the temporary launching and receiving pits for installation of the pipelines using pipe bursting methods. We anticipate that shoring will be needed to reduce the disturbed area associated with launching and receiving of the new pipe. The method of excavation support is the sole responsibility of the Contractor and should conform to applicable local, state, and federal regulations.

Temporary excavation and groundwater management (if needed) recommendations are provided in Section 4.5.4.3 and are applicable to the launching and receiving pits. Temporary lateral support should be designed to resist lateral earth pressures, hydrostatic pressures, and surcharge effects from existing improvements and equipment. At a minimum, we recommend a uniform horizontal surcharge pressure of 200 psf to a depth of 18 feet to account for construction equipment.

Lateral loads due to pipe drawing forces can be resisted by passive soil resistance against the temporary excavation shoring wall, assuming the shoring wall is vertical and can accommodate and transfer the load to the soil. The ultimate passive lateral earth pressure against the back of shoring walls can be computed based on an equivalent fluid having a unit weight of 400 pcf. This passive earth pressure would be applicable only if there are no voids behind the shoring wall and assumes at least 1/2 in. of lateral movement of the structure will occur in order for the soil to develop this resistance. An appropriate factor of safety should be applied to the ultimate passive pressure before it is used for design.

4.4.4 Ground Vibrations

Ground vibrations are induced by pipe bursting operations. Ground vibrations can adversely affect structures and nearby pipelines. For this project, no structures are located near the proposed bursting alignment. A number of pipelines are present close to or crossing the bursting alignment.

According to Bastani (2005), the damping of vibrations from most bursting projects occurs within about 2.5 feet of the bursting head. Thus, any pipeline located within 2.5 feet of the bursting alignment, in any direction, should be exposed to provide stress relief as the bursting operation advances adjacent to or across its alignment. If fragile pipelines are located proximal to the bursting alignment but outside of the 2.5 feet, consideration should be given to exposing those pipelines to reduce risk of damage from vibrations.

4.4.5 Ground Deformation

Ground deformation occurs due to cavity expansion caused by the bursting train advancing through the pipeline. As the train advances, the old pipeline is pushed laterally into the adjacent sidewalls by the expander cone and causes ground deformation that can potentially affect the project area in the form of surface heave and deflection of buried utilities. As noted in Section 4.4.6, the soils in the trench sidewalls are relatively dense and cemented, leaving most of the heave, especially in relatively shallower trenches, to occur upwards. Also, because the soils encountered during this study are predominantly coarse-grained, estimating the amount of potential ground deformation is more difficult and will have greater variations than for fine-grained soils (Atalah, 1998).

4.4.5.1 Estimated Ground Deformation Values

To evaluate ground deformation associated with bursting, we used methods of Bennett et al. (2011). Those methods utilize the following parameters:

- Inside diameter of the existing pipeline;
- Outside diameter of the bursting head;
- Angle of internal friction (ϕ) of the soil; and
- The thickness of the ground cover.

Based on those parameters and methods developed by Bennett et al. (2011), , we estimated the range of ground deformations that might impact the project for the existing 8- and 10-inch-diameter pipeline upsizings. Those values are presented as Plates 5.1 and 5.2 – Maximum Ground Heave 8” to 10” and 10” to 12” Upsizing, respectively. That range utilizes a ϕ of 30 degrees for the existing trench backfill soils and 40 degrees for the native trench sidewall materials. Ground deformation should fall within the area between those estimated ground heave values.

These values should be considered generalized and will vary in actual practice. Wide variations have occurred in ground heave under controlled experimental conditions (Atalah, 1998). Those same variations in ground deformation magnitudes can be expected to be even more pronounced during construction in areas where conditions are not controlled and homogenous. Thus, values noted on Plates 5.1 and 5.2 can be exceeded depending on actual site conditions encountered during bursting.

Deformations on the ground surface can be anticipated to parallel the pipeline longitudinally and peak directly over the pipeline in cross section (Swee and Milligan, 1990). In addition, where loose sands might be present within the existing trench, settlement might be induced by construction

vibrations and reflected as cracking of the asphaltic concrete along Sierra College Boulevard. Those settlement cracks will likely mark the margins of the trench used to construct the existing pipeline.

4.4.5.2 Mitigation Measures for Ground Deformation

Mitigation measures can be applied to reduce the impacts of ground deformation to improvements in the project area. No pipelines are shown on the project plans (WWE, 2022) that are paralleling and within 20 feet of the proposed bursting alignment. For those pipelines crossing the bursting alignment, excavating to expose the pipeline will reduce stresses on the pipeline from the bursting. A total of 16 pipelines or conduits cross the bursting alignment (WWE, 2022). Many of those improvements are located within a few feet of the existing pipeline. A common rule of thumb is to expose pipelines within two diameters of the pipe to be burst to reduce stresses on those pipelines during construction. We recommend that in addition to that rule of thumb, the pipelines crossing the burst alignment should be evaluated as to their ability to tolerate stresses from the bursting and, if in question, they be exposed prior to initiation of bursting.

There are few alternatives to mitigate the potential for heave on the asphaltic concrete (AC) surface along the burst alignment. Sawcutting the AC at the margins of the trench zone can help reduce the cracking and deformation in the AC adjacent to the burst alignment. If an unacceptable amount of heave occurs, then the AC can be removed and replaced in those areas or, if not of great magnitude, the AC can be ground to create an AC surface that is flush with the adjacent road surface. Cracking might occur within the AC overlying the burst area and those cracks can be sealed following construction.

4.5 PIPELINE DESIGN FACTORS

This section is provided to assist with backfill of excavations made to facilitate launching and receiving of the pipe bursting, backfill of pipeline relief excavations, and if portions of the pipeline are designed and constructed using open-cut methods.

4.5.1 External Loads on Buried Pipelines

External loads on buried pipes will include loads due to the overlying earth materials, loads due to construction activities, loads due to traffic, and other post construction land uses. It is recommended that the pipes be designed to resist the imposed loads with a factor of safety and an amount of deflection, as recommended by the pipeline manufacturer.

Loads on the pipe due to the overlying soil will be dependent upon the depth of placement, type and method of backfill, the configuration of the trench, the depth of ground water, and whether any additional fill will be placed above the pipeline, on the ground surface. The earth loads on the pipe can be estimated using formulas developed by Marston (1930) and Spangler (1982). The following Marston formula can be used to estimate vertical soil loads on rigid pipeline placed in backfilled trenches or tunneled in place (American Concrete Pipe Association [ACPA], 2011):

$$W_d = C_d \gamma B_d^2$$

$$W_t = C_t \gamma B_t^2 - 2cC_t B_t$$

Where:

W_d, W_t	=	Vertical soil load on rigid pipe due to trench backfill and overlying soils, respectively (pounds per foot [lb./ft])
γ	=	140 pounds per cubic foot (pcf)
B_d, B_t	=	Trench width and width of tunnel bore (feet), respectively
C_d, C_t	=	See below
c	=	Soil cohesion (psf)

Plate 6 – Marston’s Load Coefficients, can be used to estimate C_d and C_t . The parameters C_d and C_t will depend on: 1) the backfill type; 2) the trench or tunnel width; and 3) the installation depth. For a trench installation with a ratio of backfill depth to trench width at the top of pipe (H/B_d) of at least 1 and for a trench width at top of pipe no greater than 3 times the pipe diameter, the value of C_d and C_t may be calculated using the following equation (ACPA, 2011):

Where:

$$C_{d/t} = \frac{1 - e^{-2K\mu' \frac{H}{B_d \text{ or } B_t}}}{2K\mu'}$$

K	=	Rankine’s lateral earth pressure coefficient
μ'	=	Friction coefficient between fill material and sides of trench
H	=	Backfill height above pipe crown

The value $K\mu'$ is dependent on the backfill type, degree of compaction, and moisture content. Where backfill materials are compacted as recommended in Section 4.5.6, the following estimated $K\mu'$ values are applicable for various types of soil and rock encountered during this study and anticipated to be used within the trench zone:

ESTIMATED $K\mu'$ VALUES FOR PIPE DESIGN	
Soil Type	$K\mu'$
Clay (CL, CH)	0.120
Silt (ML)	0.130
Clayey Sand (SC)	0.150
Sand & Gravel (SM, GM)	0.165
Estimated from ASCE (1982)	

For flexible pipelines, the prism method (Moser & Folkman, 2008) can be used to estimate the vertical soil loads imposed on pipelines in new trenches. That formula is as follows:

$$W = B\gamma H$$

Where:

W	=	Vertical soil load (lb./ft)
B	=	Outside diameter of the pipeline (ft)
γ	=	145 pounds per cubic foot (pcf) for imported granular trench backfill; and 125 pcf for native soil trench backfill
H	=	Depth of backfill (ft)

In addition to the dead loads noted above, the proposed pipeline will be subjected to vertical live loads within roadways and driveways. Vertical soil pressures due to live vehicular loads can be estimated using the graph presented on Plate 7 – Vertical Soil Pressures Induced by Live Loads.

4.5.2 Modulus of Soil Reaction (E'_b)

Flexible and semi-rigid pipes are typically designed to withstand a certain amount of deflection from applied earth loads. Those deflections can be estimated with the equations developed by Spangler (1982). The modulus of soil reaction (E'_b) values for the project were estimated using relations of Howard (1996), Hartley & Duncan (1986), and Jeyapalan & Watkins (2004). The table below presents E'_b values, which are recommended E'_b values for pipe zone backfill materials (pipe zone backfill). The recommended E'_b values presented in the table below apply to the initial backfill materials along the sides of the pipe at the recommended level of compaction.

MODULUS OF SOIL REACTION FOR PIPE ZONE BACKFILL MATERIALS (E'_b)		
Soil Type	Depth of Burial	Recommended E'_b (psi) ¹
Pipe Bedding and Pipe Embedment (clean crushed rock or sand)	5'	1,000
	10'	1,125
	15'	1,250
	15'+	1,375
Soil-Cement Slurry (backfilled within 2 days of placement)	Not Applicable	3,000
¹ – Jeyapalan & Watkins (2004)		

E'_n corresponds to the E' value for the natural trench wall soils. The following table presents the E'_n values for each of the exploration locations estimated using methods of Hartley & Duncan (1986), Howard (1996), and Jeyapalan & Watkins (2004).

ESTIMATED E'_n VALUES AT EXPLORATION LOCATIONS						
Location	Approximate Invert Depth (ft)	USCS at Springline	Relative Compaction (%)	E'_n Value (psi)		
				Howard (1996)	Hartley & Duncan (1986)	Jeyapalan & Watkins (2004)
DH-2	6.4	SC	98	1,900	1,416	1,174
DH-3	8.3	SC/CL	90	300	860	700
DH-4	14.5	SC	95	1,000	1,360	1,350
DH-5	16.0	SC	93	880	1,260	1,170
¹ – Assumed springline depth at 10 feet.						

E'_n values have been developed for this project based on the varying earth material data obtained in our field and laboratory investigations. Based on our evaluations, we recommend that an E'_n value of 1,000 be used for design of the pipeline.

Where the zone of backfill beside the pipe is less than five times the pipeline diameter, the E'_b values above may not be applicable and the E'_n will affect flexible pipe design. The actual E' value at the pipe depth will lie somewhere in between E'_b and E'_n depending on the trench width. For trench widths of less than five times the diameter of the pipe, the composite design E'_c (E'_b and E'_n) may be calculated using the Soil Support Combining Factors (S_c) presented in the table below, where B_d is the trench width at pipe springline and D is the diameter of the pipe.

SOIL SUPPORT COMBINING FACTORS (S_c)						
E'_n/E'_b	$B_d/D=1.5$	$B_d/D=2.0$	$B_d/D=2.5$	$B_d/D=3.0$	$B_d/D=4.0$	$B_d/D=5.0$
0.1	0.15	0.30	0.60	0.80	0.90	1.00
0.2	0.30	0.45	0.70	0.85	0.92	1.00
0.4	0.50	0.60	0.80	0.90	0.95	1.00
0.6	0.70	0.80	0.90	0.95	1.00	1.00
0.8	0.85	0.90	0.95	0.98	1.00	1.00
1.0	1.00	1.00	1.00	1.00	1.00	1.00
1.5	1.30	1.15	1.10	1.05	1.00	1.00
2.0	1.50	1.30	1.15	1.10	1.05	1.00
3.0	1.75	1.45	1.30	1.20	1.08	1.00
>5.0	2.00	1.60	1.40	1.25	1.10	1.00
Source: "Pipeline Installation," A. Howard, 1996						

The corresponding composite design E'_c can be calculated by selecting the appropriate S_c value from the table above and multiplying the appropriate E'_b value by S_c , as noted below:

$$E'_c = E'_b(S_c)$$

4.5.3 Thrust Resistance

The proposed project consists of a gravity sewer pipeline. As such, thrust resistance is not anticipated to be needed for this project as it would with a pressurized pipeline.

4.5.4 Excavations, Trenches, Dewatering, & Shoring

4.5.4.1 Excavation and Trench Slopes

Construction of the proposed project will require temporary excavations and trenching to facilitate construction of earthwork, pipelines, manholes, vaults, and other below-ground improvements. All temporary excavations and slope inclinations must comply with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Construction site safety is the responsibility of the Contractor, who should be solely responsible for the means, methods, and sequencing of construction operations so that a safe working environment is maintained.

Subsurface soil conditions encountered in project excavations are to be monitored and evaluated by the Contractor in accordance with OSHA guidelines. OSHA soil classification typing includes the following:

OSHA SOIL TYPE DETERMINATIONS	
Stable Rock	Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.
Type A Soils	Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater, or has seeping water.
Type B Soils	Cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa). Examples of other Type B soils are: angular gravel; silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).
Type C Soils	Cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kPa) or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.
Layered Geological Strata	Where soils are configured in layers, i.e., where a layered geologic structure exists, the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

Preliminary OSHA Soil Type B is anticipated at the project site. Actual OSHA Soil Types at the site should be determined during construction by the Contractor's Competent Person or by a registered design professional retained by the Contractor as soils are exposed within the excavations. OSHA allows designation of slope inclinations based on soil types without the input from a registered design professional if those slopes are less than 20 feet high. To do so, the Contractor is required to designate a "Competent Person" that takes the ultimate responsibility for soil type classification.

The following maximum slope inclinations are allowed based upon OSHA soil types:

OSHA MAXIMUM ALLOWABLE SLOPES	
Soil Type	Slope Ratio ¹
Stable Rock	Vertical
Type A	$\frac{3}{4}$:1
Type B	1:1
Type C	1½:1
¹ – horizontal : vertical	

Based on the soils observed at the project site during this investigation, it is not anticipated that loose, running, raveling, and/or flowing conditions will be encountered in natural soils exposed in excavations or trenches. However, if such conditions are encountered during construction, inclinations of unshored slope excavations may not stand exposed at the slope ratios noted above for OSHA Soil Types. In such situations, proposed excavations in those areas could fail and expand in an area much larger than the proposed width unless the excavation and/or trench is shored and adequately supported.

Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within a 1:1 (horizontal to vertical) projection from the toe of an unsupported trench or other excavation to the ground surface. Where the stability of project improvements is endangered by excavation operations, support systems such as shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working within the excavation.

4.5.4.2 Dewatering

Relatively shallow groundwater was not encountered in drill holes advanced for this study. It is our opinion that groundwater is generally not present at the depths of construction for the pipeline. However, depending on when the construction is performed, seasonal shallow groundwater might be present, especially after long duration of intense precipitation.

It is the Contractor's responsibility for developing and implementing the means and measures for capturing and removing or diverting groundwater during construction of the proposed pipeline. If groundwater is encountered during construction, it is recommended that the Contractor install measures to capture and/or divert groundwater from entering the excavations. If this is not possible, then the Contractor should channel groundwater to flow towards collection points to be

removed from the excavations and disposed of at an approved area in a manner acceptable to regulatory agencies.

4.5.4.3 Shoring

Preliminary design of braced shoring for trenches may be based on the preliminary shoring pressure diagrams provided on Plate 8 - Preliminary Shoring Pressure Diagrams. The preliminary shoring pressure diagrams provided on Plate 8 represent typical soil conditions encountered during this study. Final earth pressures and pressure diagrams for the design and implementation of individual shoring systems will be dependent upon the following:

- The actual subsurface conditions encountered during construction;
- The shoring type, design, and installation method; and
- Surcharge pressures from traffic, equipment, stockpiles, etc.

If thick layers of cohesionless materials (i.e., sands and gravels) are encountered then those materials could flow or ravel, if in a wet or saturated condition, or ravel or run when dry (Federal Highways Administration, 2014). Flowing soils act like a viscous fluid and can enter a trench from the sidewalls and can flow for relatively long distances. Raveling soils have chunks or flakes of material falling or toppling from trench sidewalls into the trench. Running soils are unstable at angles greater than their angle of repose and will run like pea gravel, granulated sugar or dune sand from a trench side wall into the trench until the slope flattens to that angle of repose.

Hydraulic speed shores and trench box shoring in flowing, running, or raveling ground conditions should not be allowed. Furthermore, soils subject to running, flowing, or raveling will have insufficient strength and stand-up time to safely hold full-depth vertical excavations long enough for complete trench box or speed-shore installations. Vertical excavations in such soils will most likely experience excavation wall loss and related undermining of adjacent pavements, utilities, structures, and improvements. Therefore, as a precautionary measure, shoring with trench boxes in flowing, running, or raveling soils will require very careful interior excavation through the trench box so that there are no unsupported vertical excavation faces as the trench box is incrementally lowered into place. Additionally, pre-advancing/driving steel backer plates in soil around the exterior perimeter of the trench box and ahead of excavations within the trench box may be necessary to maintain stable sidewalls and protect adjacent pavement, utilities, and structures. Shoring with speed shores in running or fast raveling ground will require solid sheet backing to provide full face support.

In localized cases near critical structures or utilities, special shoring or ground improvement (such as grout stabilization) prior to excavation may be needed to reduce consequential damage. The Contractor should be required to provide any special shoring designs for engineering review. Areas requiring special shoring design should receive preconstruction condition surveys and video/photo documentation of conditions.

Shoring systems that do not provide positive support of excavation walls may allow surface settlement and related damage to existing roadways, utilities, structures, and improvements. A

summary of the potential surface settlement of passively-shored excavations is provided in the following table.

POTENTIAL SURFACE SETTLEMENT OF PASSIVELY-SHORED EXCAVATIONS		
Soil Type	Surface Settlement (% of Excavation Depth)	Lateral Zone of Disturbance (Multiples of Excavation Depth)
Sand	0.5%H ¹	H
Soft to medium stiff clay	1%-2%H	3-4H
Stiff clay	<1%H	2H
¹ – where H equals the height of the excavation sidewall. Suprenant and Basham (1993)		

4.5.4.4 Considerations Regarding Adjacent & Crossed Utility Trenches

The presence of existing nearby utility trenches can cause potential construction issues when trenching close to those adjacent utilities. Backfill of utility trenches is often performed using select sand, rock, or other materials that, when exposed, can flow or topple and can lead to unsupported utility exposure unless anticipated prior to construction.

For the proposed project, there are numerous locations where existing buried utilities extend parallel or subparallel, or perpendicular to the proposed pipeline segments. Segments, such as near the intersection of Eureka Road or East Roseville Parkway, are impacted by numerous buried utilities that are located proximal to the proposed pipeline trench alignment. If parallel or subparallel utilities are located close to the new pipeline trench excavation, then there is a potential that the proposed pipeline trench, during excavation, could impinge upon the adjacent trench backfill and expose/undermine the adjacent buried utility. Plate 9 – Adjacent Utility Trenches, provides methods for estimating whether impingement into existing, adjacent utility trenches might occur, based upon the diameter and depth of the existing utility.

If the pipeline trenches are found to be within a distance where impingement might occur, then shoring, as discussed in Section 4.5.4.3 might be required. It is the Contractor's responsibility for developing the means, methods, and procedures to employ during construction to eliminate the risks associated with impingement into adjacent existing buried utilities.

In addition, trench backfill materials for existing buried utilities that cross the proposed pipeline alignment can transmit water and possibly contaminants within the trench zone and/or pipe zone materials. Discharge of those waters and possibly contaminants into the trench excavations for the segments of pipelines can occur, causing wet conditions and possible contamination issues. The Contractor should anticipate this potential risk and either evaluate this potential prior to excavation or have a plan in place to deal with this potential issue should it occur during construction.

4.5.5 Pipe Zone & Trench Zone Materials

The use of appropriate pipe zone and trench zone backfill materials is critical for the long-term

performance of a buried pipeline. Pipe zone and trench zone backfill materials are discussed below and based upon the Plate 10 - Trench Nomenclature, which graphically illustrates the locations of pipe zone and trench zone backfill areas. Pipe zone and trench zone backfill materials and details presented, herein, are based upon the City's Construction Detail Sheet SS-1 (City of Roseville, 2022).

4.5.5.1 Pipe Zone Backfill

The pipe zone, as discussed herein, is that cross-sectional area that extends from the bottom of the trench to at least 6 inches over the crown of the pipeline and from trench wall to trench wall, as shown on Plate 10. Pipe zone backfill materials should conform to specified materials and dimensions presented on the City's Construction Detail Sheet SS-1.

4.5.5.2 Trench Zone Backfill

Trench zone backfill (i.e., material placed between the top of pipe zone backfill and to the ground surface or bottom of structural pavement sections) should conform to specifications made by the City on Sheets SS-1, and TB-1 through TB-5.

4.5.5.3 Controlled Low Strength Backfill

An alternative to the use of pipe zone and trench zone backfill materials noted above is the use of controlled low strength material (CLSM) as pipe and/or trench zone backfill. CLSM consists of a fluid, workable mixture of aggregate, cement, and water that is of limited strength as to allow future excavation and maintenance of buried improvements yet is also capable of supporting the proposed pipeline and backfill. If CLSM is used in the pipe zone or trench zone, we recommend that those materials conform and be placed according to specifications presented in Sections 19-3.03F and 19-3.03I of the Caltrans Standard Specifications (most current edition). Care should be taken during placement of CLSM materials to prevent the pipeline from floating.

4.5.6 Placement & Compaction

Pipe zone and trench zone backfill should be placed and compacted in accordance with City Construction Details SS-1 and TB-1 through TB-9. Those specifications require mechanical compaction as the means of compaction. Jetting should not be allowed as a means of compaction. Special care should be given to ensuring that adequate compaction is made beneath the haunches of the pipeline (that area from the pipe springline to the pipe invert, as shown on Plate 10) and that no voids remain in this space. For all testable materials, the minimum relative compaction of 95 percent relative to standard test method ASTM D1557 is required.

Compaction tests of pipe zone backfill should be performed at horizontal intervals of no more than 200 feet and vertical intervals of no more than 18 inches. Within the pipe zone, compaction tests should be performed near springline and near the top of the pipe zone backfill. Assessment of the potential presence of voids within the haunch area should be performed following completion of those compaction tests. If voids are observed, then the Contractor should be required to rework the pipe zone materials to eliminate the presence of voids in the pipeline haunches. Retesting of the pipe zone materials should then be performed. All areas of failing compaction tests should be

reworked and retested until the specified relative compaction is achieved. Compaction of trench zone backfill should be performed at horizontal intervals of no more than 200 feet and vertical intervals of no more than 18 inches.

Placement of CLSM materials should be performed in accordance with specifications presented in Caltrans Standard Specification 19-3.03F and 19-3.03I. If CLSM is used, then compaction tests are not required; however, a minimum of four hours should be allowed between placement of CLSM and placement of engineered fill materials above the CLSM, as noted in Caltrans Standard Specification 19-3.03F.

4.5.7 Trench Subgrade Stabilization

If yielding subgrade is observed, it is recommended that the bottom of trenches be stabilized prior to placement of the pipeline bedding so that, in the judgment of the geotechnical engineer, the trench subgrade is firm and unyielding. The Contractor should have the sole responsibility for design and implementation of trench subgrade stabilization techniques. Some methods that we have observed to stabilize trench subgrades include the following:

- Use of $\frac{3}{4}$ -inch to $1\frac{1}{2}$ -inch floatrock worked into the trench bottom and covered with a geotextile fabric such as Mirafi 500X;
- Placement of a geotextile fabric, such as Mirafi 500X, on the trench bottom and covered with at least one foot of compacted processed miscellaneous base (PMB) conforming to the requirements of Section 200-2.5 of the Greenbook, latest edition;
- Overexcavation of trench subgrade and placement of two-sack sand-cement slurry; and
- In extreme conditions, injection grouting along the trench alignment.

If floatrock is used, typically sand with a Sand Equivalent (SE) of 50 or more should be used to fill the voids in the rock prior to placement of pipe bedding materials.

4.5.8 Permanent Subsurface Pipeline Structures

For this project, subsurface structures likely consist of manholes that will be 8 to 18 feet deep.

4.5.8.1 Structures

Foundations for manhole structures bearing on undisturbed soil should be designed using an allowable bearing pressure of 1,500 psf, which can be increased by one-third where needed to resist transient loading on the structures.

Total settlement of manhole structures should be less than 0.5 inches and should occur relatively rapidly upon load application. The maximum recompression settlement should be 0.25 inches or less.

The bearing pressure and settlement recommendations are based upon the manholes resting on an undisturbed subgrade that is free of loose soils and debris. If the subgrade is found to be soft, loose,

disturbed by construction, yielding, or unstable, we recommend that the subgrade be overexcavated to such a depth that a firm and unyielding subgrade can be established by installing a minimum of 12 inches of clean, durable, natural, 1.5-inch crushed (i.e., angular) drain rock wrapped with geotextile fabric. See the table below for recommended foundation material gradations. The geotextile fabric is used to separate the open-graded drain rock from the surrounding finer grained native soils and pipe bedding material and should be overlapped a minimum of 12 inches. Foundation material is recommended for any excavations where the trench or excavation bottom is unstable, yielding, disturbed by construction activity, or where overexcavation occurs.

FOUNDATION MATERIAL	
Sieve Size	Percent Passing
2 inch	100
1.5 inch	90-100
¾-inch	5-30
3/8-inch	5-20
No. 200	0-4

The geotextile fabric should be a nonwoven material consisting of polyester, nylon, and polypropylene filaments formed into a stable network. The fabric shall be permeable, not act as a wicking agent, be inert to commonly encountered chemicals, be rot proof, and be resistant to ultraviolet light. The geotextile fabric shall also conform to the physical properties in the following table:

GEOTEXTILE FABRIC		
Property	Test Value	ASTM Test Method
Weight	5.4 oz/yd ² (min.)	D5261
Grab tensile strength	150 lb (min.)	D4632
Elongation at break	50% (max.)	D4632
Puncture strength	80 lb (min.)	D6241
Burst strength	300 psi (min.)	D3786
Apparent opening size	#70 (max.)	D4751
Permittivity	1.0 sec ⁻¹ (min.)	D4491
UV resistance	70% (min.)	D4355

4.5.8.2 Backfill

The contractor should be made solely responsible for protecting manhole structures from damage during placement/compaction of backfill materials. Backfill material around manhole structures should consist of Class II AB aggregate base or CLSM. Class II AB should be placed in maximum 8-inch-thick loose lifts and compacted to a minimum of 95% relative compaction (ASTM D1557).

4.5.9 Lateral Earth Pressures

Lateral earth pressures provided in the following table are for permanent subsurface pipeline

structures (vaults or manholes) based on the type and condition of the soil and bedrock mapped in the project area and encountered in project test borings. Manhole structures that are not free to deflect should be designed to resist at-rest earth pressures as well as the additional loading from a seismic event.

LATERAL EARTH PRESSURES	
Condition	Equivalent Fluid Pressure (pcf)
At-Rest	40
Passive	275
For structures to a maximum of 15 feet in depth. These pressures do not include (1) lateral surcharge loads from vehicles, fills or structures where an imaginary 1.5H:1V plane projected downward from an existing or planned structure projects above or intersects the side of the structure; (2) hydrostatic pressures; and (3) dynamic pressures from seismic shaking. For passive pressures, neglect the upper two feet of soil and apply a factor of safety of 2.	

In addition to passive lateral earth pressure, a maximum coefficient of sliding friction of 0.35 between concrete structures and compacted native soil, and 0.40 between concrete and Class II AB or CLSM can be used in calculations for lateral force resistance.

5 PAVEMENT REPLACEMENT

Pavement disturbed during trenching and pipeline installation should be replaced in accordance with details noted on the City's Construction Detail Sheet TB-1 (City of Roseville, 2022).

6 REVIEW OF PLANS AND SPECIFICATIONS

We recommend BAJADA conduct a general review of preliminary and final plans and specifications to evaluate whether recommendations contained herein have been properly interpreted and implemented during design. If BAJADA is not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations.

7 LIMITATIONS

This report has been prepared in substantial accordance with the generally accepted engineering geologic and geotechnical engineering practices, as they exist in the site area at the time our services were rendered. No other warranty, either express or implied, is made.

Conclusions contained in this report were based on the conditions encountered during our field investigation and are applicable only to those project features described herein (see Section 1.1 – Project Understanding). Soil and rock deposits can vary in type, strength, and other geotechnical properties between points of observation and exploration. Additionally, groundwater and soil moisture conditions can also vary seasonally and for other reasons. Therefore, we do not and cannot have a complete knowledge of the subsurface conditions underlying the project site.

The conclusions and recommendations presented in this report are based upon the findings at the points of exploration, and interpolation and extrapolation of information between and beyond the points of observation and are subject to confirmation based on the conditions revealed by construction. If conditions encountered during construction differ from those described in this report, or if the scope or nature of the proposed construction changes, we should be notified immediately to review and, if deemed necessary, conduct additional studies.

The scope of services provided by BAJADA for this project did not include the investigation and/or evaluation of toxic substances, or soil or groundwater contamination of any type. If such conditions are encountered during site development, additional studies may be required. Further, services provided by BAJADA for this project did not include the evaluation of the presence of critical environmental habitats or culturally sensitive areas.

This report may be used only by our client and their agents and only for the purposes stated herein, within a reasonable time from its issuance. Land use, site conditions, and other factors may change over time that may require additional studies. In the event significant time elapses between the issuance date of this report and construction, BAJADA shall be notified of such occurrence to review current conditions. Depending on that review, BAJADA may require that additional studies be conducted and that an updated or revised report is issued.

Any party other than our client who wishes to use all or any portion of this report shall notify BAJADA of such intended use. Based on the intended use as well as other site-related factors, BAJADA may require that additional studies be conducted and that an updated or revised report be issued. Failure to comply with any of the requirements outlined above by the client or any other party shall release BAJADA from any liability arising from the unauthorized use of this report.



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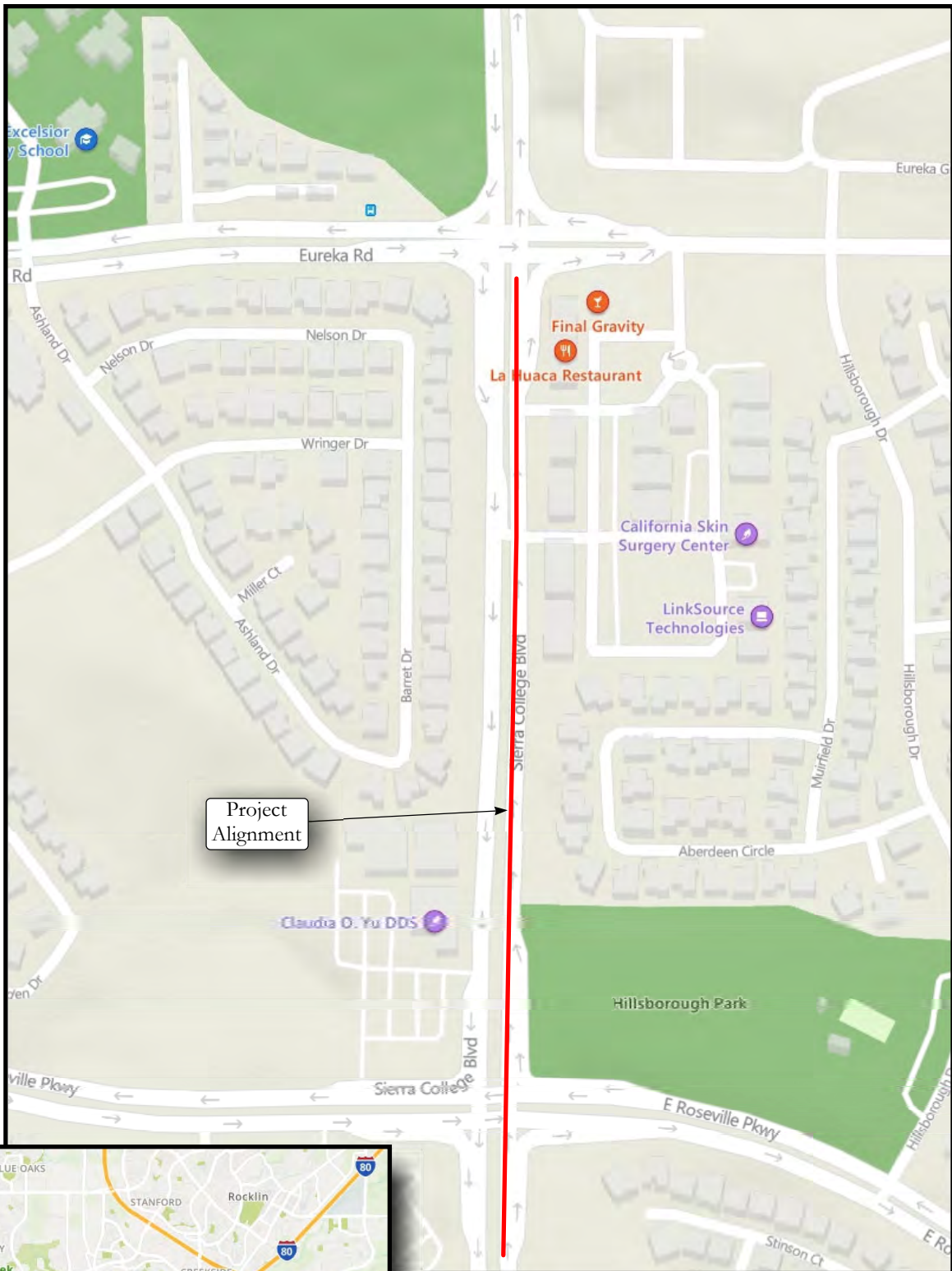
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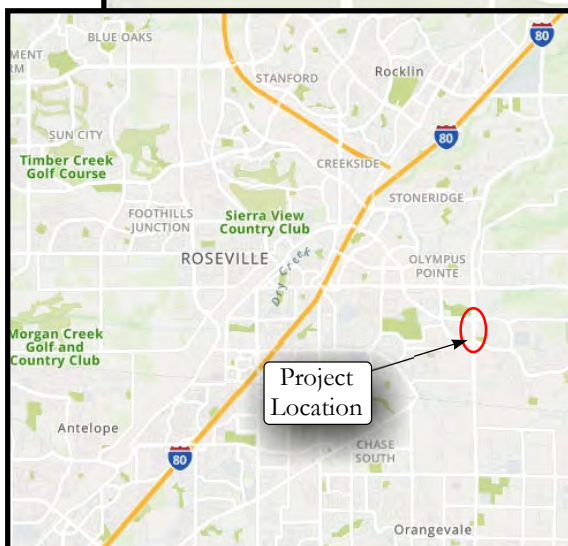
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Project
Alignment



Project
Location

SITE LOCATION MAP

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

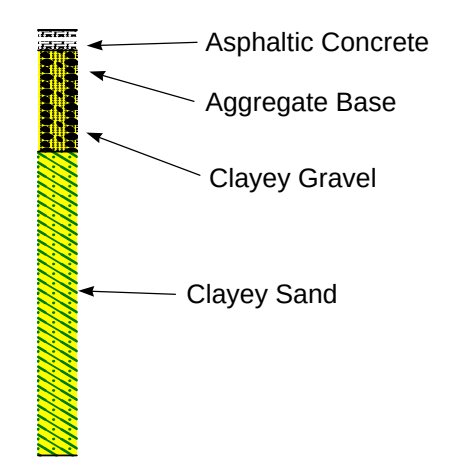
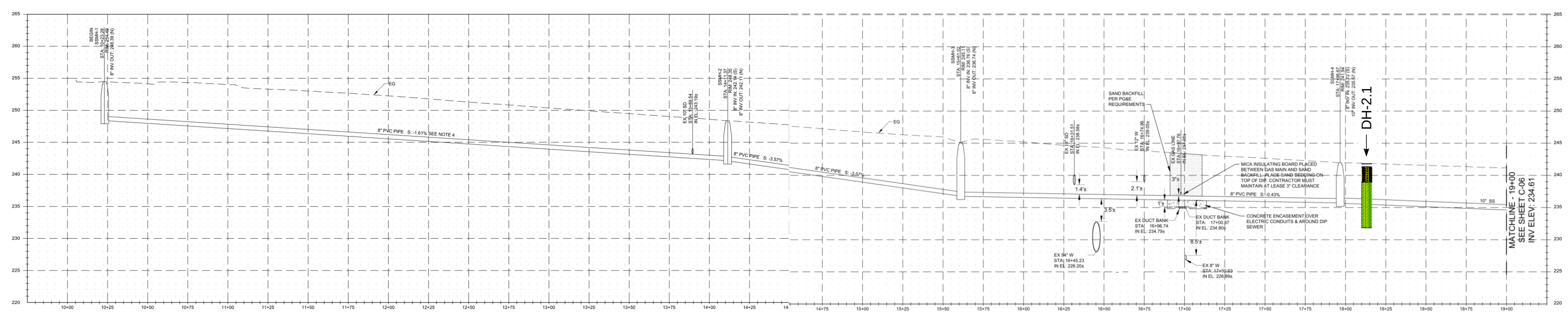
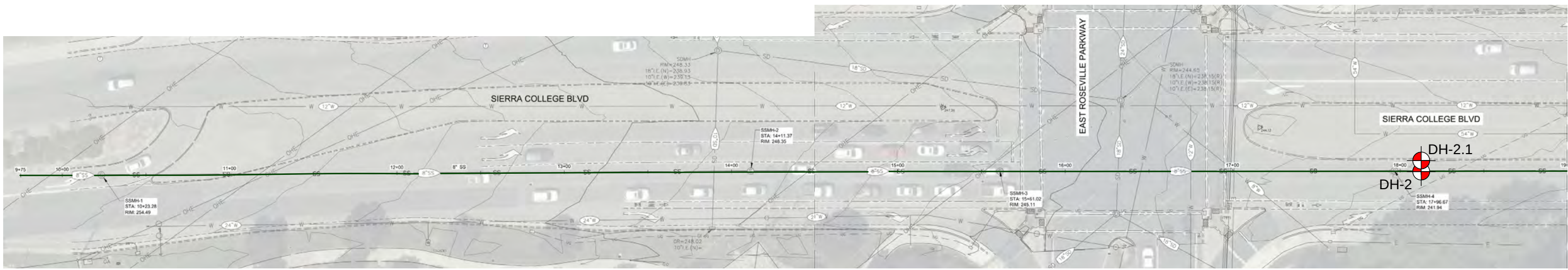
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BAJADA Geosciences, Inc.

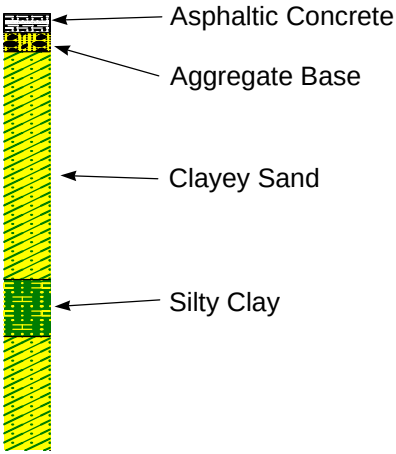
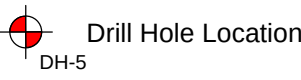
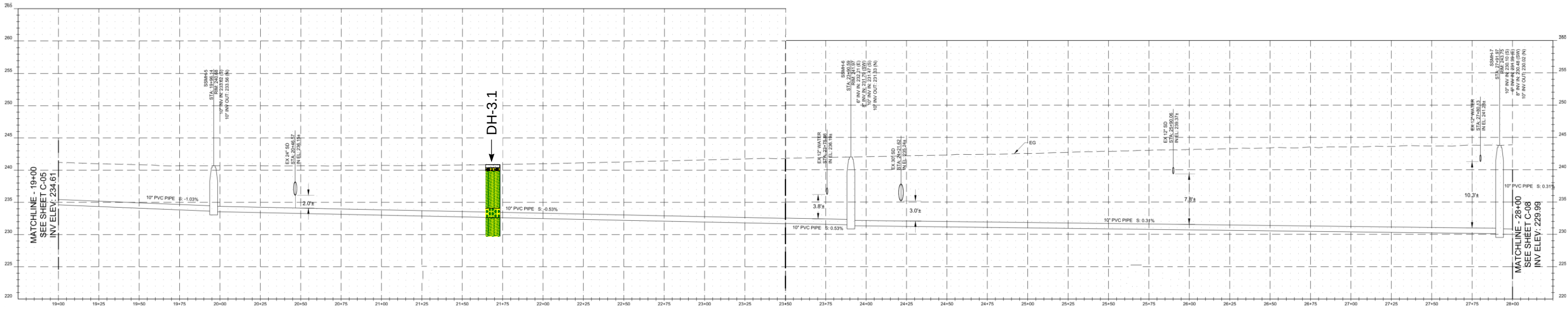
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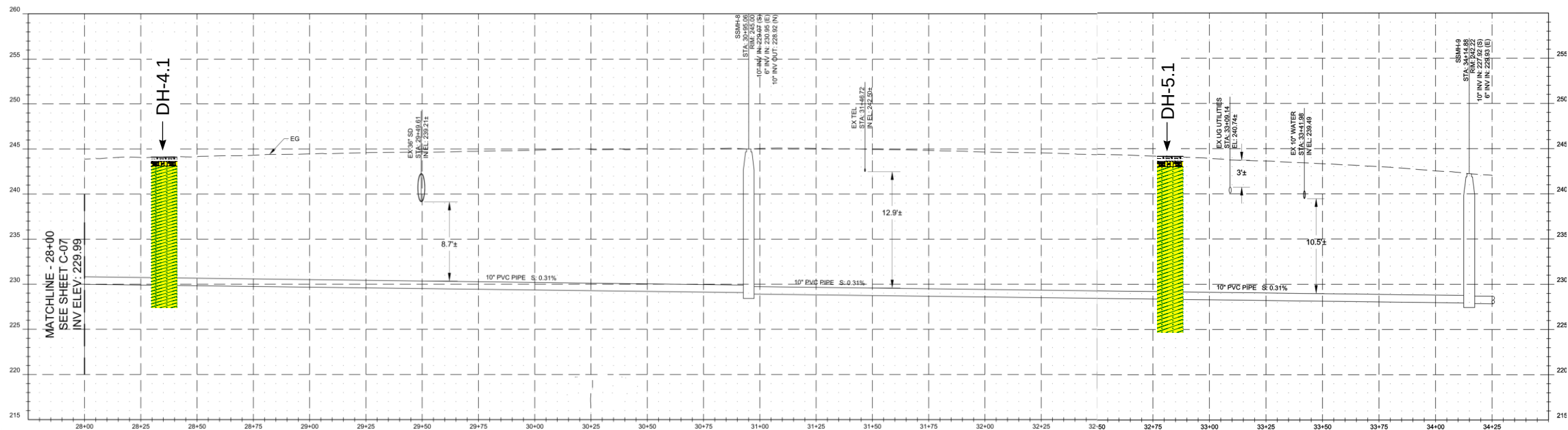
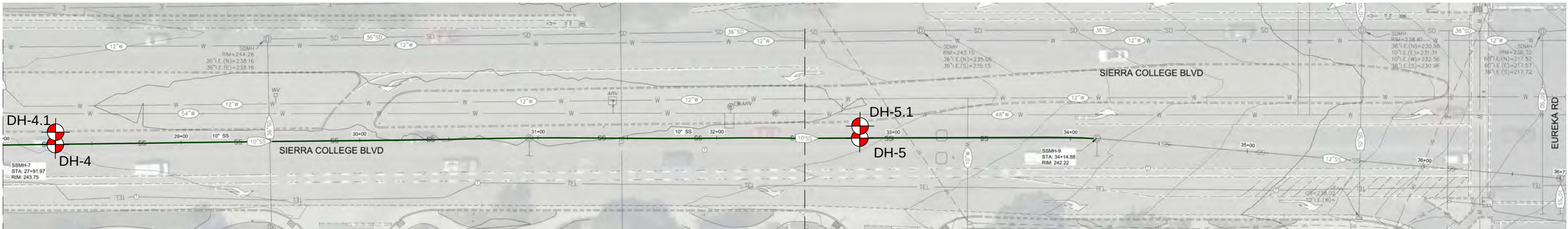
Two drill holes were advanced at each station location. One drill hole was situated directly over the existing pipeline to sample the existing trench backfill soils. The second drill hole was located a few feet adjacent to the first to sample soils composing the existing pipeline trench sidewall..

ALIGNMENT MAP	
Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	2.1
	Project no.
	2101.0129

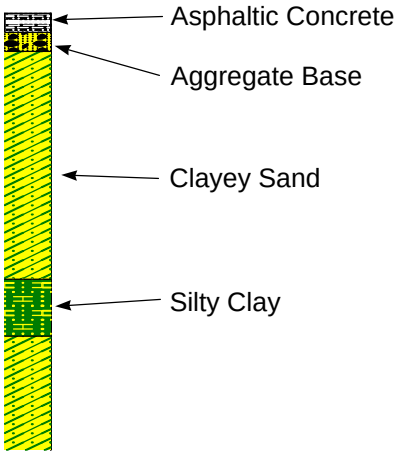


Two drill holes were advanced at each station location. One drill hole was situated directly over the existing pipeline to sample the existing trench backfill soils. The second drill hole was located a few feet adjacent to the first to sample soils composing the existing pipeline trench sidewall..

ALIGNMENT MAP	
Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	2.2
	Project no.
	2101.0129



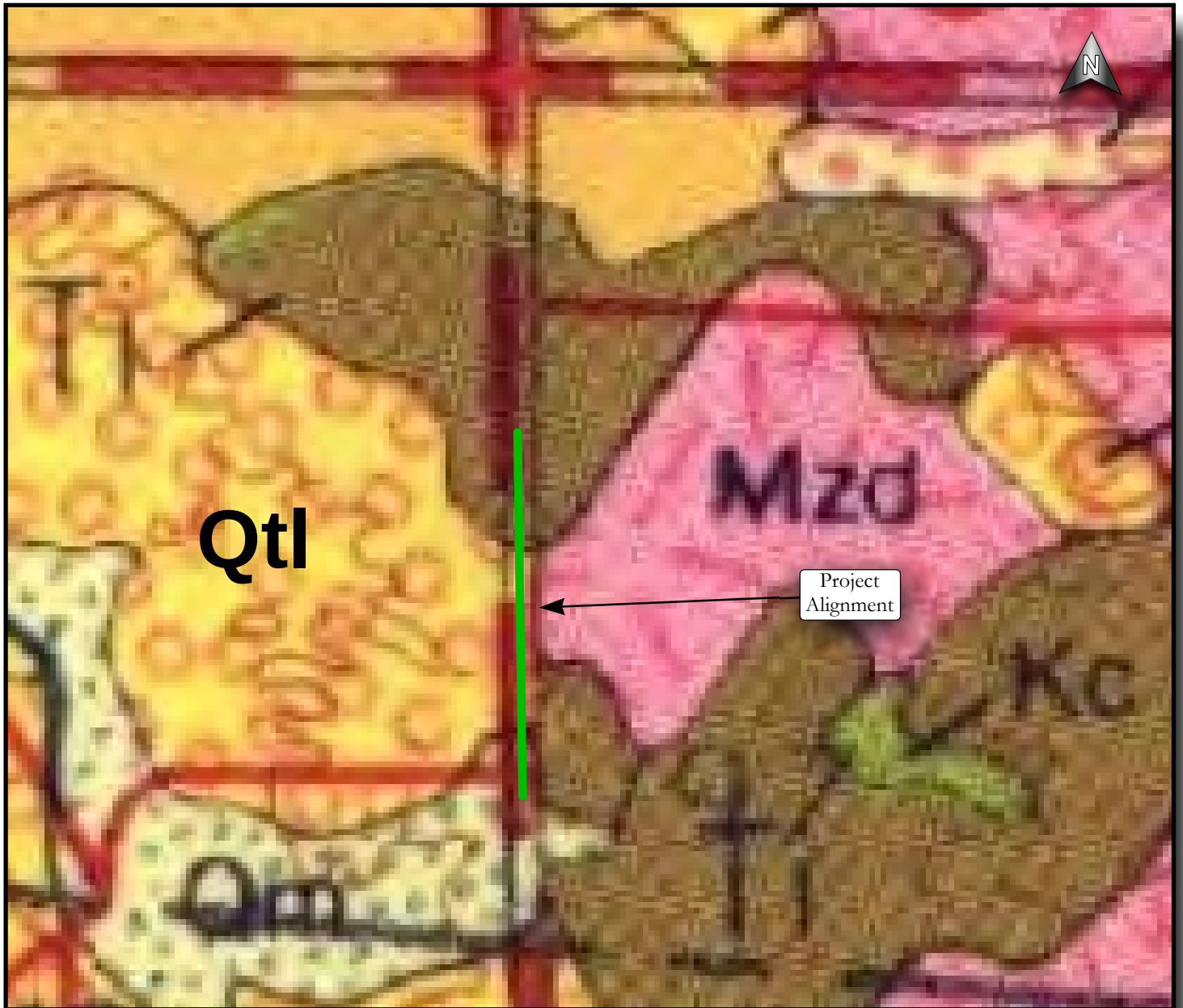
Two drill holes were advanced at each station location. One drill hole was situated directly over the existing pipeline to sample the existing trench backfill soils. The second drill hole was located a few feet adjacent to the first to sample soils composing the existing pipeline trench sidewall.

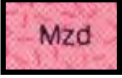


ALIGNMENT MAP

Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	2.3
	Project no. 2101.0129





-  Turlock Lake Formation
-  Modesto Formation
-  Ione Formation
-  Chico Formation
-  Diorite

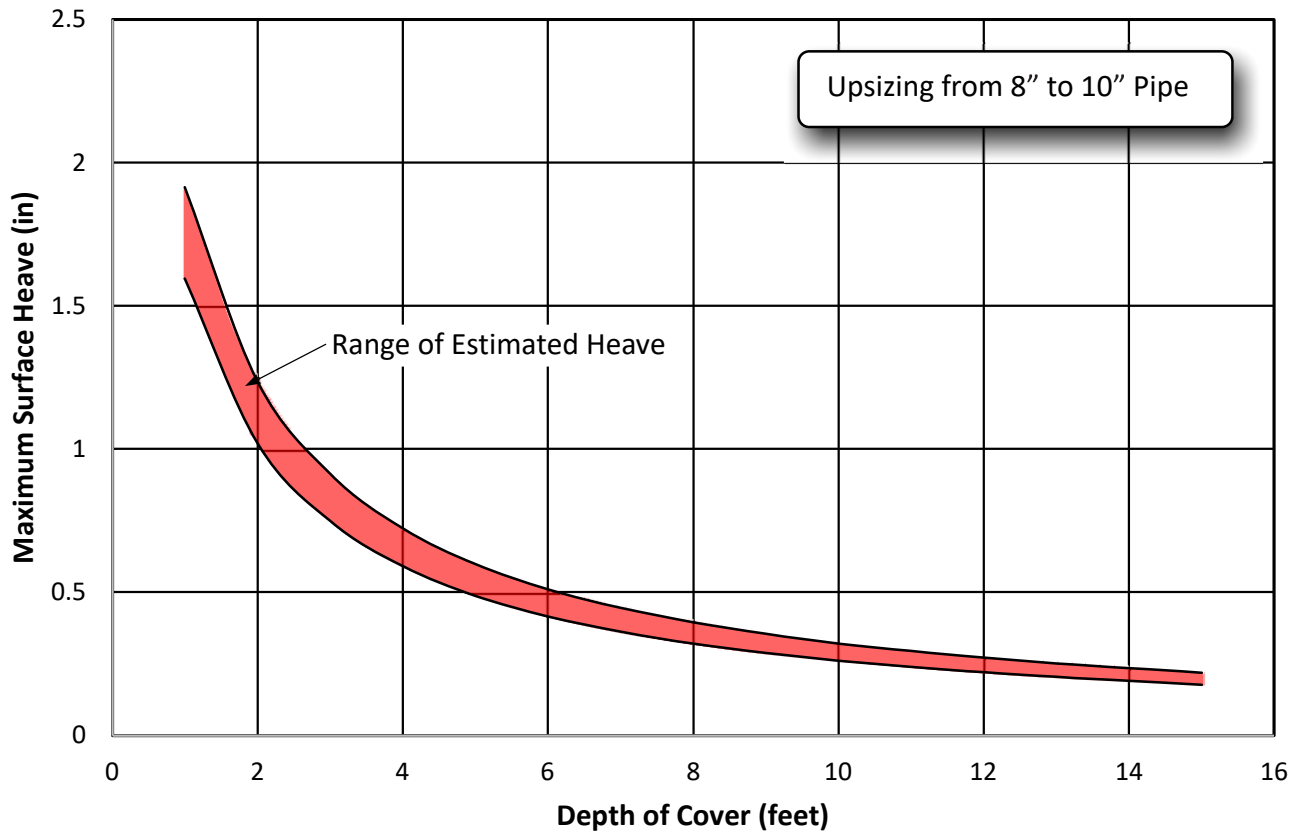
REGIONAL GEOLOGIC MAP	
Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	3
 BAJADA Geosciences, Inc.	Project no.
	2101.0129



Active			
	Historic Displacement (last 200 years)		Holocene Displacement (last 11,700 years)
Potentially Active		Inactive	
	Late Quaternary Displacement (last 700,000 years)		Quaternary Fault (last 1.6 million years)

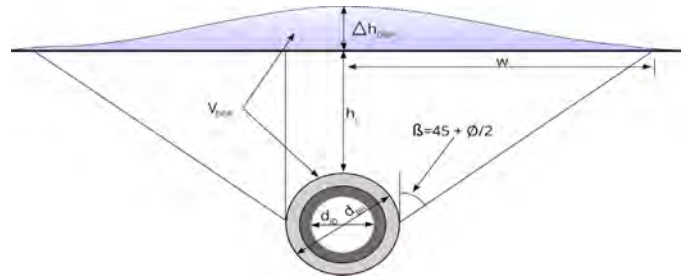
REGIONAL GEOLOGIC MAP	
Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	4
BAJADA Geosciences, Inc.	Project no.
	2101.0129

Maximum Ground Heave (Δh_{DISP})



INPUT VALUES

Existing Pipe Inner Diameter (d_{ID} in):	8
Outer Diameter of Bursting Head (d_{BH} in):	12.5
Soil Friction Angle, Backfill (ϕ , degrees):	30
Soil Friction Angle, Sidewall (ϕ , degrees):	40
Maximum Depth of Cover (h_C in):	192



FORMULAS

$$V_{DISP} = (PI/4)(d_{BH}^2 - d_{ID}^2)$$

$$W = d_{BH}/2 + (h_C + d_{BH}/2) \tan(45 + \phi/2)$$

$$\Delta h_{DISP} = V_{DISP}/W$$

From Bennett, Ariaratnam, & Wallin (2011)

Depth (ft)	Displacement Volume (in ³ /in)	W (in)		Δh_{DISP} (in)	
		Sidewall Only	Backfill Only	Sidewall Only	Backfill Only
1	72.5	45.4	37.9	1.6	1.9
2	72.5	71.1	58.6	1.0	1.2
3	72.5	96.9	79.4	0.7	0.9
4	72.5	122.6	100.2	0.6	0.7
5	72.5	148.3	121.0	0.5	0.6
6	72.5	174.1	141.8	0.4	0.5
7	72.5	199.8	162.6	0.4	0.4
8	72.5	225.5	183.4	0.3	0.4
9	72.5	251.3	204.1	0.3	0.4
10	72.5	277.0	224.9	0.3	0.3
11	72.5	302.7	245.7	0.2	0.3
12	72.5	328.5	266.5	0.2	0.3
13	72.5	354.2	287.3	0.2	0.3
14	72.5	379.9	308.1	0.2	0.2
15	72.5	405.7	328.8	0.2	0.2
16	NA	NA	NA	NA	NA
17	NA	NA	NA	NA	NA
18	NA	NA	NA	NA	NA
19	NA	NA	NA	NA	NA
20	NA	NA	NA	NA	NA

MAXIMUM GROUND HEAVE 8" TO 10" UPSIZE

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

5.1

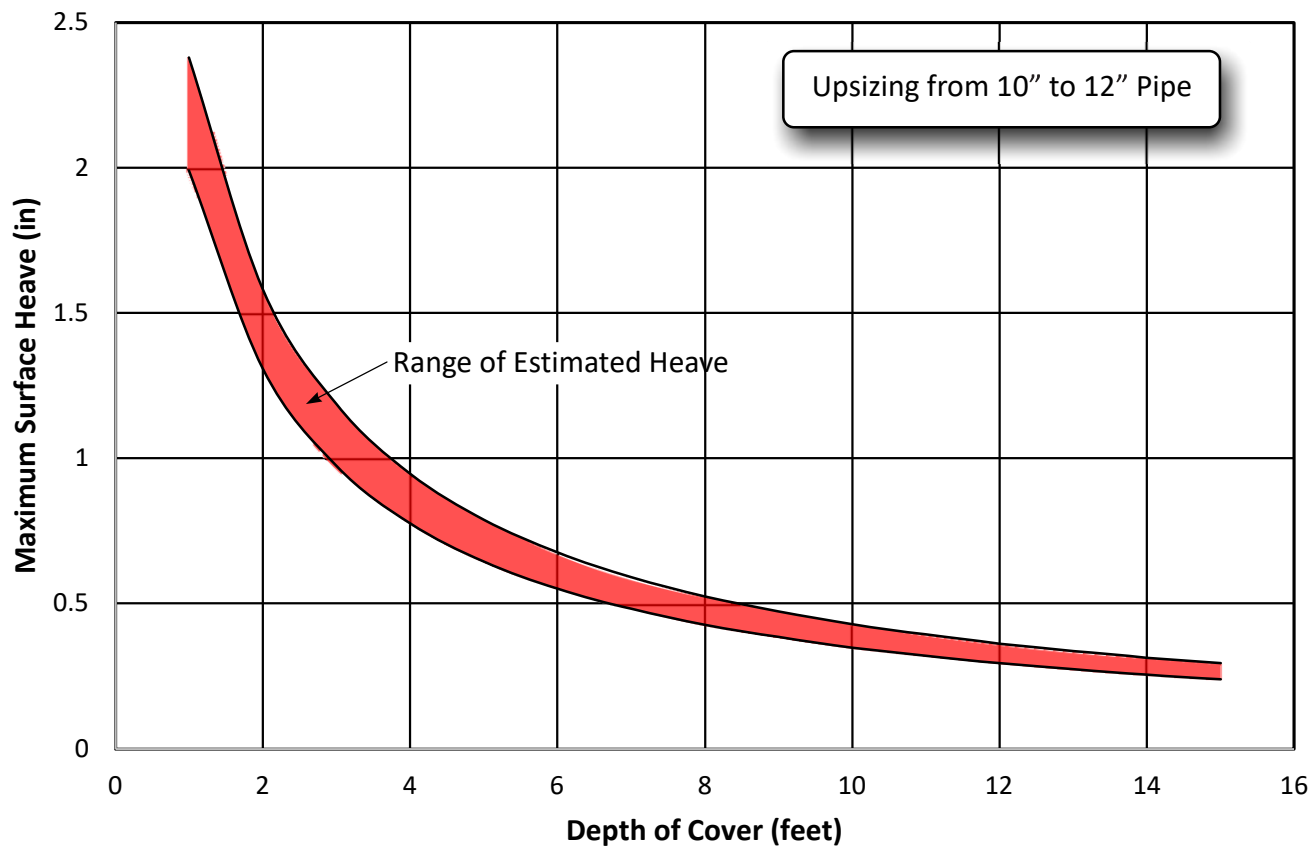


BAJADA Geosciences, Inc.

Project no.

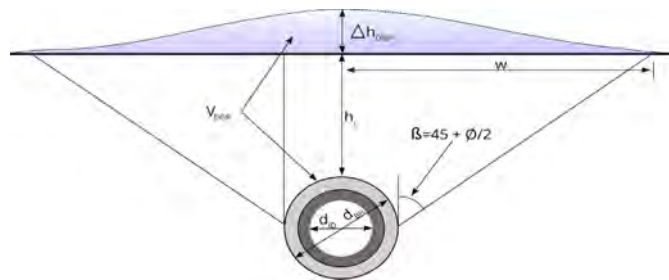
2101.0129

Maximum Ground Heave (Δh_{DISP})



INPUT VALUES

Existing Pipe Inner Diameter (d_{IG} , in):	10
Outer Diameter of Bursting Head (d_{BH} , in):	15
Soil Friction Angle, Backfill (ϕ , degrees):	30
Soil Friction Angle, Sidewall (ϕ , degrees):	40
Maximum Depth of Cover (h_C , in):	192



Depth (ft)	Displacement Volume (in ³ /in)	W (in)		Δh_{DISP} (in)	
		Sidewall Only	Backfill Only	Sidewall Only	Backfill Only
1	98.2	49.3	41.3	2.0	2.4
2	98.2	75.1	62.1	1.3	1.6
3	98.2	100.8	82.8	1.0	1.2
4	98.2	126.5	103.6	0.8	0.9
5	98.2	152.3	124.4	0.6	0.8
6	98.2	178.0	145.2	0.6	0.7
7	98.2	203.7	166.0	0.5	0.6
8	98.2	229.5	186.8	0.4	0.5
9	98.2	255.2	207.6	0.4	0.5
10	98.2	280.9	228.3	0.3	0.4
11	98.2	306.7	249.1	0.3	0.4
12	98.2	332.4	269.9	0.3	0.4
13	98.2	358.1	290.7	0.3	0.3
14	98.2	383.9	311.5	0.3	0.3
15	98.2	409.6	332.3	0.2	0.3
16	NA	NA	NA	NA	NA
17	NA	NA	NA	NA	NA
18	NA	NA	NA	NA	NA
19	NA	NA	NA	NA	NA
20	NA	NA	NA	NA	NA

FORMULAS

$$V_{DISP} = (PI/4)(d_{BH}^2 - d_{ID}^2)$$

$$W = d_{BH}/2 + (h_C + d_{BH}/2) \tan(45 + \phi/2)$$

$$\Delta h_{DISP} = V_{DISP}/W$$

From Bennett, Ariaratnam, & Wallin (2011)

MAXIMUM GROUND HEAVE 10" TO 12" UPSIZE

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

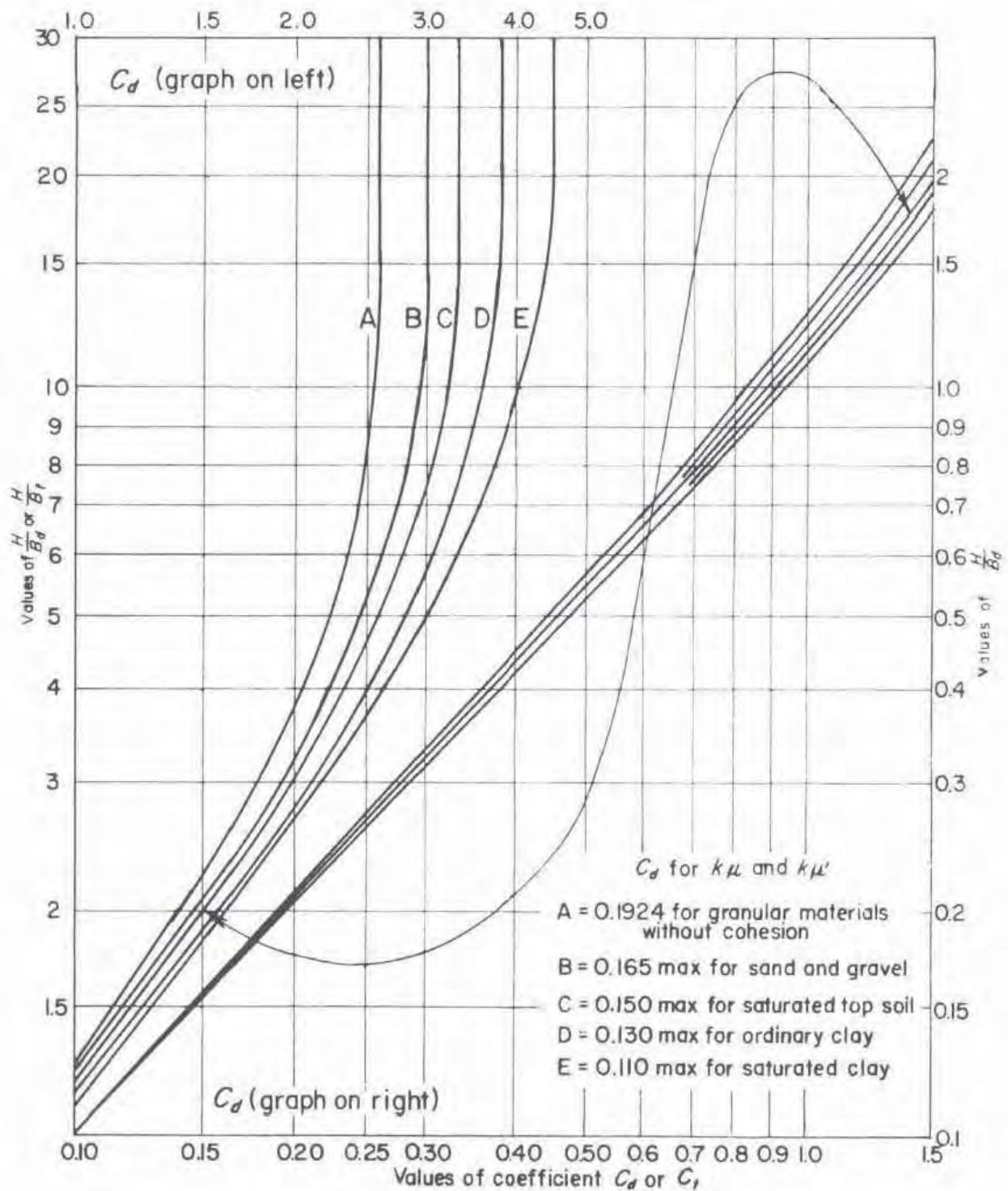
5.2



BAJADA Geosciences, Inc.

Project no.

2101.0129



MARTSONS LOAD COEFFICIENTS

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

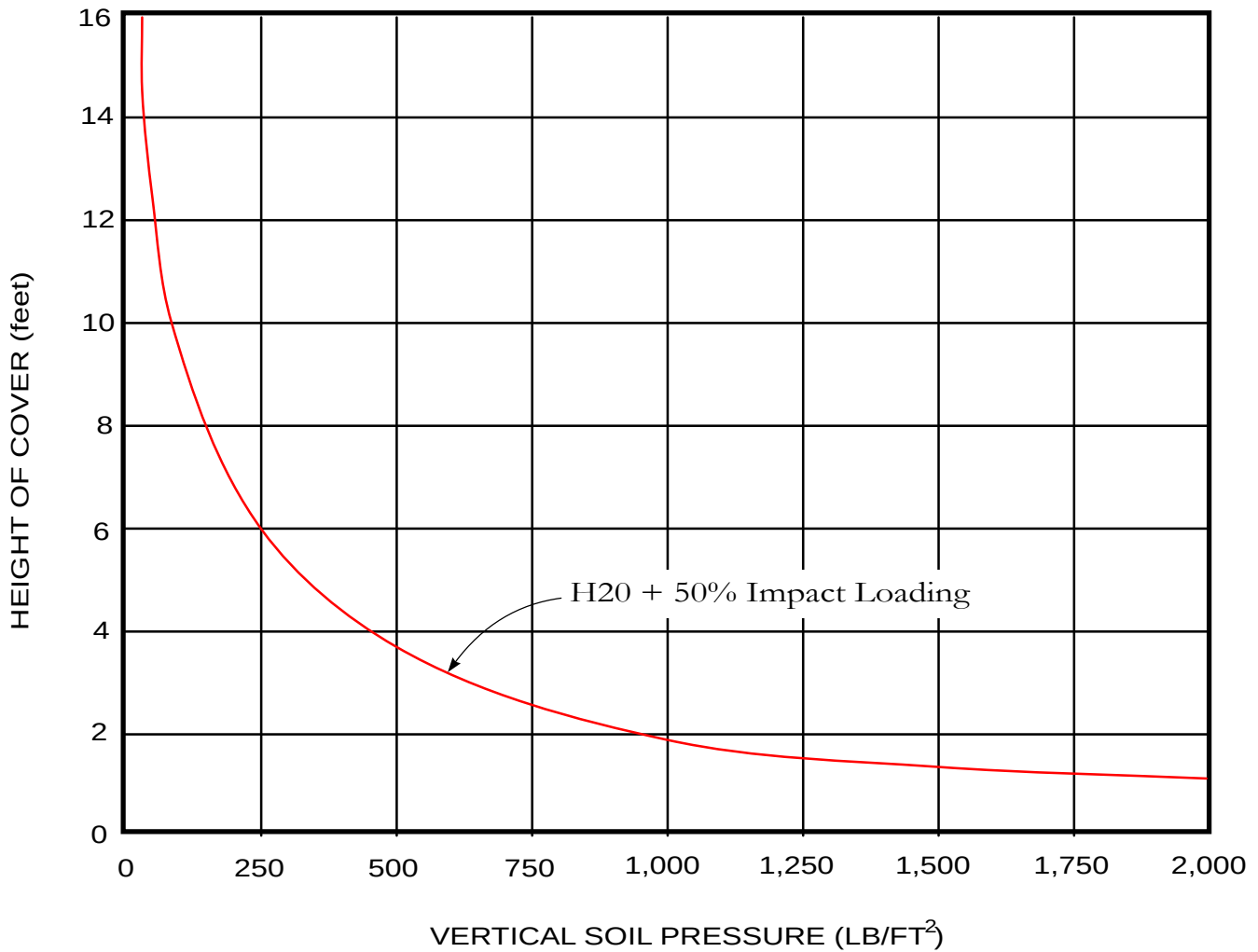
6



BAJADA Geosciences, Inc.

Project no.

2101.0129



Apply vertical soil pressure to diameter of pipeline (horizontal projection to calculate vertical load

H2O + 50% Impact Loading: Simulates a highway load of a 20-ton truck with a 50% impact factor to account for the dynamic effects of traffic

VERTICAL SOIL PRESSURES INDUCED BY LIVE LOADS

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

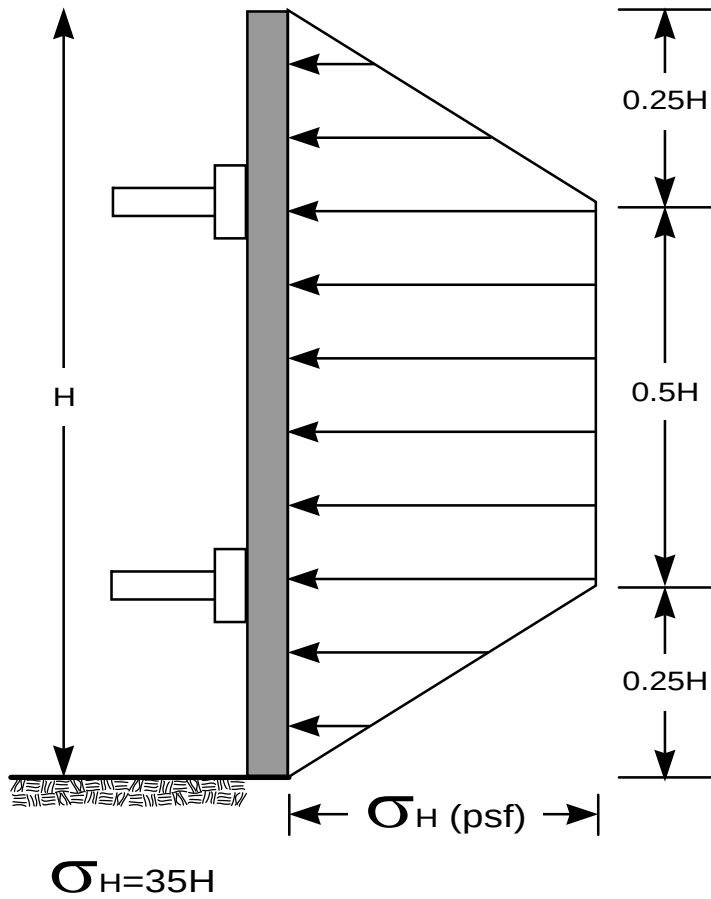
7



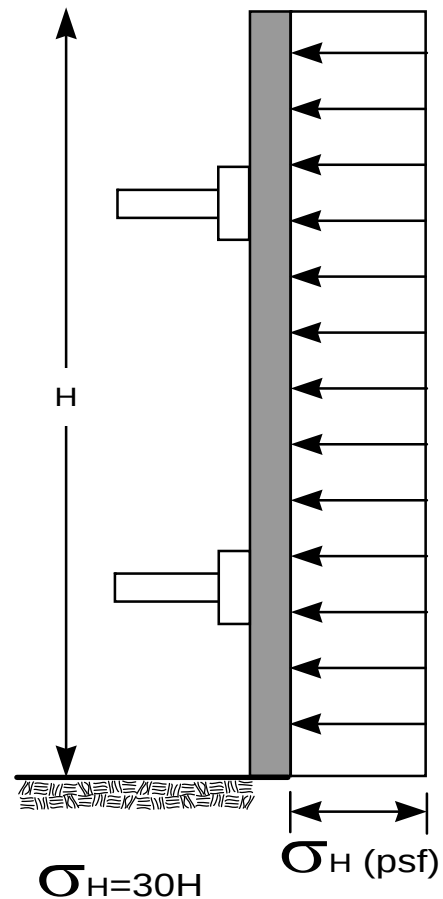
BAJADA Geosciences, Inc.

Project no.
2101.0129

CLAY PRESSURE DIAGRAM



SAND PRESSURE DIAGRAM



Preliminary shoring pressure diagrams are for excavations in unsaturated soils only.

These preliminary shoring pressure diagrams do not take into account hydrostatic pressures nor surcharge pressures. The effects of these conditions must be added to these pressure diagrams where applicable.

Excavation base stability should be analyzed after base width has been selected.

Final design shoring pressure diagrams will need to be developed by the Contractor based on selection of a shoring system and the actual soil, groundwater, and surcharge conditions encountered during construction.

PRELIMINARY SHORING PRESSURE DIAGRAMS

Sewer Improvement Project
Water Works Engineers
City of Roseville, California

Plate No.

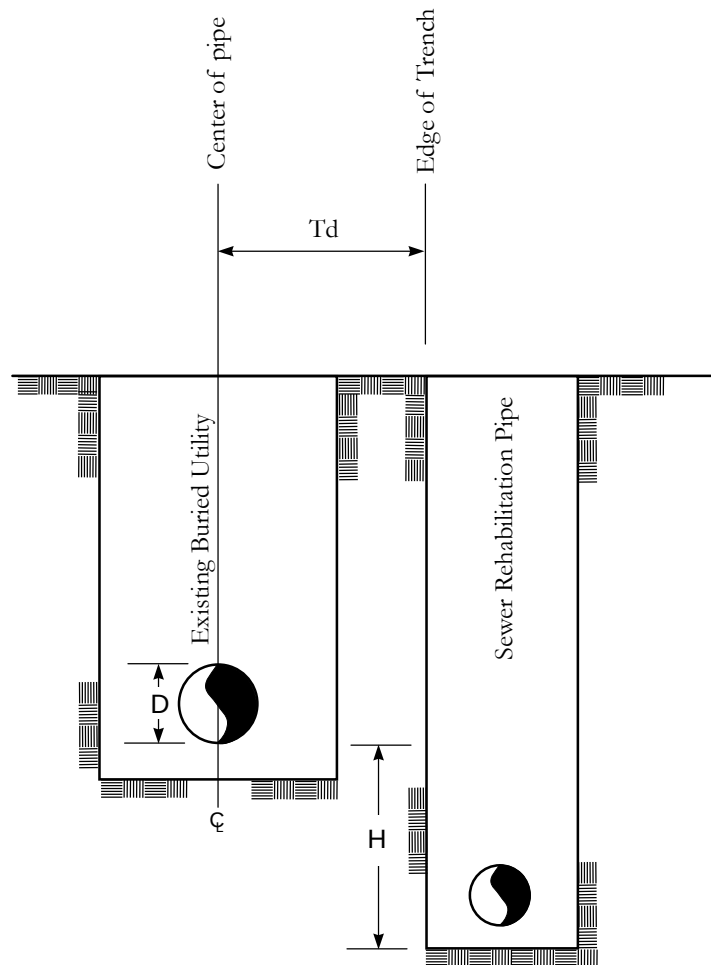
8



BAJADA Geosciences, Inc.

Project no.
2101.0129

WHERE SEWER SEGMENT IS DEEPER THAN ADJACENT BURIED UTILITY



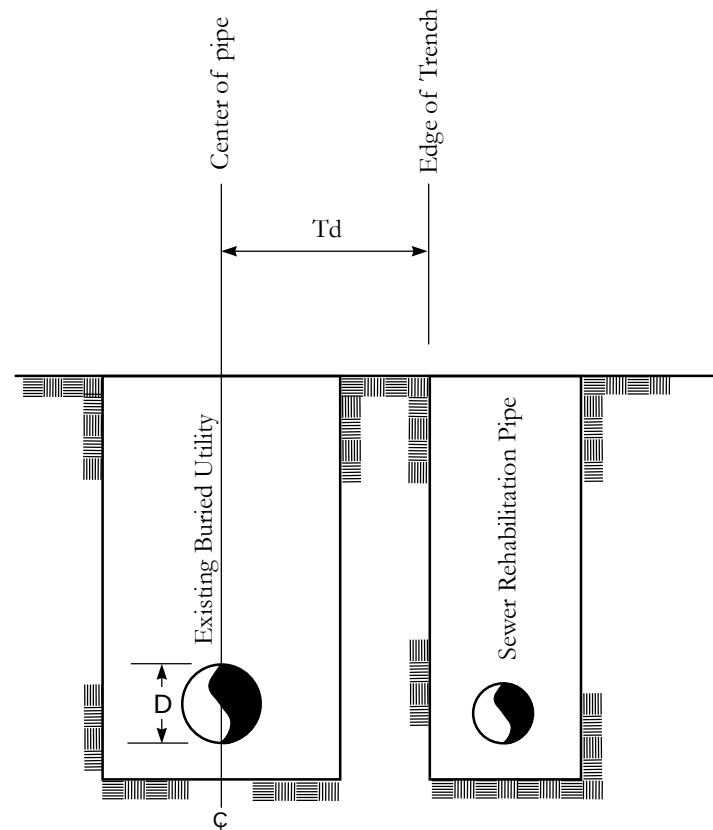
If D is less than or equal to 54": $Td = (D/2) + 24 + (H/2)$
 If D is greater than 54": $Td = (D/2) + 36 + (H/2)$

Where D = existing pipeline diameter in inches.

H = vertical distance, in inches, between bottom of existing utility pipeline and bottom of sewer rehabilitation trench.

Td = minimum distance, in inches, for sewer rehabilitation trench sidewall where impingement into adjacent trench is unlikely.

WHERE SEWER SEGMENT IS SHALLOWER OR AT SAME DEPTH AS ADJACENT BURIED UTILITY



If D is less than or equal to 54": $Td = (D/2) + 24$
 If D is greater than 54": $Td = (D/2) + 36$

Where D = existing pipeline diameter in inches.

Td = minimum distance, in inches, for sewer rehabilitation trench sidewall where impingement into adjacent trench is unlikely.

Not to scale

ADJACENT UTILITY TRENCHES

Sewer Improvement Project
 Water Works Engineers
 City of Roseville, California

Plate No.

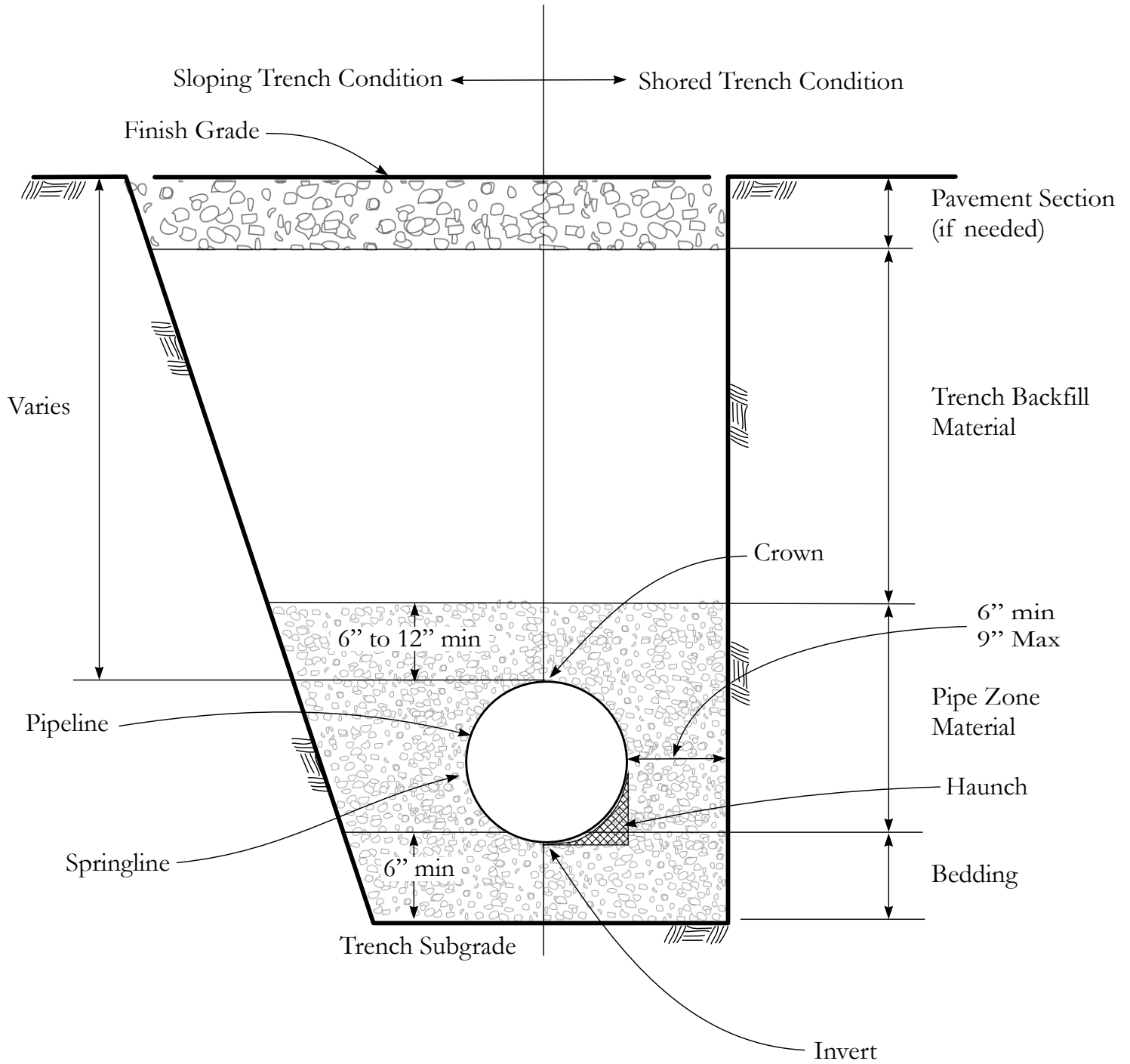
9



BAJADA Geosciences, Inc.

Project no.

2101.0129



Not to Scale

TRENCH NOMENCLATURE	
Sewer Improvement Project Water Works Engineers City of Roseville, California	Plate No.
	10
 BAJADA Geosciences, Inc.	Project no.
	2101.0129

APPENDIX A

Subsurface Exploration



APPENDIX A

SUBSURFACE EXPLORATION

The subsurface exploration program for this study consisted of the advancement of eight exploratory drill holes at selected locations, as shown on Plates 2.1 through 2.3 of the report. Prior to exploration, BAJADA obtained a drilling permit and encroachment permit from the City of Roseville.

Drill holes were advanced on February 1 and 2, 2022 using a CME-75 drill rig provided by GeoEx Subsurface Exploration of Dixon, California. The drill holes were advanced using a 8.25-inch diameter hollow-stem auger methods. Work was performed at night in conformance with the encroachment permit conditions. Traffic Control was provided by Bay Area Traffic Solutions.

Samples of soils were collected from selected depth increments in the drill holes using California modified split-spoon and/or Standard Penetration Test (SPT) samplers. Samplers were driven by a 140-pound hammer situated on the drill rig, in accordance with standard test method ASTM D1586-11. Bulk samples were also obtained at selected depth intervals. Sample types and depths are presented on Plates A-1.1 and A-1.8. All samples were returned to Bajada's office for later assignment of laboratory testing.

The exploration logs describe the earth materials encountered in each drill hole. The logs also show the location, exploration number, date of exploration, and the names of the logger and equipment used. A BAJADA geologist, using ASTM 2488 for visual soil classification, logged the explorations and samples. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual and may change with time. The drill holes were backfilled with cement grout. Soils generated by drilling operations were spoiled on site.

The drill hole logs are presented as Plates A-1.1 and A-1.8. A legend to the drill hole logs is presented as Plate A-2.1.

LOG OF EXPLORATION: DH - 2

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	242 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 18+14	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	3.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
						SC	: ARTIFICIAL FILL (af) Clayey SAND, tan to tannish white, dry to moist, medium dense, fine to medium grained.		107.6	13.9				
240				1	(24)		: Bottom of drill hole at a depth of 3.5 feet							

Top of 10" Pipeline
at Depth of ~5.6'



LOG OF EXPLORATION: DH - 2.1

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	242 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 18+14	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	10.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
							: TURLOCK LAKE FORMATION (Qtl) Clayey GRAVEL with sand, light brown to dark brown, moist, slightly plastic, with fine to medium grained subangular to angular gravels.							
240				1	(52)	SC	: Clayey SAND with minor silt, light brown to tannish brown, moist, very dense, moderately cemented, fine to medium grained, with trace fine to medium subangular to subrounded gravels and iron staining.	109.3	12.2					
5				2	(67)		: Lacking gravels.	108.8	12.6	30				GS
				3	(50-5")			110.7	12.9					Top of 10" Pipeline at Depth of ~5.6'
235				4	(50-5")		: Moderately cemented.	109.8	12.2					Soil Chem @ 6'
				5	(71)			106.7	13.2					
10							: Bottom of drill hole at a depth of 10.5 feet							

LOG OF EXPLORATION: DH - 3

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	241 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Determined
LOCATION:	Station 21+69	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	4.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
							: Aggregate Base (6")							
240				B1		GC	: ARTIFICIAL FILL (af)				24			Curve, GS
						SC	Clayey SAND with minor silt, light brown to tannish brown, moist, loose to medium dense, fine to medium grained with trace fine to medium grained subangular to subrounded gravels.							
				1	(17)		: At 3 feet: light tan to tannish white, dry to moist.	95.4	24.4					
5							: Bottom of drill hole at a depth of 4.5 feet.							

Top of 10" Pipeline
at Depth of ~7.5'



LOG OF EXPLORATION: DH - 3.1

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	241 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 21+69	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	11.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
240						GC	: Aggregate Base (6")							
						SC	: TURLOCK LAKE FORMATION (Qtl) Clayey SAND with minor silt, light brown to tannish brown, moist, weakly cemented, fine to medium grained with with trace fine to medium subangular to subrounded gravels and iron staining.							
				1	(52)		: At 4 feet: light tan to tannish white, dry to moist, dense.	97.6	26.3					DS
5				2	(50-6")			98.4	23.9					
235				3	36	CL	: Silty CLAY, light tan to tan, moist, hard, slightly plastic.			22.6	78			Top of 10" Pipeline at Depth of ~7.5'
				4	80	SC	: Clayey SAND with minor silt, light brown to tannish brown, moist, very dense, weakly cemented, fine to medium grained with with trace fine to medium subangular to subrounded gravels and iron staining.			19.2				GS @ 7.5'
10				5	(50-4")		: At 8 feet: cemented.	107.1	19.2					
230							: Bottom of drill hole at a depth of 11.5 feet.							

LOG OF EXPLORATION: DH - 4

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	244 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 28+35	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	11.0 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
						SC	: ARTIFICIAL FILL (af) Clayey SAND with minor silt, light brown to tannish brown, moist, fine to medium grained, with trace fine to medium subangular to subrounded gravels.							
240				1	(13)		: At 5 feet: Tan to tannish white, dry to moist, loose, few gravels.	103.7	16.8					
235				2	(14)			103.3	18.6					
10							: Bottom of drill hole at a depth of 11 feet.							

Top of 10" Pipeline
at Depth of ~13.7'



LOG OF EXPLORATION: DH - 4.1

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	244 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 28+35	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	16.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
						SC	: TURLOCK LAKE FORMATION (Qtl) Clayey SAND with minor silt, light brown to tannish brown, moist, fine to medium grained with trace fine to medium subangular to subrounded gravels and iron staining.							
240				1	(50-5")		: At 5 feet: tan to tannish white, dry to moist, moderately cemented, very dense, lacking gravels.	105.7	19.8					
235				2	(50-5")		: At 10.5 feet: tannish orange to tannish brown.	107.4	9.2					
10				3	57					12.9	25			GS Soil Chem @ 13.5' Top of 10" Pipeline at Depth of ~13.7'
230				4	50-5"					12.7				
15				5	71		: At 15 feet: cemented.							
							: Bottom of drill hole at a depth of 16.5 feet.							

LOG OF EXPLORATION: DH - 5

PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	244 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 32+85	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	11.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
			B2			SC	: ARTIFICIAL FILL (af) Clayey SAND with minor silt, light brown to tannish brown, moist, fine to medium grained with trace fine to medium subangular to subrounded gravels.				22			GS
240				1	(16)		: At 5 feet: tan to tannish white, dry to moist, loose to medium dense, lacking gravels.	107.6	13.8					
							: At 10 feet: tannish orange to tannish brown, loose.							
235				2	(7)									
10							: Bottom of drill hole at a depth of 11.5 feet.	103.1	14.0					

Top of 10" Pipeline
at Depth of ~15.2'



The log and data presented are a simplification of actual conditions encountered at the given location and time of exploration. Subsurface conditions may differ at other locations and with the passage of time.

PLATE NO.: A - 1.7

LOG OF EXPLORATION: DH - 5.1

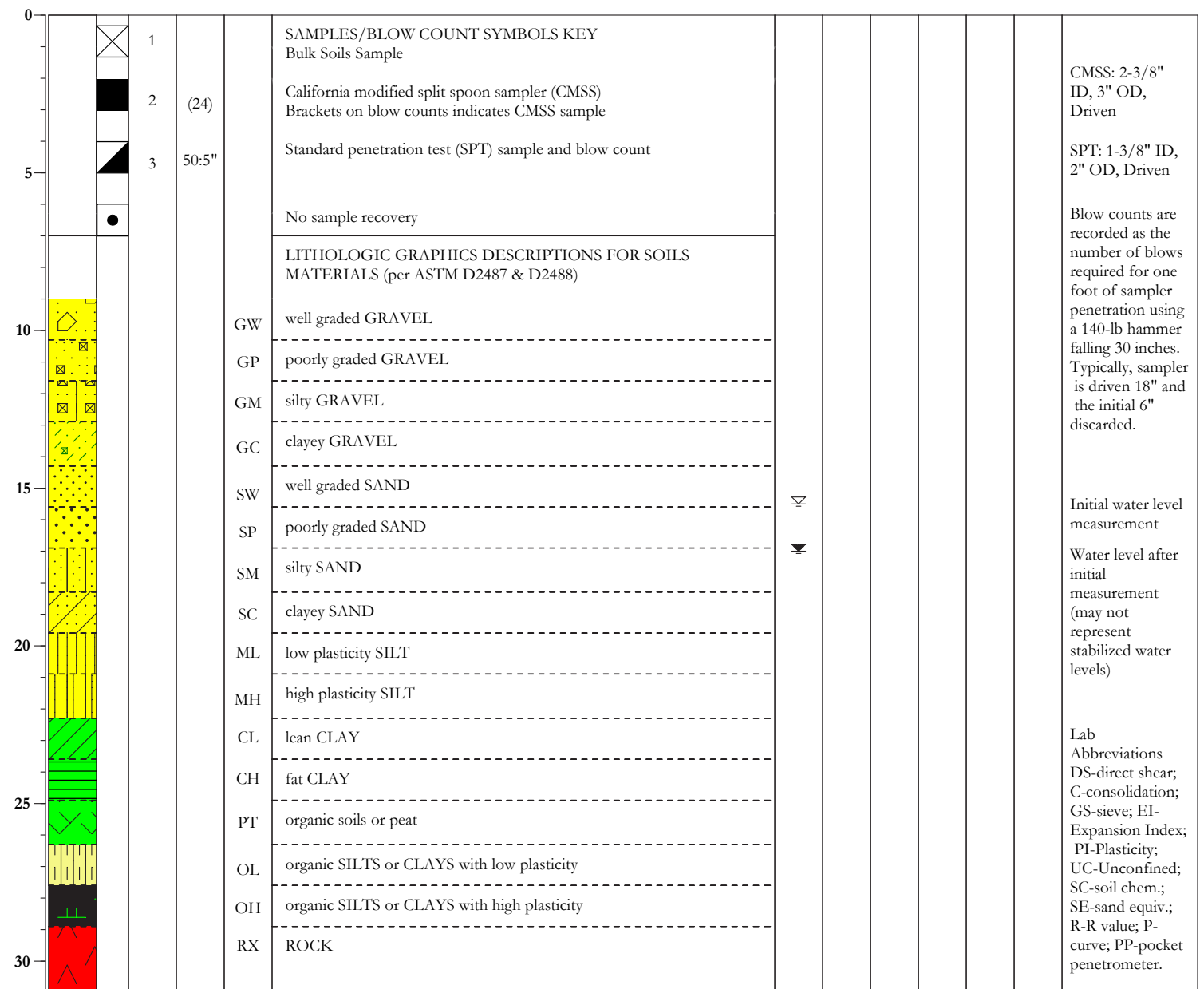
PROJECT:	Roseville Pipe Bursting Project	EXPL. VENDOR:	Geo-Ex Subsurface Ex.	ELEVATION:	244 feet
PROJECT NO.:	2101.0129	EXPL. METHOD:	4.25" SSA	DEPTH TO WATER:	Not Encountered
LOCATION:	Station 32+85	LOGGED BY:	Bryan Puleri	DEPTH OF HOLE:	19.5 feet
START DATE:	02/01/2022	CHECKED BY:	J. Bianchin	BACKFILLED WITH:	Grout
END DATE:	02/02/2022	HAMMER TYPE:	140-lb Auto Trip Hammer		

Depth	Elevation	Material Symbol	Sample Type	Sample No.	Blow Count (blows/ft)	USCS	MATERIAL DESCRIPTION	Depth to Water	Dry Unit Weight (pcf)	Moisture Content (%)	% Passing No. 200	Liquid Limit	Plastic Index	Comments
0							: Asphalt (6")							
						GC	: Aggregate Base (6")							
						SC	: TURLOCK LAKE FORMATION (Qtl) Clayey SAND with minor silt, light brown to tannish brown, moist, weakly cemented, fine to medium grained, with trace fine to medium subangular to subrounded gravels and iron staining.							
240				1	(50-5")		: At 5 feet: tan to tannish white, dry to moist, moderately cemented, very dense, lacking gravels.	106.2	14.1					
235				2	(57)		: At 11.5 feet: tannish orange to tannish brown, dense.	118.8	12.8					DS
230				3	(50-6")		: At 13 feet: very dense, abundant iron staining.	108.4	18.9					
15				4	45		: At 14 feet: dense.		12.6	29				GS Top of 10" Pipeline at Depth of ~15.2'
				5	50-5"		: At 16 feet: very dense, cemented.		12.7					
225				6	50-6"				10.2					
20							: Bottom of drill hole at a depth of 19.5 feet.							

LOG OF EXPLORATION: Expl. No.

PROJECT:	BGI's Project Name	EXPL. VENDOR:	Expl. Subcontractor	SURFACE ELEVATION:	Expl. Elevation
PROJECT NO.:	BGI's Project No.	EXPL. METHOD:	Method of Expl.	TOTAL DEPTH OF HOLE:	Total Depth of Expl.
LOCATION:	General Location	LOGGED BY:	BGI's Logger	DEPTH TO WATER:	Depth to Water
START DATE:	Date Started Date	CHECKED BY:	BGI's Reviewer	BACKFILLED WITH:	Backfill Materials
END DATE:	Finished	HAMMER TYPE:	Type of Sample Hammer		

Depth (ft)
Material Symbol
Sample
Sample No.
Blow Count (blows/ft)
USCS Symbol
Material Description
Water Table
Unit Dry Weight, pcf
Water Content, %
% Passing No. 200
Liquid Limit
Plasticity Index
Notes & Assigned Laboratory



The log and data presented are a simplification of actual conditions encountered at the given location and time of exploration. Subsurface conditions may differ at other locations and with the passage of time.

BAJADA GEOSCIENCES, INC.

PLATE NO.: A-2.1



APPENDIX B

Laboratory Testing



APPENDIX B LABORATORY TESTING

Laboratory Analyses

Laboratory tests were performed on selected bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed under procedures described in one of the following references:

- ASTM Standards for Soil Testing, latest revision;
- Lambe, T. William, Soil Testing for Engineers, Wiley, New York, 1951;
- Laboratory Soils Testing, U.S. Army, Office of the Chief of Engineers, Engineering Manual No. 1110-2-1906, November 30, 1970.

In-Situ Moisture Density Relations

Dry density estimates and/or moisture content evaluations were performed on selected soil samples collected during this study. Tests were performed using standard test methods ASTM D2216 for moisture content or ASTM D2937 for dry unit weights. The results are presented on the respective Log of Drill holes.

Grain Size Distribution

Grain size distribution was determined for six selected soil samples in accordance with standard test method ASTM D422. The grain size distribution data are shown on the attached plates labeled *Particle Size Distribution*.

Direct Shear Tests

Direct shear tests were performed on two selected soil samples in accordance with standard test method ASTM D3080. Results of those tests are presented on attached plates labeled *Consolidated Drained Direct Shear*.

Maximum Density & Optimum Moisture Content

Maximum density and optimum moisture content were evaluated on two selected bulk soil samples in accordance with standard test method ASTM D1557. Results of those tests are presented on the attached plate labeled *Compaction Test Report*.

Soil Chemistry Tests for Corrosion

two selected soil samples were tested to evaluate sulfate and chloride contents, pH, and resistivity. Tests were performed in accordance with standard test methods ASTM G51 and G75, and California Test Method 417 and 422. Test results are presented on the attached plate labeled *Corrosivity Test Summary*.



Materials Testing, Inc.

8798 Airport Road
Redding, California 96002
(530) 222-1116, fax 222-1611

865 Cotting Lane, Suite A
Vacaville, California 95688
(707) 447-4025, fax 447-4143

Client: BAJADA Geosciences, Inc.
28301 Inwood Road
Shingletown, CA 96088

Project: Roseville Pipe Bursting Project
City of Roseville, California

Client No.: 3237-072
Figure No.: 0300-001
Date: 03/03/2022
Page No.: 1 of 3
Submitted by: KC Engineering
Date Sampled: 02/17/2022

Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937) and Liquid Limit, Plastic Limit & Plasticity Index of Soils (ASTM D4318)

Sample #	Description	Dry Density p.c.f.	Moisture Content %	Liquid Limit	Plastic Limit	Plastic Index
DH-2, 1 @ 2.0'	Reddish Brown Clayey Sand (visual)	107.6	13.9	---	---	---
DH-2.1, 1 @ 3.0'	Pale Red Silty Sand (visual)	109.3	12.2	---	---	---
DH-2.1, 2 @ 4.5'	Reddish Brown Clayey Sand (visual)	108.8	12.6	---	---	---
DH-2.1, 3 @ 6.0'	Mottled Grayish Red Sand (visual)	110.7	12.9	---	---	---
DH-2.1, 4 @ 7.5'	Pale Red Silty Sand (visual)	109.8	12.2	---	---	---
DH-2.1, 5 @ 9.0'	Pale Red Silty Sand (visual)	106.7	13.2	---	---	---
DH-3, 1 @ 3.0'	Pale Yellow Silty Sand (visual)	95.4	24.4	---	---	---
DH-3.1, 1 @ 4.0'	Light Yellowish Brown Silty Clay (visual)	97.6	26.3	---	---	---
DH-3.1, 2 @ 5.5'	White Silty Sand (visual)	98.4	23.9	---	---	---
DH-3.1, 3 @ 7.0'	Yellowish Brown and Gray Clay and Sand (visual)	---	22.6	---	---	---
DH-3.1, 4 @ 8.5'	Mottled Grayish Brown Sandy Clay (visual)	---	19.2	---	---	---
DH-3.1, 5 @ 10.0'	White Sandy Silt (visual)	107.1	19.2	---	---	---

Tested by John Hubbard.

The samples were tested according to the referenced standard test procedures and relate only to the items inspected or tested. Results are not transferable and shall not be reproduced, except in full, without written permission from MTI.

Construction Materials Testing and Quality Control Services
Soil - Concrete - Asphalt - Steel - Masonry



Materials Testing, Inc.

8798 Airport Road
Redding, California 96002
(530) 222-1116, fax 222-1611

865 Cotting Lane, Suite A
Vacaville, California 95688
(707) 447-4025, fax 447-4143

Client: BAJADA Geosciences, Inc.
28301 Inwood Road
Shingletown, CA 96088

Project: Roseville Pipe Bursting Project
City of Roseville, California

Client No.: 3237-072
Figure No.: 0300-001
Date: 03/03/2022
Page No.: 2 of 3
Submitted by: KC Engineering
Date Sampled: 02/17/2022

Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937) and Liquid Limit, Plastic Limit & Plasticity Index of Soils (ASTM D4318)

Sample #	Description	Dry Density p.c.f.	Moisture Content %	Liquid Limit	Plastic Limit	Plastic Index
DH-4, 1 @ 5.0'	Pale Yellow Sandy Siltstone (visual)	103.7	16.8	---	---	---
DH-4, 2 @ 9.5'	Pale White/Brown Sandy Silty with trace Gravel (visual)	103.0	18.6	---	---	---
DH-4.1, 1 @ 5.0'	White Sandy Silt (visual)	105.7	19.8	---	---	---
DH-4.1, 2 @ 10.5'	Pale Yellow Silty Sand (visual)	107.4	9.2	---	---	---
DH-4.1, 3 @ 12.0'	Grayish Brown Clayey Sand (visual)	---	12.9	---	---	---
DH-4.1, 4 @ 13.5'	Mottled Grayish Brown Sand (visual)	---	12.7	---	---	---
DH-5, 1 @ 5.0'	Pale Yellow Silty Sand (visual)	107.6	13.8	---	---	---
DH-5, 2 @ 10.0'	Pale White Silty Sand (visual)	103.1	14.0	---	---	---
DH-5.1, 1 @ 5.0'	Pale White Silty Sand (visual)	106.2	14.1	---	---	---
DH-5.1, 2 @ 11.5'	Light Grayish Brown Sandy Clay with Claystone (visual)	118.8	12.8	---	---	---
DH-5.1, 3 @ 13.0'	White Sandstone (visual)	108.4	18.9	---	---	---
DH-5.1, 4 @ 14.0'	Grayish White Clayey Sand (visual)	---	12.6	---	---	---

Tested by John Hubbard.

The samples were tested according to the referenced standard test procedures and relate only to the items inspected or tested. Results are not transferable and shall not be reproduced, except in full, without written permission from MTI.

Construction Materials Testing and Quality Control Services
Soil - Concrete - Asphalt - Steel - Masonry



Materials Testing, Inc.

8798 Airport Road
Redding, California 96002
(530) 222-1116, fax 222-1611

865 Cotting Lane, Suite A
Vacaville, California 95688
(707) 447-4025, fax 447-4143

Client: BAJADA Geosciences, Inc.
28301 Inwood Road
Shingletown, CA 96088

Project: Roseville Pipe Bursting Project
City of Roseville, California

Client No.: 3237-072
Figure No.: 0300-001
Date: 03/03/2022
Page No.: 3 of 3
Submitted by: KC Engineering
Date Sampled: 02/17/2022

Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937) and Liquid Limit, Plastic Limit & Plasticity Index of Soils (ASTM D4318)

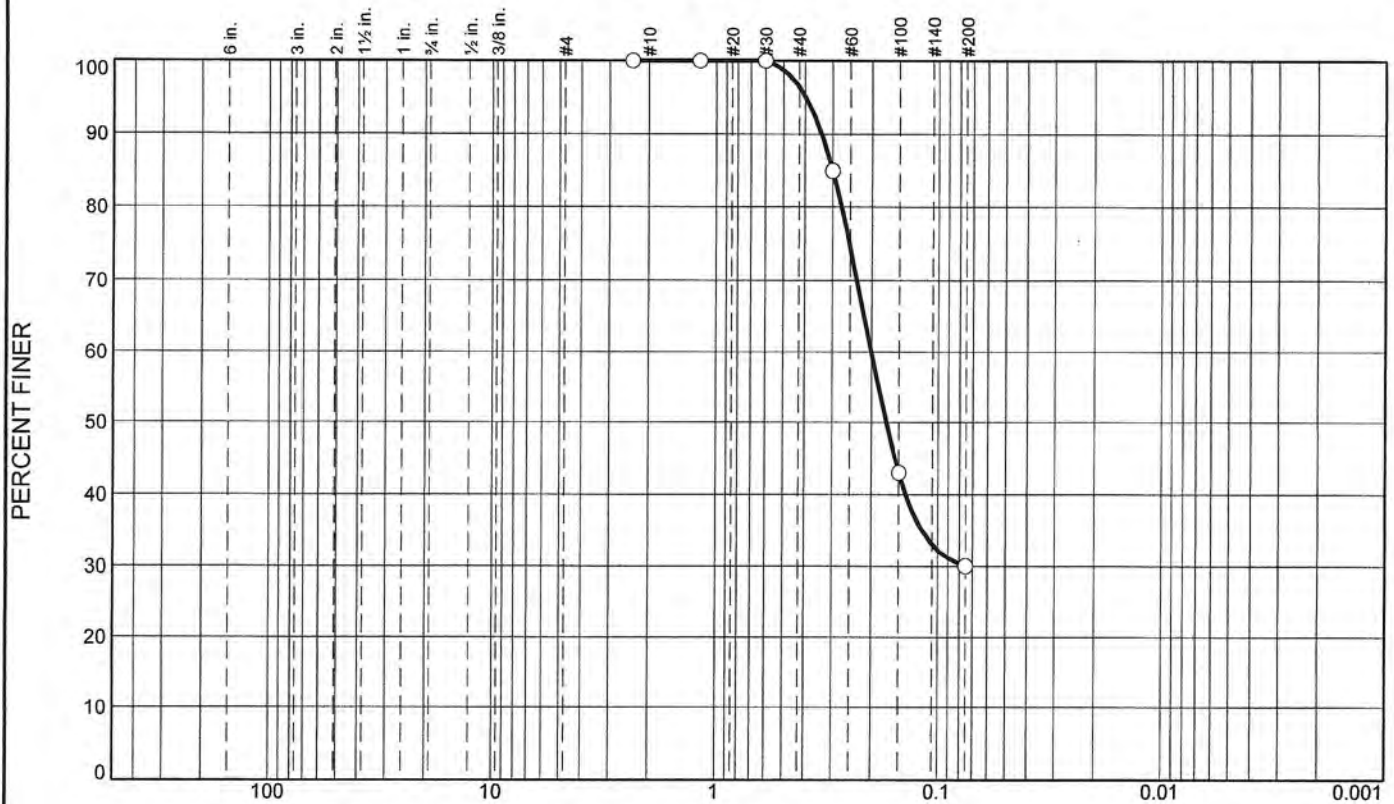
Sample #	Description	Dry Density p.c.f.	Moisture Content %	Liquid Limit	Plastic Limit	Plastic Index
DH-5.1, 5 @ 16.0'	Grayish Brown Sand (visual)	---	12.7	---	---	---
DH-5.1, 6 @ 17.5'	Grayish Brown Sand (visual)	---	10.2	---	---	---

Tested by John Hubbard.

The samples were tested according to the referenced standard test procedures and relate only to the items inspected or tested. Results are not transferable and shall not be reproduced, except in full, without written permission from MTI.

Construction Materials Testing and Quality Control Services
Soil - Concrete - Asphalt - Steel - Masonry

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	66	30	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100		
#16	100		
#30	100		
#50	85		
#100	43		
#200	30		

* (no specification provided)

Material Description
 Reddish Brown Clayey Sand (visual)

Atterberg Limits
 PL= LL= PI=

Coefficients
 D₉₀= 0.3369 D₈₅= 0.3000 D₆₀= 0.2006
 D₅₀= 0.1713 D₃₀= 0.0750 D₁₅=
 D₁₀= C_u= C_c=

Classification
 USCS= SC AASHTO=

Remarks
 Material Tested in Accordance with ASTM D6913.

Location: DH-2.1, 2
 Sample Number: 3

Depth: 4.5'

Date: 03/04/2022

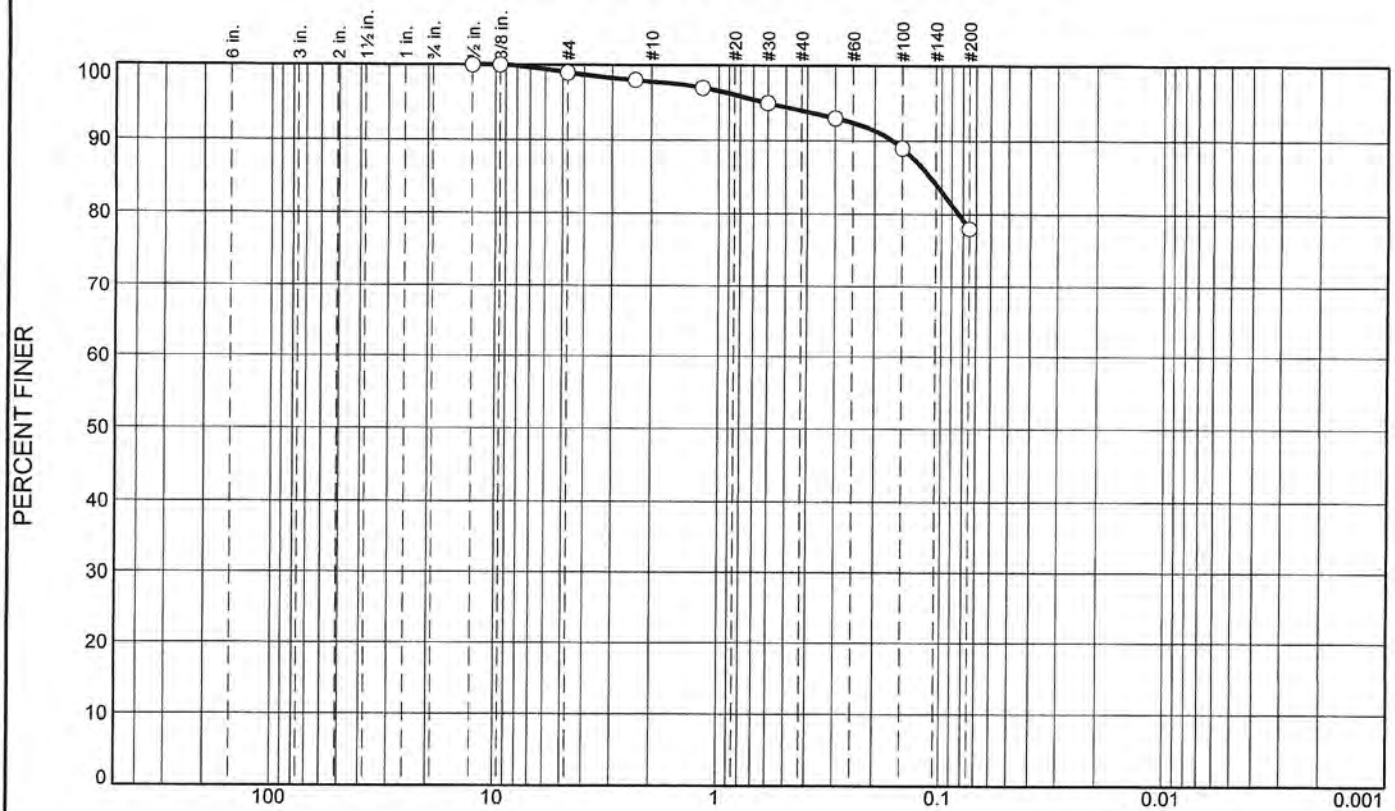


Client: BAJADA Geosciences, Inc
 Project: Roseville Pipe Bursting Project
 City of Roseville, California
 Project No: 3237-072

Figure 0300-002

Tested By: John Hubbard

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	4	16	78	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100		
3/8"	100		
#4	99		
#8	98		
#16	97		
#30	95		
#50	93		
#100	89		
#200	78		

* (no specification provided)

Material Description

Yellowish Brown and Gray Clay and Sand (visual)

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 0.1660

D₈₅= 0.1118

D₆₀=

D₅₀=

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= CL

AASHTO=

Remarks

Material Tested in Accordance with ASTM D6913.

Location: DH-3.1, 3
Sample Number: 10

Depth: 7.0'

Date: 03/04/2022



Client: BAJADA Geosciences, Inc

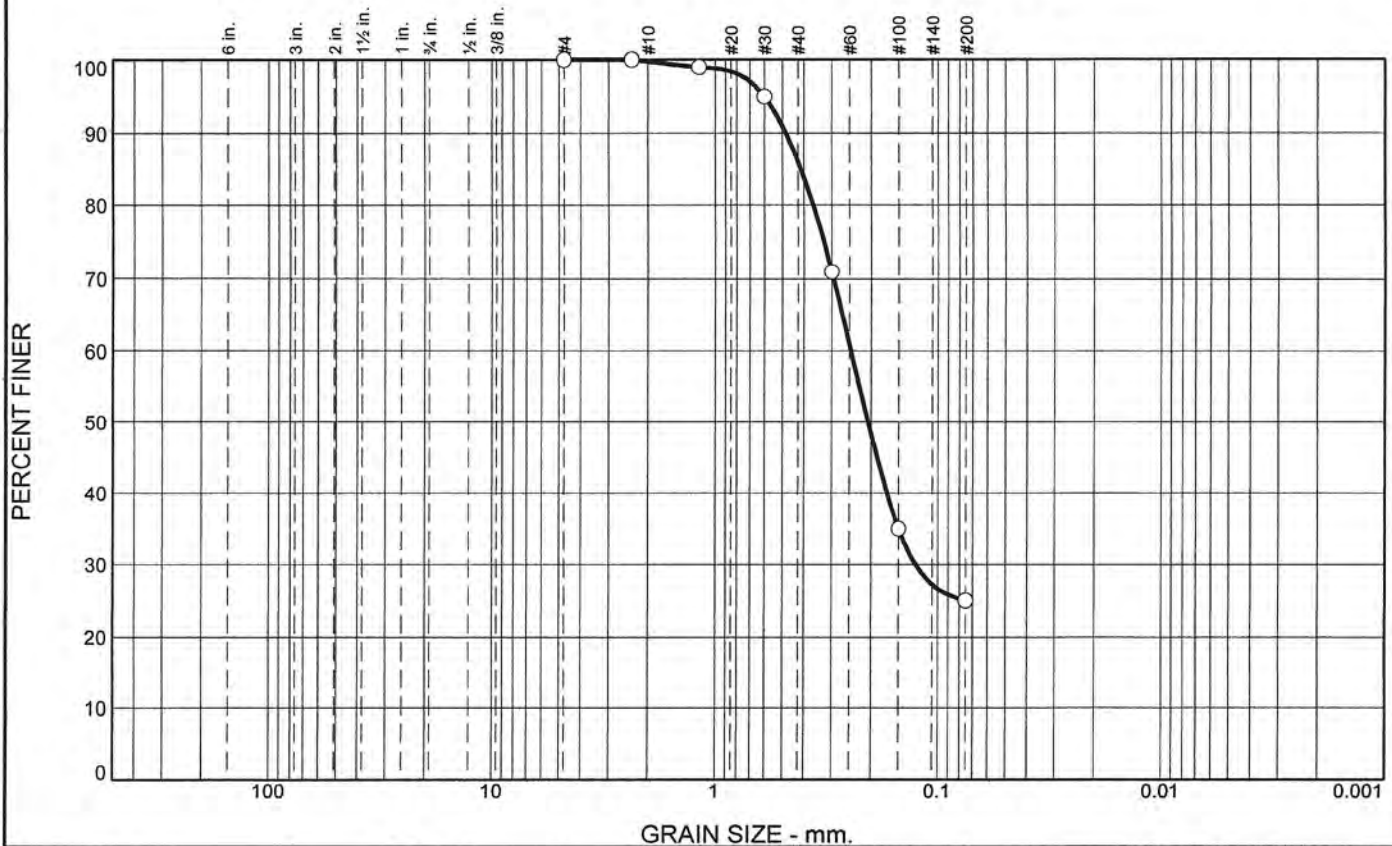
Project: Roseville Pipe Bursting Project
City of Roseville, California

Project No: 3237-072

Figure 0300-003

Tested By: John Hubbard

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	14	61	25	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#8	100		
#16	99		
#30	95		
#50	71		
#100	35		
#200	25		

* (no specification provided)

Material Description

Grayish Brown Clayey Sand (visual)

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 0.4817

D₈₅= 0.4126

D₆₀= 0.2457

D₅₀= 0.2060

D₃₀= 0.1258

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SC

AASHTO=

Remarks

Material Tested in Accordance with ASTM D6913.

Location: DH-4.1, 3
Sample Number: 17

Depth: 12.0'

Date: 03/04/2022

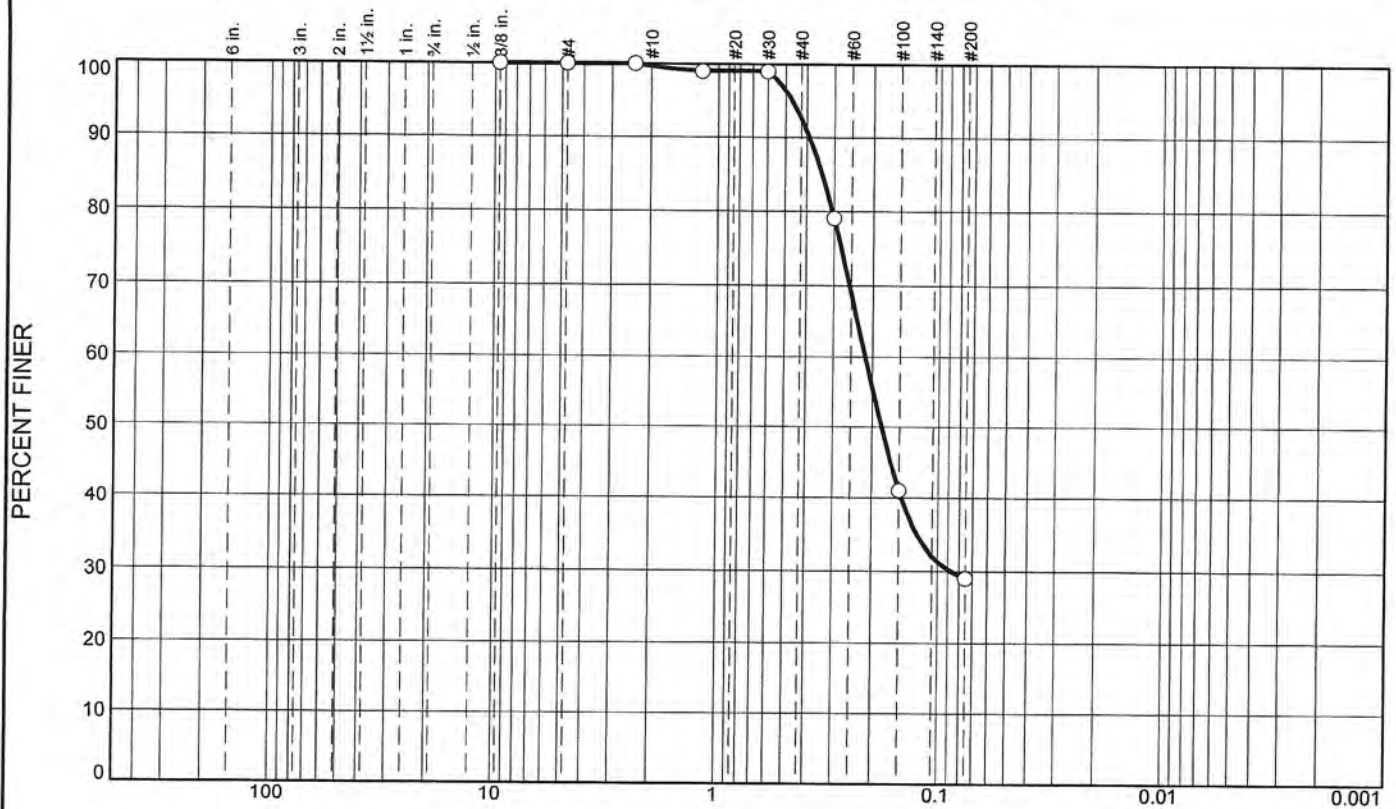


Client: BAJADA Geosciences, Inc
Project: Roseville Pipe Bursting Project
City of Roseville, California
Project No: 3237-072

Figure 0300-004

Tested By: Allante Blocker

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	7	64	29	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	99		
#50	79		
#100	41		
#200	29		

* (no specification provided)

Material Description

Grayish White Clayey Sand (visual)

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 0.3905

D₅₀= 0.1811

D₁₀=

D₈₅= 0.3418

D₃₀= 0.0874

C_u=

D₆₀= 0.2154

D₁₅=

C_c=

Classification

USCS= SC

AASHTO=

Remarks

Material Tested in Accordance with ASTM D6913.

Location: DH-5.1, 4
Sample Number: 25

Depth: 14.0'

Date: 03/04/2022

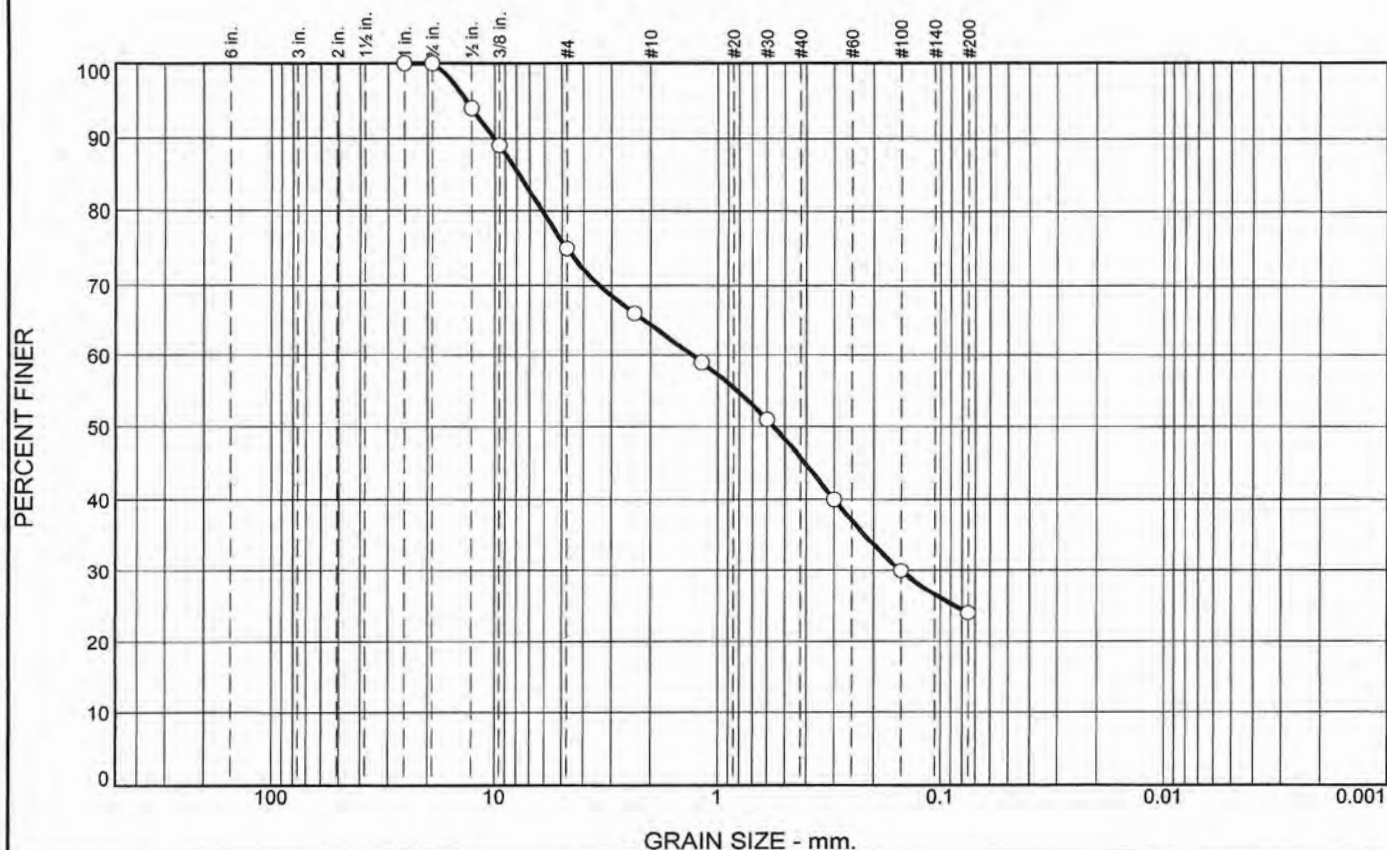


Client: BAJADA Geosciences, Inc
Project: Roseville Pipe Bursting Project
City of Roseville, California
Project No: 3237-072

Figure 0300-005

Tested By: John Hubbard

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	25	11	18	22	24	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	100		
1/2"	94		
3/8"	89		
#4	75		
#8	66		
#16	59		
#30	51		
#50	40		
#100	30		
#200	24		

* (no specification provided)

Material Description

Brown Clayey Sand with Gravel (visual)

Atterberg Limits

PL=

LL=

PI=

Coefficients

D₉₀= 10.0688

D₈₅= 7.7821

D₆₀= 1.3005

D₅₀= 0.5597

D₃₀= 0.1500

D₁₅=

D₁₀=

C_u=

C_c=

Classification

USCS= SC

AASHTO=

Remarks

Material Tested in Accordance with ASTM D6913.

Location: B1, 1 DH-3

Sample Number: 28

Depth: 2.0' - 4.0'

Date: 03/04/2022



Client: BAJADA Geosciences, Inc

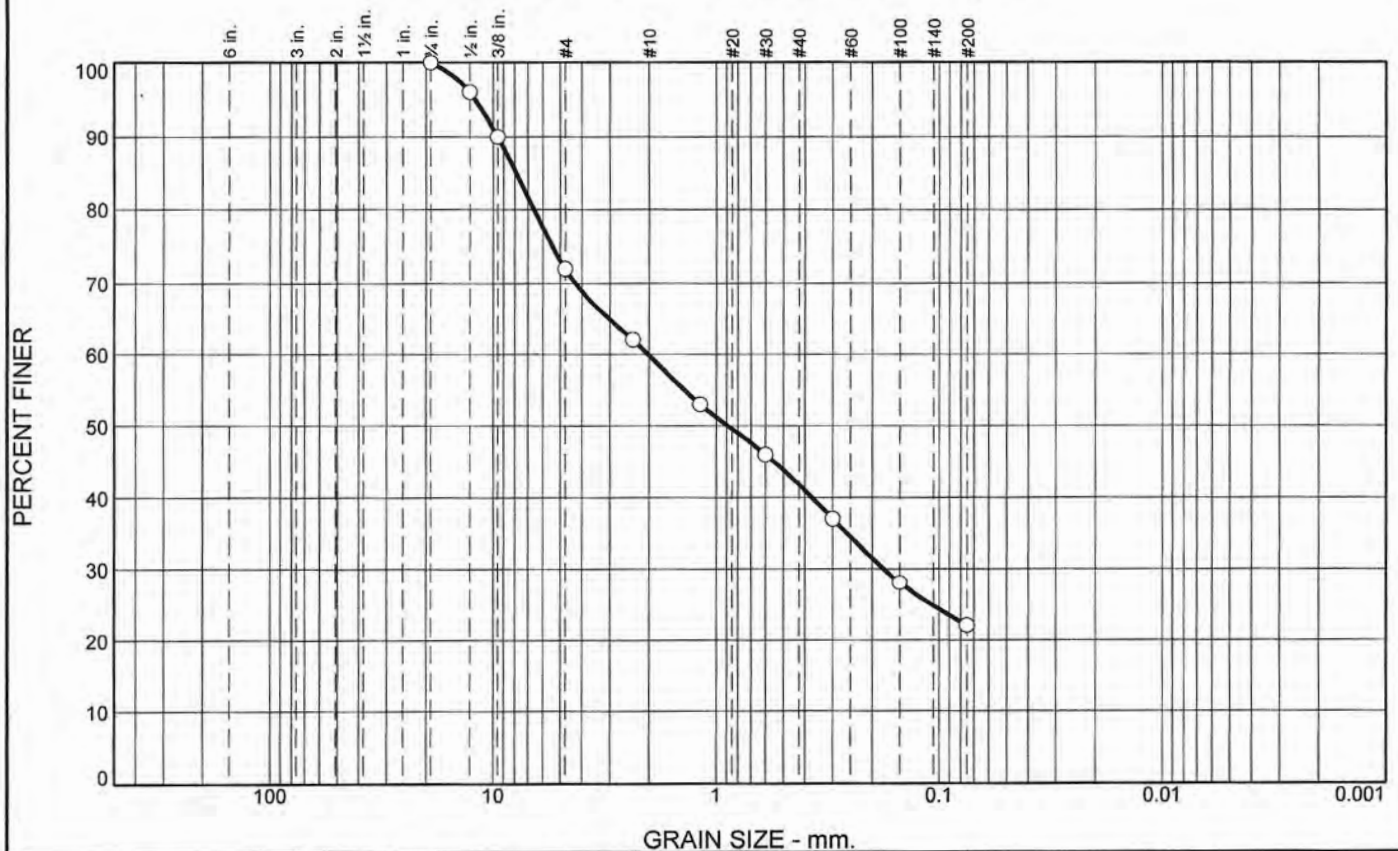
Project: Roseville Pipe Bursting Project
City of Roseville, California

Project No: 3237-072

Figure 0300-006

Tested By: John Hubbard

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	28	12	18	20	22	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	96		
3/8"	90		
#4	72		
#8	62		
#16	53		
#30	46		
#50	37		
#100	28		
#200	22		

* (no specification provided)

Material Description

Brown Clayey Sand with Gravel (visual)

Atterberg Limits

PL= LL= PI=

Coefficients

D₉₀= 9.5250 D₈₅= 7.8783 D₆₀= 2.0196
D₅₀= 0.8892 D₃₀= 0.1783 D₁₅=
D₁₀= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Material Tested in Accordance with ASTM D6913.

Location: B2, 1 DH-5

Sample Number: 29

Depth: 2.0' - 4.0'

Date: 03/04/2022



Client: BAJADA Geosciences, Inc

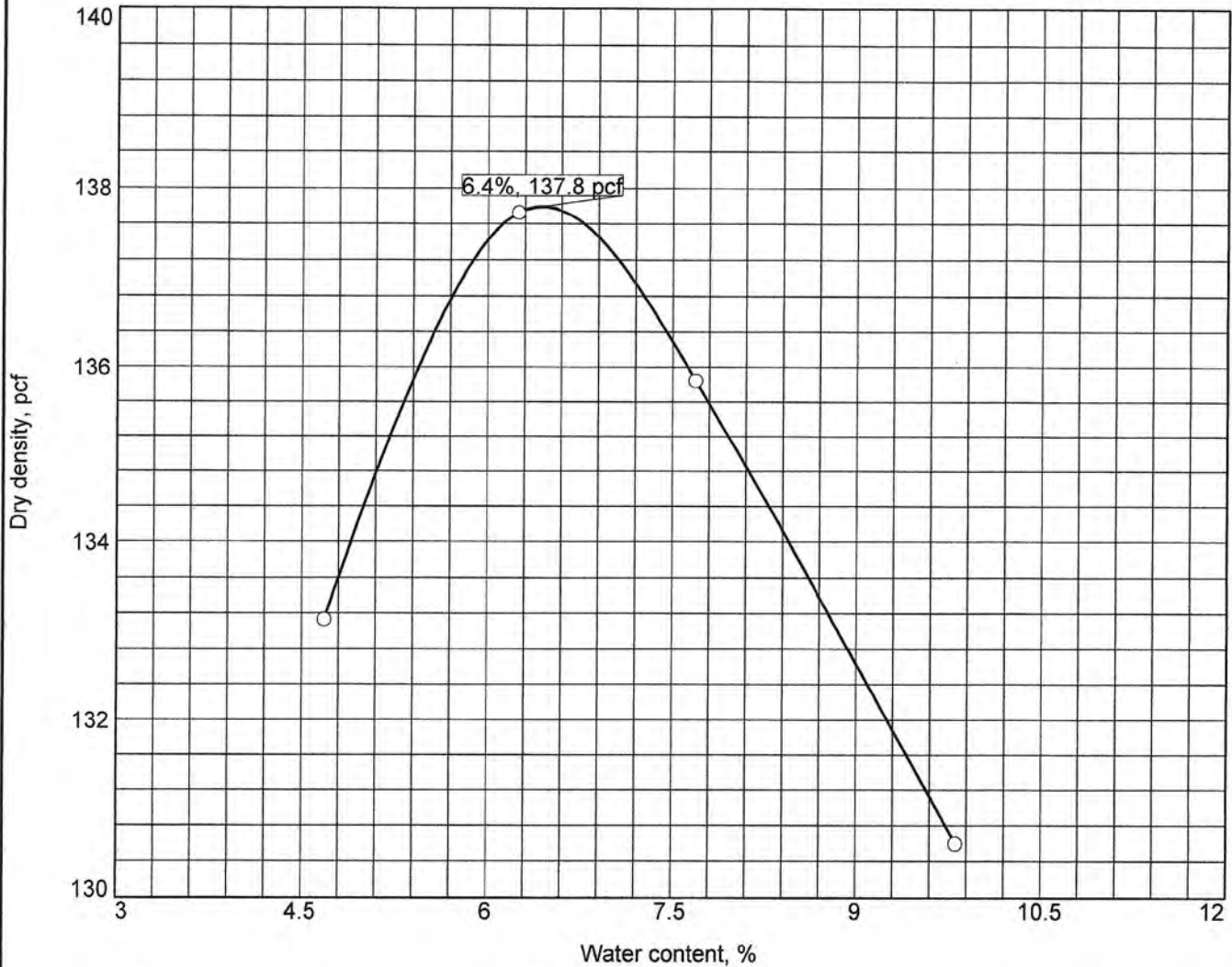
Project: Roseville Pipe Bursting Project
City of Roseville, California

Project No: 3237-072

Figure 0300-007

Tested By: John Hubbard

COMPACTION TEST REPORT



Test specification: ASTM D1557-12 Method B Modified
ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
2.0' - 4.0'	SC			2.60			11	24

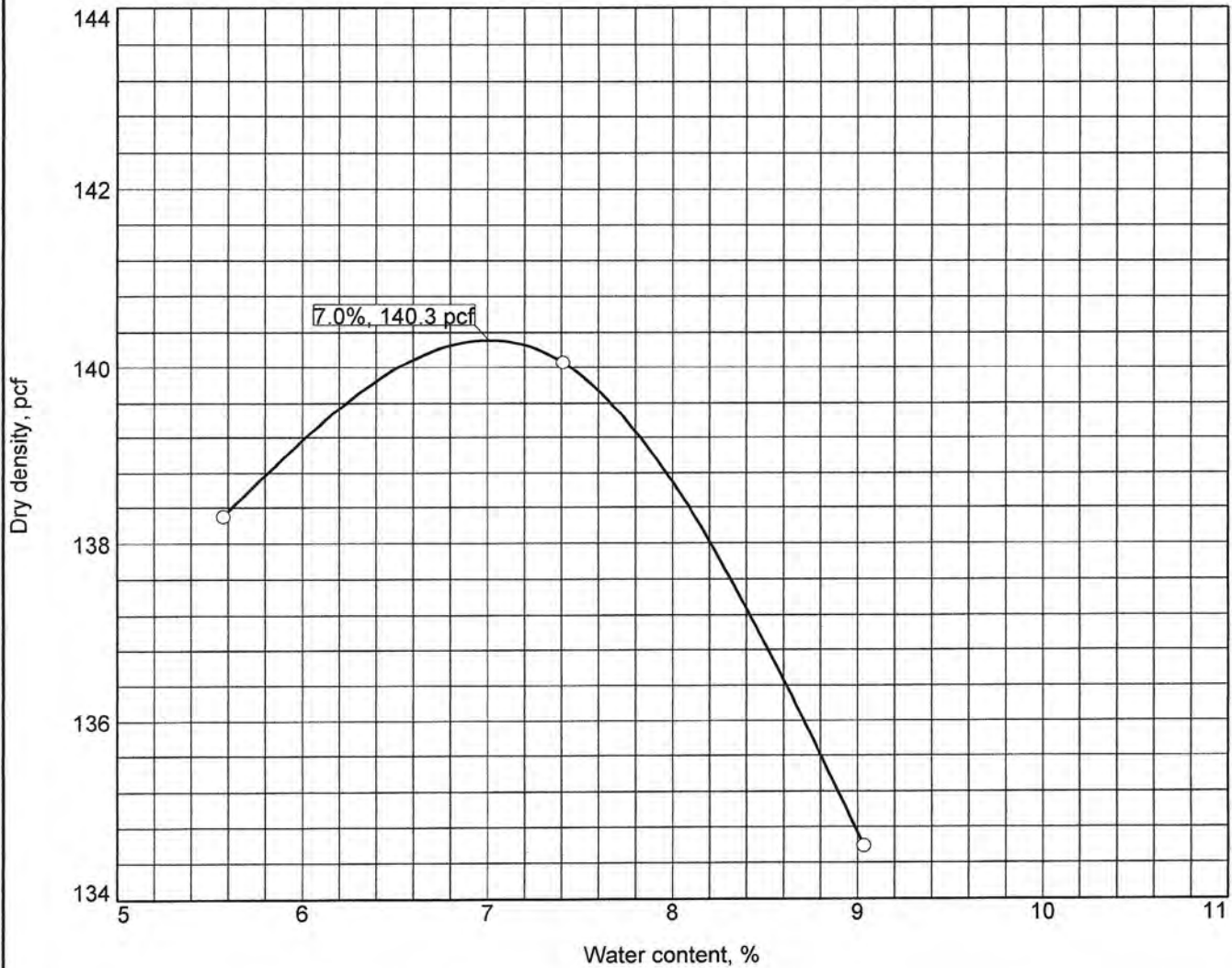
ROCK CORRECTED TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 137.8 pcf Optimum moisture = 6.4 %		Brown Clayey Sand with Gravel (visual)
Project No. 3237-072 Client: BAJADA Geosciences, Inc Project: Roseville Pipe Bursting Project City of Roseville, California ○ Location: B1, 1 DH-3 Sample Number: 28		Remarks: Curve #1 03/04/2022
		

Figure 0300-008

Figure 0300-008

Tested By: Travis Fiscus

COMPACTION TEST REPORT



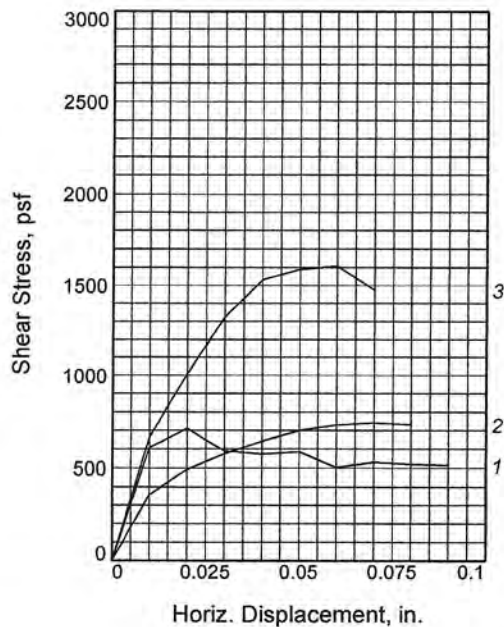
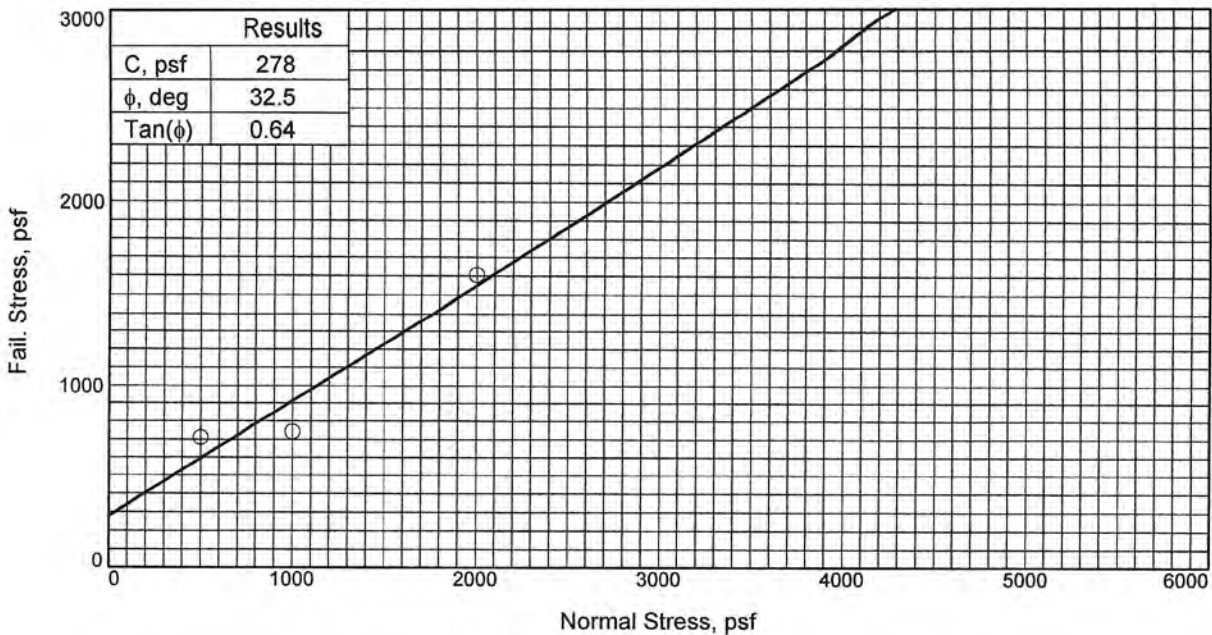
Test specification: ASTM D1557-12 Method B Modified
 ASTM D4718-15 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
2.0' - 4.0'	SC			2.60			10	22

ROCK CORRECTED TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 140.3 pcf Optimum moisture = 7.0 %		Brown Clayey Sand with Gravel (visual)
Project No. 3237-072 Client: BAJADA Geosciences, Inc Project: Roseville Pipe Bursting Project City of Roseville, California ○ Location: B2, 1 DH-5 Sample Number: 29		
		Remarks: Curve #2 03/04/2022
		Figure 0300-009

Figure 0300-009

Tested By: Travis Fiscus



Sample No.		1	2	3
Initial	Water Content, %	26.3	26.3	26.3
	Dry Density, pcf	85.8	82.5	89.4
	Saturation, %	72.8	67.4	79.2
	Void Ratio	0.9872	1.0667	0.9072
	Diameter, in.	2.41	2.41	2.41
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	32.9	30.8	30.9
	Dry Density, pcf	84.9	87.6	85.0
	Saturation, %	89.3	89.0	83.9
	Void Ratio	1.0071	0.9446	1.0062
	Diameter, in.	2.41	2.41	2.41
	Height, in.	1.01	0.94	1.05
Normal Stress, psf		500	1000	2000
Fail. Stress, psf		710	742	1607
Displacement, in.		0.02	0.07	0.06
Ult. Stress, psf				
Displacement, in.				
Strain rate, in./min.		0.002	0.002	0.002

Sample Type: Tube

Description: Light Yellowish Brown Silty Clay
(visual)

Specific Gravity= 2.73

Remarks: Material Tested in Accordance with
ASTM D3080.

Client: BAJADA Geosciences, Inc

Project: Roseville Pipe Bursting Project
City of Roseville, California

Location: DH-3.1, 1

Sample Number: 8

Depth: 4.0'

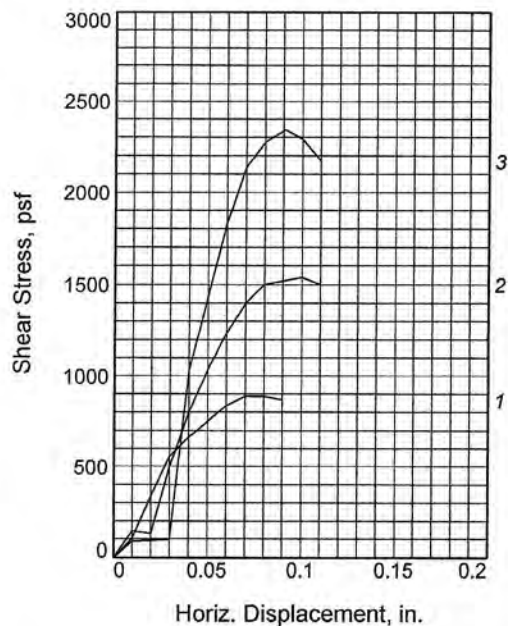
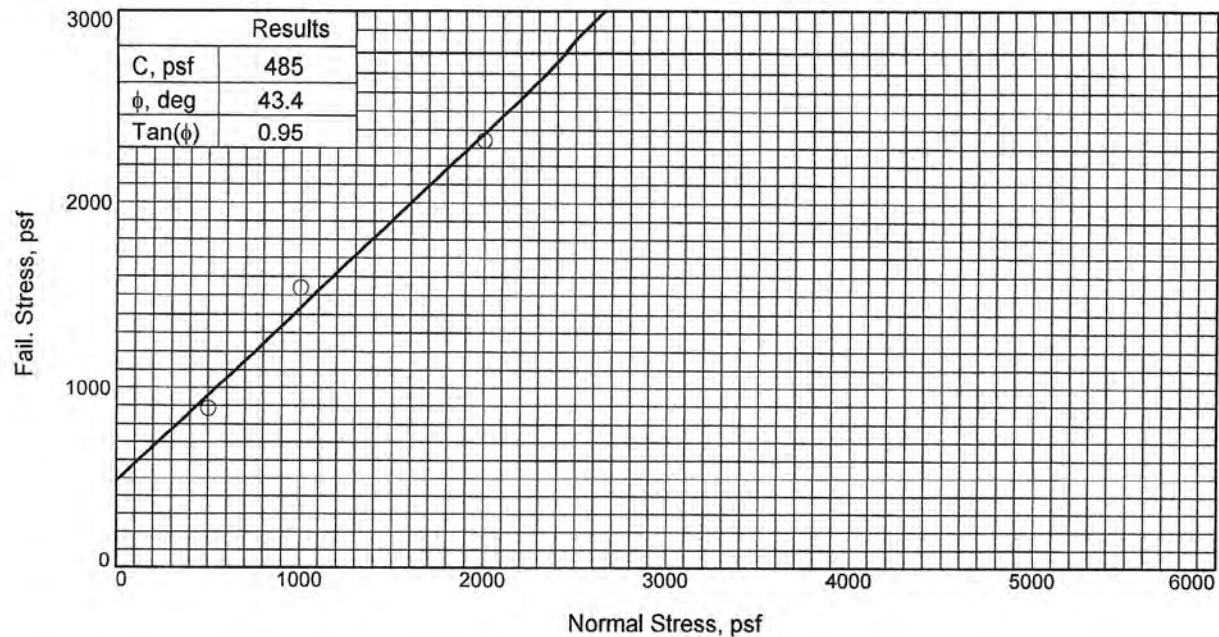
Proj. No.: 3237-072

Date Sampled: 03/04/2022



Figure 0300-010

Tested By: Cindy Gooden



Sample No.		1	2	3
Initial	Water Content, %	12.8	12.8	12.8
	Dry Density, pcf	120.5	112.8	112.8
	Saturation, %	86.9	70.0	70.0
	Void Ratio	0.3982	0.4939	0.4939
	Diameter, in.	2.41	2.41	2.41
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	20.8	22.6	19.1
	Dry Density, pcf	119.0	109.5	108.1
	Saturation, %	135.2	113.1	92.3
	Void Ratio	0.4161	0.5394	0.5600
	Diameter, in.	2.41	2.41	2.41
	Height, in.	1.01	1.03	1.04
Normal Stress, psf		500	1000	2000
Fail. Stress, psf		887	1537	2342
Displacement, in.		0.07	0.10	0.09
Ult. Stress, psf				
Displacement, in.				
Strain rate, in./min.		0.002	0.002	0.002

Sample Type: Tube

Description: Light Grayish Brown Sandy Clay with Claystone (visual)

Specific Gravity: 2.70

Remarks: Material tested in accordance with ASTM D3080.

Client: BAJADA Geosciences, Inc

Project: Roseville Pipe Bursting Project
City of Roseville, California

Location: DH-5.1, 2

Sample Number: 23

Depth: 11.5'

Proj. No.: 3237-072

Date Sampled: 03/04/2022



Figure 0300-011

Tested By: Jack Bianchin



Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/02/2022
Date Submitted 02/24/2022

To: Andy King
K.C. Engineerig
8798 Airport Rd.
Redding, CA 96002

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2337 ROSEVILLE PIPE Site ID : #4DH2.13@6.
Thank you for your business.

* For future reference to this analysis please use SUN # 86776-180581.

EVALUATION FOR SOIL CORROSION

Soil pH	7.54		
Minimum Resistivity	4.56	ohm-cm (x1000)	
Chloride	1.4 ppm	0.00014	%
Sulfate-SO4	17.0ppm	0.00170	%

METHODS

pH and Min.Resistivity CA DOT Test #643 Mod.(Sm.Cell)
Sulfate-SO4 ASTM C1580, Chloride CA DOT Test #422m



Sunland Analytical

11419 Sunrise Gold Circle, #10

Rancho Cordova, CA 95742

(916) 852-8557

Date Reported 03/02/2022

Date Submitted 02/24/2022

To: Andy King
K.C. Engineerig
8798 Airport Rd.
Redding, CA 96002

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 3237 ROSEVILLE PIPE Site ID : #18 DH4.1@13.5.
Thank you for your business.

* For future reference to this analysis please use SUN # 86776-180582.

EVALUATION FOR SOIL CORROSION

Soil pH	7.43		
Minimum Resistivity	3.22 ohm-cm (x1000)		
Chloride	19.6 ppm	0.00196	%
Sulfate-SO4	20.8ppm	0.00208	%

METHODS

pH and Min.Resistivity CA DOT Test #643 Mod.(Sm.Cell)
Sulfate-SO4 ASTM C1580, Chloride CA DOT Test #422m

APPENDIX C

Pump Station Geotechnical Study



GEOTECHNICAL REPORT
for the
Roseville Southeast Sewer and Pump Stations
Placer County, California

Submitted to:

ECO:LOGIC Consulting Engineers
3005 Douglas Blvd., Suite 200
Roseville, CA 95661

by

ESPAÑA GEOTECHNICAL CONSULTING

May 1999



ESPAÑA

Geotechnical
Consulting

502 Giuseppe Court, Suite 11
Roseville, CA 95678
(916) 773-2600
FAX (916) 782-4846

May 12, 1999

Mr. Todd Kotey
ECO:LOGIC Consulting Engineers
3005 Douglas Boulevard, Suite 200
Roseville, CA 95661

**Subject: Geotechnical Report
Roseville Southeast Sewer and Pump Stations
Roseville, California
EGC Project No. J117**

Dear Todd:

Enclosed is our Geotechnical Report for the proposed Roseville Southeast Sewer and Pump Station project located in Placer County, California. Our work was performed in general accordance with our proposal, dated March 15, 1999.

Our geotechnical investigation revealed soil conditions that were generally suitable to the proposed construction. The principle site conditions effecting the proposed development are very dense and very stiff soils at the Roseville Parkway-Eureka Road site and the presence of shallow water at the proposed Sierra College Boulevard pump station site.

Geotechnical reconnaissance using a limited number of exploratory borings relies on uniformity of material between probes. Often during construction we find this not to be the case. Therefore, in presenting this report we do so with the understanding that we will be allowed to continue on this project by providing geotechnical services during construction.

Thank you for using our services on this project. Please call if you should have any questions.

Sincerely,

ESPAÑA GEOTECHNICAL CONSULTING

Alfred P. Worcester, CEG
Project Geologist

Carlos España
Principal Engineer



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INTRODUCTION

Location and Description of Project

This report presents the results of our geotechnical study for two proposed Sewer and Pump Station sites. The proposed sewer pump stations are located near 1) the intersection of Roseville Parkway and Eureka Road and 2) the intersection of Sierra College Boulevard and Old Auburn Boulevard, near the south edge of Placer County, California. A Project Vicinity Map is included as Figure 1.

The proposed project involves the construction of new sewer pump stations and associated sewer pipelines. The pump stations will consist of a wet well, screening facility, valve vault and an electrical generator. A Boring Location Map of the proposed pumping stations is shown on Figures 2 and 3.

The proposed pump stations will each consist of a wet well approximately 8 to 10 feet in diameter and 30 feet deep. The pump station walls will be constructed of reinforced concrete pipe or possibly of a plastic-composite material. A concrete slab will be placed at the base of each station. Existing sewer lines will be connected to the new pump stations at a depth of approximately 20 feet below existing ground surface.

An associated valve vault/pig-launch facility will be supported on a cast-in-place concrete mat that will be founded at approximately 6 feet below finished grade. Foundations for ancillary items such as an electrical generator will be placed at-grade.

Purpose and Scope

This Geotechnical Report, prepared by España Geotechnical Consulting, is intended for use by the engineers and planners involved in design and construction of the proposed sewer pumping stations. The purpose of our geotechnical study was to explore and report the subsurface conditions at the proposed sites in order to provide geotechnical recommendations for design and construction purposes.

Our scope of services was outlined in our proposal, dated March 15, 1999. Our present scope of work was as follows:

- A. Locate our proposed borings in the field and notify USA and/or facility personnel to locate existing underground utilities,
- B. Drill and sample two, hollow stem auger borings (one for each location) to depths of approximately 35 feet below the ground surface,
- C. Perform laboratory testing of selected soil samples retrieved from the borings. Testing will include moisture-density, plasticity index, direct shear and/or unconfined compression, and corrosivity,

- D. Prepare a geotechnical report describing the results of our field and laboratory programs, outlining our analyses of the data, and providing preliminary recommendations for design and construction of the proposed facilities including:
- a) site preparation,
 - b) excavation and backfill,
 - c) bearing capacity,
 - d) foundations,
 - e) lateral earth pressures,
 - f) general soil corrosivity,
 - g) construction considerations.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied. Geotechnical reconnaissance using a limited number of exploratory borings relies on uniformity of the material between the probes. The number and location of borings were specified by ECO:LOGIC Consulting Engineering, Inc. Recommendations presented herein are based on our assumptions about the project's design parameters and the subsurface conditions based on the requested field work performed to date.

SITE CONDITIONS

General

The proposed Eureka Road-Roseville Parkway sewage pump station (Roseville Parkway Site) is located in the northeast quadrant of the intersection, approximately 250 feet north of the intersection of Roseville Parkway and Eureka Road and 40 feet back of the Eureka Road curb. The proposed Sierra College Boulevard sewage pump station (Sierra College Boulevard Site) is located 30 feet east of back of curb and approximately 150 feet south of the intersection of Sierra College Boulevard and Old Auburn Boulevard.

The Roseville Parkway Site area is relatively flat and at the time of our field work was improved by landscaped trees, bushes and grasses. The site was constrained by an underground utility, a 14-foot deep Rocklin-Loomis sewer main alignment and by overhead high-voltage power lines.

The Sierra College Boulevard Site area is also relatively flat and at the time of our field work had a medium growth of native grasses. The site was constrained by overhead high-voltage power lines. A slow moving but full drainage creek is located approximately 15 feet north and east of the boring location.

Subsurface Soil Conditions

The soil profiles described below are generalized; therefore, the reader is advised to consult the logs of borings, Figures I-1 through I-2 in Appendix I, if the soil conditions at a specific location are desired.

On the boring logs, the soil type, color, moisture, consistency, and Unified Soil Classification symbol are indicated.

Roseville Parkway Site

Boring B-1 was drilled at the Roseville Parkway/Eureka Road location. The surface soils observed in the boring generally consisted of stiff, sandy clay to a depth of 7 feet below ground surface (bgs), underlain by approximately 5 feet of very dense, clayey sand with gravel. From 13 feet bgs to the maximum depth drilled, the material consisted of hard, clayey silt with an interbed of very dense clayey sand with gravel.

Sierra College Boulevard Site

The surface soils observed at Boring B-2 consisted of firm, clayey silt to a depth of 3.5 feet bgs. Underlying this material are slightly cemented, fine silty sand to a depth of 7 feet bgs, followed by very stiff, silty clay to a depth of 20 feet bgs. The remainder of the borehole lithology consisted of very dense, well graded, coarse to fine-grained sand with silt.

Ground Water Conditions

Ground water maps prepared by Placer County (1987) and Sacramento County (Spring, 1994) indicate approximate ground water elevations of 100 to 120 feet above sea level. This would place the first unconfined ground water table at a depth of around 90 to 110 feet below the current site grades.

Roseville Parkway Site

No ground water was encountered in this boring drilled on March 29, 1999 to a maximum depth of 35 feet below existing grade.

Sierra College Boulevard Site

Ground water was encountered at approximately 13 feet below ground surface in this boring on March 29, 1999. The water level subsequently rose to approximately 5 feet bgs prior to reaching total depth at 35 feet bgs.

LABORATORY TEST RESULTS

Selected samples obtained during drilling were tested to determine physical and chemical properties of the soil. The test types and procedures used are presented in Appendix II. The test results are presented in Tables II-1 through II-4, Figures II-1 through II-6, and on the Logs of Test Borings in Appendix I. A summary of the laboratory test results is presented below.

Dry densities of the undisturbed samples varied from 96 pounds per cubic foot (pcf) to 132 pcf with an average of 111 pcf. Moisture contents varied from 8 to 22 percent with an average of 17 percent.

Two Atterberg Limits tests were run on selected samples of cohesive soil. Liquid Limits of the samples tested ranged from 18 to 30 with Plasticity Indices ranging from 11 to 22.

Unconfined compression tests were on two samples of cohesive soils. The undrained shear strength of the materials ranged from 3427 to 6385 psf.

A direct shear test was performed on a relatively undisturbed samples of sandy soil and indicated an angle of internal friction (ϕ) of 37° and cohesion 2600 psf.

Two samples were tested for corrosion potential by measuring pH and resistivity. pH values ranged from 6.7 to 7.0. Resistivities ranged from 1,478 to 1,617 ohm-cm.

CONCLUSIONS AND RECOMMENDATIONS

General Site Clearing and Grading

Prior to start of general grading operations, all areas to be graded should be cleared of any surface debris and soft or saturated soils. All areas with surface vegetation should be stripped to a depth of 4 inches. Material resulting from stripping operations will not be suitable for use as structural fill. Strippings could be used as fill in landscape areas or non-structural areas.

Overexcavated subgrades created as a result of removing the above materials and/or the exposed soil in at-grade structural areas, should be scarified to a depth of 8-inches, moisture conditioned to optimum moisture content or higher, and recompact to a minimum of 90% maximum dry density, based on ASTM Specification D1557.

Native soil to be used as structural fill should not contain trash, debris, or concentrations of organic material. Import material should be graded such that more than 50% passes the No. 4 sieve, more than 30% passes the No. 40 sieve, and more than 15% passes the No. 200 sieve. Imported soil must have a Plasticity Index (P.I.) of less than 11 and an Expansion Index (E.I.) less than 20. Imported soil should not contain organics in concentrations greater than 5%, or trash or debris. Import material should be approved by the project Geotechnical Engineer at least 48 hours prior to transport to the site.

Fill composed of native or import soil should be placed in level lifts which do not exceed 6 inches when compacted. After each layer has been placed, mixed, and spread evenly, it should be thoroughly compacted. Fill should be compacted to a minimum of 90% of the maximum dry density as determined by the ASTM D1557 Test Method.

Foundations

Provided our grading recommendations are followed, it is our opinion that the pump station and other below-grade facilities are suited to support by conventional structural concrete-mat foundations.

At-Grade Structures

Roseville Parkway Site

Structural slab-on-grade pads should be embedded a minimum depth of 12 inches below lowest surrounding grade. Structural equipment slabs may be designed for an allowable bearing capacity of 3,000 pounds per square foot (psf). This may be increased by one-third to account for the short-term effects of wind and/or seismic loading.

Total settlement is estimated at ½ inch following construction. Differential settlement is estimated at less than ¼ inch.

Sierra College Boulevard Site

Structural slab-on-grade pads should be embedded a minimum depth of 12 inches below lowest surrounding grade. Structural equipment slabs may be designed for an allowable bearing capacity of 2,000 psf. This may be increased by one-third to account for the short-term effects of wind and/or seismic loading.

Total settlement is estimated at ½ inch following construction. Differential settlement is estimated at less than ¼ inch.

Below-Grade Structures

Roseville Parkway Site

It is our opinion that the proposed pump station is well suited for a conventional mat foundation. The proposed 25 to 30 foot deep pump station will be founded on material that will provide adequate bearing capacity. Adequate soil bearing strength with a minimum capacity of 3000 psf is anticipated at this site. Potential differential settlement is estimated at less than ½ inch across the foundation width. The mat foundation should be underlain by 6 inches of well compacted, ¾" crushed drainrock, sized so that 100% passes the 1" sieve and less than 5% passes the 200 sieve.

The structure is unlikely to be subject to buoyant uplift forces. If resistance to buoyant forces is desired for design, then an adhesion value of 750 psf may be used to determine resistance to uplift forces. The upper 3 feet of material should not be included in the determination of resistance.

Sierra College Boulevard Site

It is our opinion that the proposed pump station is suited for a conventional mat foundation. The proposed 14 to 20 foot deep pump station will be founded on material that will provide adequate bearing capacity. Adequate soil bearing strength with a minimum capacity of 2500 psf is anticipated at this site. Potential differential settlement should be less than ¾ inch. The mat foundation should be underlain by crushed rock, as described above.

The structure should be sized to be resistant to potential buoyant forces from possible perched water coming from a tributary to Linda Creek, located 15 feet to the north of the exploratory boring and the proposed sump site. An adhesion value of 750 psf may be used to determine the resistant forces for the first 20 feet of structure below grade. For that part of the structure greater than 20 bgs, a friction factor of 0.3 may be used to determine resistance to buoyant forces. The upper 3 feet of material should not be included in the determination of resistance.

Retaining Structures

Roseville Parkway Site

The lateral soil pressures exerted against a structure's wall(s) may be assumed to be equal to the pressure exerted by an equivalent fluid. The Roseville Parkway pump station walls can be designed using an-rest equivalent fluid weight of 85 pcf. The value assumes a drained condition, due to the absence of observed ground water at the site. The drained condition can only be assumed if adequate drainage is provided to eliminate the build up of hydrostatic pressure. The value should be considered an ultimate value since it does not include a factor of safety.

The equivalent fluid weight also assumes a horizontal backfill and does not take into account sloping backfill or the effect of surcharge loading. Resistance to lateral loads may be provided by assuming a passive pressure based on an equivalent fluid weight of 435 pcf. Where passive pressure alone is used against sliding, a safety factor of 1.5 should be used for overall lateral stability. Where both passive pressure and friction are used to resist sliding, the safety factor should be 2.0. If surface loads, such as the valve or electrical box, are closer to the edge of the wall than half of its height, then the lateral pressure on the wall should be increased by $0.30q$ over the whole area of the retaining wall. In this expression, q is the surface surcharge load in psf.

When heavy equipment is used to backfill against a retaining wall, a surcharge can occur. Equipment surcharge should be considered in design of the wall and/or temporary support. Typical compaction equipment loading values are 400 psf. If any of the above conditions occur, we should be allowed to review the design plans and provide additional recommendations if necessary.

Sierra College Boulevard Site

The Sierra College Boulevard pump station walls can be designed using an-rest equivalent fluid weight of 100 pcf. The value assumes an undrained condition and should be considered an ultimate value since it does not include a factor of safety. These equivalent fluid weights assume a horizontal backfill and do not take into account sloping backfill or the effect of surcharge loading. Surface loads should be incorporated into the design of the pump station under the conditions and pressures described above.

Pipe Bedding and Initial Backfill

Pipe bedding and the initial trench backfill materials should consist of imported sand, gravel or crushed rock conforming to the project specifications. Based on the results of our field and laboratory investigations, material suitable for bedding and initial backfill is not available on site.

Trench Backfill

Trenches should be backfilled with native soil or approved import. The soil used for backfill, whether native or imported, should be free of trash, organics and material larger than 4 inches. Trench backfill should be compacted to a minimum of 90% relative compaction using mechanical methods. However, where the pipeline crosses existing or proposed streets, the upper 24 inches of backfill should be compacted to a minimum of 95% relative compaction. Jetting is not recommended. We recommend maximum lift thicknesses of 1 foot in structural areas and 2 feet in non-structural areas. Compaction should be based on the ASTM D1557 test method.

Construction Considerations

Dewatering will be necessary prior to performing excavation at the Sierra College Boulevard site. The perched water source is believed to be from the creek located to the northeast and reaching the site through sand layers within the subsurface. Perched seepage water was first observed at approximately 13 feet bgs while drilling. The water subsequently rose to 5 feet bgs in the same borehole. Well points or wells will likely be needed to dewater the site prior to excavating. Sheet piles are not recommended for dewatering at the site. Potentially loose soils, highly permeable soils, and proximity to an existing creek will create potential flowing sands in the base of a sheet pile excavation. Sump pumps will likely not be sufficient to control the influx of water and potential flowing sand conditions.

The owner and contractor should be familiar with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards. Construction site safety is generally the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. Under no circumstances should the information provided below be interpreted to mean that España Geotechnical Consulting is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

Based on the soil categories described in the Federal Register, 29 CFR Part 1926, Occupational Safety and Health Standards - Excavations, the soil encountered in the borings can be broken into two main categories: Type A and Type B soils for the Roseville Parkway site and Type B and Type C soils for the Sierra College Boulevard site. Again, note that perched ground water exists at shallow depths at the Sierra College Boulevard site.

Type A and Type B soils range from dense and hard, cemented silts and sands to medium stiff clayey sandy silts that were observed at the Roseville Parkway location. Type B and Type C soils include the loose sands and silty sands encountered at the Sierra College Boulevard location. Based on these three categories, we recommend that all temporary excavations be sloped as shown in Table 1 below.

TABLE 1

MAXIMUM SLOPES FOR TEMPORARY EXCAVATIONS		
Soil Category	Maximum Slope	Maximum Height
Type A Soil	$\frac{3}{4}(H):1(V)$	20 feet
Type B Soil	1:1	20 feet
Type C Soil	$1\frac{1}{2}(H):1(V)$	20 feet

If vibrations from adjacent construction traffic are significant, soil that would otherwise be classified as Type B may have to be classified as Type C. The impact of vibrations, actual soil conditions exposed in the open trenches, and other factors that may promote trench wall instability must be evaluated at the time of construction. Non-cohesive soil was encountered in some of our borings. Caving may occur if lenses of loose sand are encountered during excavation. In order to use the "short-term" recommendations in the above table, excavations must be open no longer than 24 hours. If vertical excavations over 5 feet deep are necessary in either Type A or Type B soil, they should be shored. Shoring should be designed in accordance with 29 CFR Part 1926 using the appropriate parameters for Type A or Type B soil.

Corrosivity

In general, the results of our corrosivity testing for resistivity and pH indicate that the site's soils are mild to non-corrosive to reinforced concrete and steel.

LIMITATIONS

The analyses, conclusions, and recommendations contained in our report are based on site conditions as they existed at the time of our study, and further assume that probes such as exploratory borings are representative of the subsurface conditions throughout the site; i.e., the subsurface conditions everywhere are not significantly different from those disclosed by the probes.

Soil conditions cannot be fully determined by widely spaced probes and, therefore, unanticipated soil conditions are commonly encountered. Such unexpected soil conditions often require that additional expenditures be made to attain a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs.

This geotechnical study did not include an investigation regarding the existence, location, or type of possible hazardous materials. If an investigation is necessary, we should be advised. In addition, if any hazardous materials are encountered during construction of the project, the proper regulatory officials should be notified immediately.

Reviewed by: *Ad* Date: 5.12.99

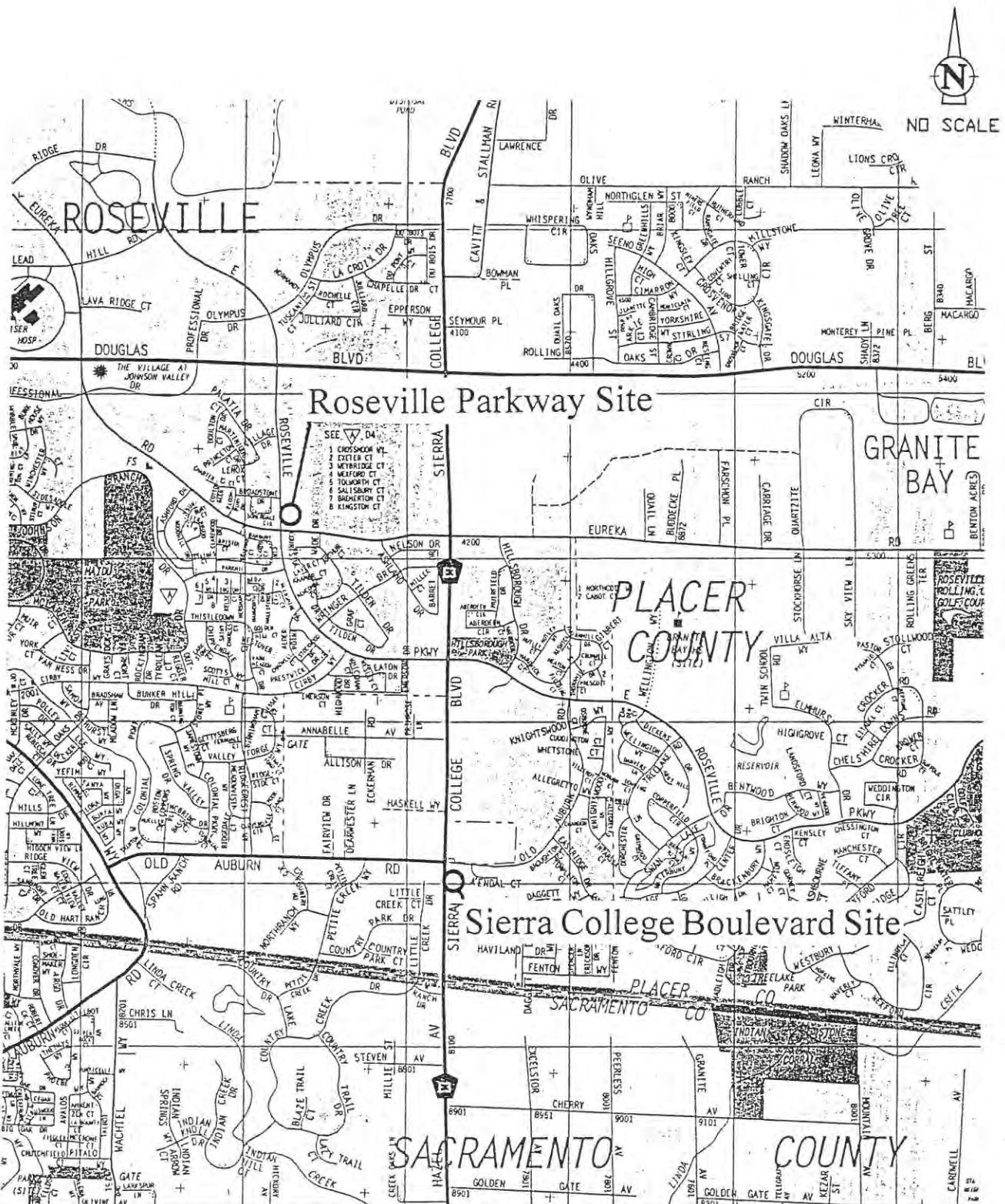
Checked by: *Ad* Date: 5.12.99

Date: 3/29/99

Field Rep: APW

Date: 5/12/99

Drawn by: APW



Source: Thomas Brothers, 1996

VICINITY MAP

Roseville Southeast Sewer & Pump Stations

Placer County, California



ESPAÑA
Geotechnical
Consulting

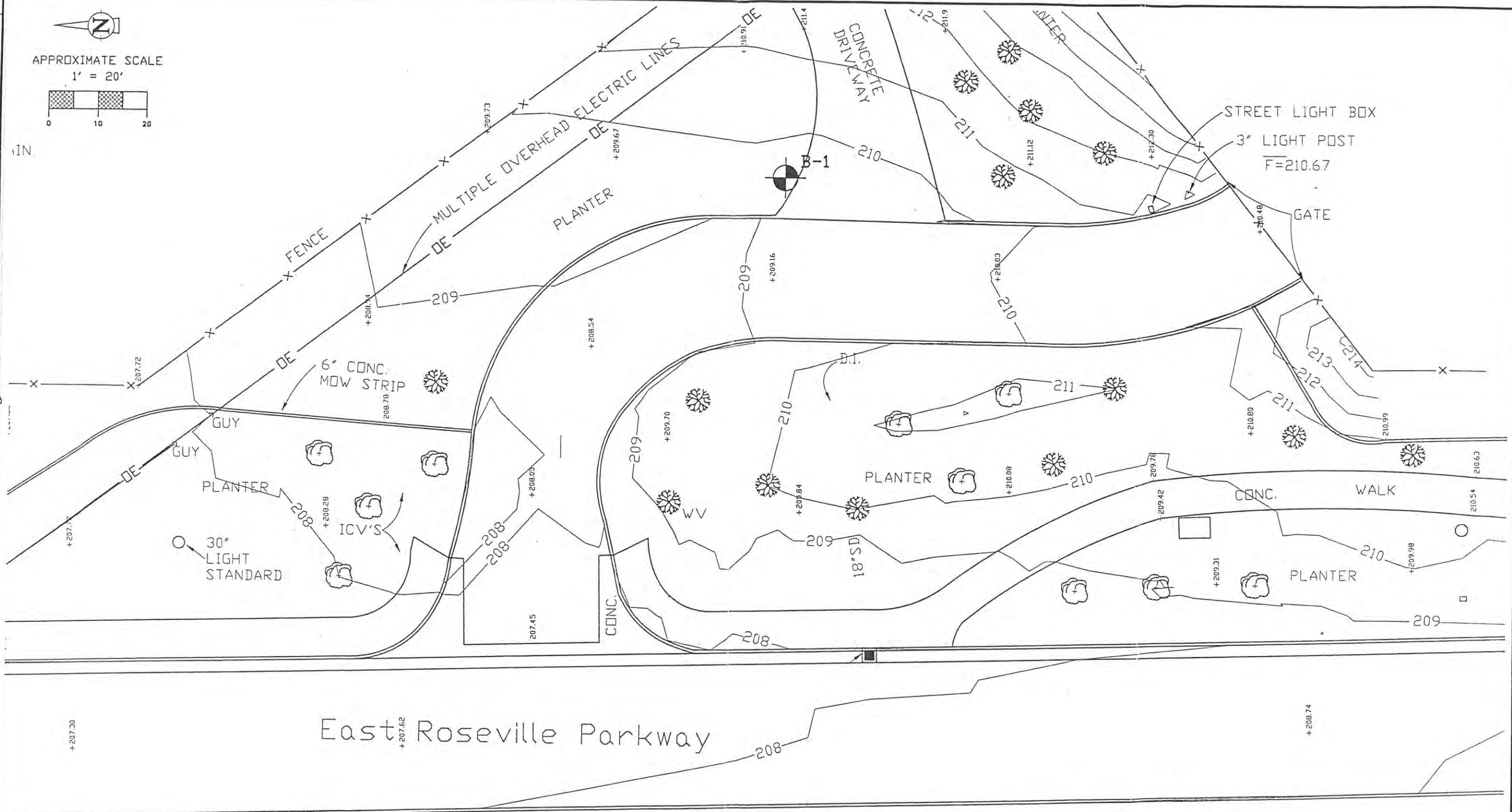
502 Giuseppe Ct, Ste 11, Roseville, CA 95678
TEL (916) 773-2600 FAX (916) 782-4846

Project No.
J117

Figure

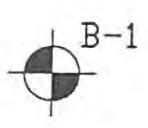
1

Drawn by: APW
Date: 5/12/99
Field Rep: APW
Checked by: [Signature]
Date: 5/29/99
Reviewed by: [Signature]
Date: 5/12/99



East Roseville Parkway

LEGEND



Exploratory Boring Location

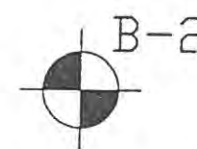
Source: MHM Engineering, 1998

BORING LOCATION MAP
Roseville Parkway Sewer & Pump Station
(Approximately 250 feet North of Eureka Road)
Placer County, California



502 Giuseppe Ct., Ste 11, Roseville, CA 95678
(916) 773-2600 FAX (916) 782-4846

Project No.
J117
Figure
2



Boring Location

BORING LOCATION MAP
Sierra College Blvd. Sewer & Pump Station
(Approximately 150 feet south of Old Auburn Road)
Placer County, California



APPENDIX I

FIELD INVESTIGATION

Our field investigation was conducted on March 29, 1999. It consisted of the drilling and sampling of 2 borings to maximum depths of 35 feet below ground surface. The data obtained from the borings are presented on the Logs included in Appendix I.

The borings were drilled with a CME-750 All-Terrain type drill rig using 6-inch diameter, hollow-stem augers. Sampling was performed by dropping a 140-pound hammer 30 inches for each blow. The hammer was used to advance a 2.5-inch I.D. sampler lined with 6-inch long tubes. The number of hammer blows required to drive the sampler each 6-inch interval of a total 18-inch drive were recorded as the field blow counts. Borings were backfilled with soil cuttings.

LOG OF BORING

**Boring No.
B-1**



Project: Roseville Southeast Sewer and Pump Stations

Project No.: J117

Elevation: 209.5' MSL

Date Drilled: March 29, 1999

Drilling Method: CME-750 with 6" Hollow Stem Augers

Logged By: APW

Elevation/ Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	MATERIAL DESCRIPTION	REMARKS	Sample Number	Density p.c.f.	Moisture %
0		CL	Red brown, moist, stiff, silty CLAY with some fine gravel and sand				
205	5 8 7	SC	Medium grey-brown, moist, stiff, clayey SAND with silt		B-1-1	112	14.9
200	29 39 38	GP-GM	Red-brown to light grey, moist, very dense, sandy GRAVEL with silt	decomposed granite appearance	B-1-2	132	7.5
		SC	Medium red-brown, moist, very dense, clayey SAND				
195	13 25 38	ML	Light orange-tan, slightly moist, very stiff to hard, SILT with clay		B-1-3 B-1-4	101	19.8
190	19 50 5"	ML	Light orange, slightly moist, hard, SILT with some clay		B-1-5	96	16.9
185	18 50	ML	Medium grey to light blue grey, slightly moist, hard, SILT, moderately cemented, with some clay	iron oxide concretions observed	B-1-6		
180	10 33 50	GP-SP	Medium grey, moist, very dense, sandy GRAVEL and gravelly SAND, with some silt		B-1-7 B-1-8	113	13.6
175	15 28 50/ 3"	CL	Medium to light blue-grey, moist, very stiff to hard, silty CLAY with sand		B-1-9	104	21.6

Notes: Boring Terminated at 35' below ground surface.
No Free Water Encountered.

Figure I-1

LOG OF BORING

**Boring No.
B-2**



Project: Roseville Southeast Sewer and Pump Stations

Project No.: J117

Elevation: 200' MSL

Date Drilled: March 29, 1999

Drilling Method: CME-750 with 6" Hollow Stem Augers

Logged By: APW

Elevation/ Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	MATERIAL DESCRIPTION	REMARKS	Sample Number	Density p.c.f.	Moisture %
200 0		CL	Medium brown, moist to very moist, medium stiff to stiff, silty CLAY with sand				
195 5	8 14 22	SC	Medium red-brown, very moist to slightly wet, dense, clayey SAND with gravel and silt		B-2-1	109	7.7
		GC	Medium red-brown, wet, sandy GRAVEL with clay				
190 10	10 21 40	CL	Light tan, moist, very stiff to hard, silty CLAY		B-2-2 B-2-3		
185 15	5 12 24	CL	Medium tan, moist, very stiff, silty CLAY, with some sand, common dark brown mottling, abundant arkosic sand grains	Water 1st observed while drilling @ 13' bgs. Subsequently rose to indicated level @ 5' bgs while drilling	B-2-4	116	17.5
		CL	Tan-grey, moderately moist, very stiff to hard, very sandy CLAY				
180 20	18 25 40		Medium grey-tan, wet, very dense, fine to coarse grained, well graded, SAND with clay	center plug stuck inside bottom auger - start of flowing sands	B-2-5	113	17.2
175 25	5/8"	SW			B-2-6		
170 30	5 50/ 5"			5 feet of slough accumulated at bottom of borehole during sampling; flowing sands	B-2-7		
165 35	12 50/ 4"	SW	Medium orange-brown, moderately moist, very dense, silty, fine grained SAND, with some altered arkosic sand grains		B-2-8	115	16.5

Notes: Boring Terminated at 34.5' below ground surface.
Free water observed at 13' bgs while drilling, subsequently observed at 5' bgs after approximately 30 minutes while drilling

Figure I-2

LEGEND



Project: Roseville Southeast Sewer & Pump Station

Project No.: J127

Soil Symbols Sampler Symbols and Field Test Data	USCS	DESCRIPTION
	ML	Low Plasticity SILT
	CL	Low Plasticity CLAY
	SM	Silty SAND
	SW	Well graded SAND
	GC	Clayey GRAVEL
	GP-SP	Well-graded sandy GRAVEL & gravelly SAND
	GP-GM	Poorly-Graded GRAVEL and silty GRAVEL
	SC	Clayey SAND
		3.0-inch O.D. Sampler (2.5-inch I.D.), Blow Counts (4,5,6) for 6-inch intervals using 350 ft-lbs energy hammer
		Rock Core (4-inch O.D.)
		Bulk Sample (Baggie) taken from auger/backhoe
		Bulk Sample Taken From Auger/backhoe
		Ground Water Measured Upon Completion of Boring

APPENDIX II

LABORATORY TESTING

Samples obtained from the field exploration were contained in sealed brass tubes or bulk sample bags depending on the technique used during sampling. These samples were shipped to the laboratory for testing. The following tests were performed on selected samples and are shown on the accompanying Tables and Figures.

Laboratory Soil Classification

The field classification is verified in the laboratory by visual examination and by ASTM methods, in accordance with the Unified Soil Classification System. The classification tests, if conducted, include grain size analysis (ASTM D422) and Atterberg Limits (ASTM D4318). Results are shown on Table II-1 and on Figures II-1 through II-3. The final soil classification is shown on the boring logs.

Moisture-Density

The moisture-density information (ASTM D2216) provides a summary of soil consistency for each stratum, and can also provide a correlation between soils found on this site and other nearby sites. The dry unit weight and field moisture content are determined for selected undisturbed samples, and the results are shown on the boring logs.

Maximum Density-Optimum Moisture Content

Representative soil samples were tested in the laboratory to determine maximum dry density and optimum moisture content using the ASTM D1557 compaction test method. This procedure uses 25 blows of a 10-pound hammer falling a height of 18 inches on each of five layers in a 1/30 cubic foot cylinder.

Unconfined Compressive Strength

The unconfined compressive strength (ASTM D2166) provides an approximation of the compressive strength of a cohesive soil in terms of total stresses. The soil sample is placed in a compression device and the load is increased and recorded until the load values decrease with increasing strain or until 15% strain is reached. Test results are included below in Table II-3.

Direct Shear

A strength parameter for a soil sample at the Sierra College Boulevard site was determined by direct shear testing (ASTM D3080). Shear tests are made with a direct shear machine at a constant rate of strain. A normal or confining load approximately equal to the existing or anticipated weight of soil above the point of sampling is applied vertically and the soil shear strength is determined at this load. Samples are also tested at higher and lower normal loads in order to determine the angle of internal friction and the cohesion. Test results are included below in Table II-4.

Chemical Testing

Selected samples were tested for pH and resistivity. The tests were performed using EPA methods 9045 and 120.1. Test results are shown on Table II-5.

TABLE II-1

SUMMARY OF MOISTURE-DENSITY TEST RESULTS			
Sample No.	Depth (ft.)	Moisture (% dry wt.)	Dry Density (pcf)
B-1-1	5.5	14.9	112.1
B-1-2	9.5	7.5	131.6
B-1-4	14.5	19.8	101.3
B-1-5	19.5	16.9	95.5
B-1-8	29.5	13.6	112.9
B-1-9	34.5	21.6	104.4
B-2-1	4.5	7.7	109.4
B-2-4	14.5	17.5	115.9
B-2-5	19.5	17.2	113.1
B-2-8	34.0	16.5	115.2

TABLE II-2

SUMMARY OF ATTERBERG LIMITS TEST RESULTS				
Sample No.	Depth (ft.)	Liquid Limit	Plastic Limit	Plasticity Index
B-1-6	24.0	30	8	22
B-2-3	9.5	18	7	11

TABLE II-3

SUMMARY OF UNCONFINED COMPRESSION TEST RESULTS				
Sample No.	Depth (ft.)	Moisture Content (% dry wt.)	Dry Density (pcf)	Undrained Shear Strength (psf)
B-1-6	24.5	17	111.5	6385
B-2-3	9.5	31.2	93	3427

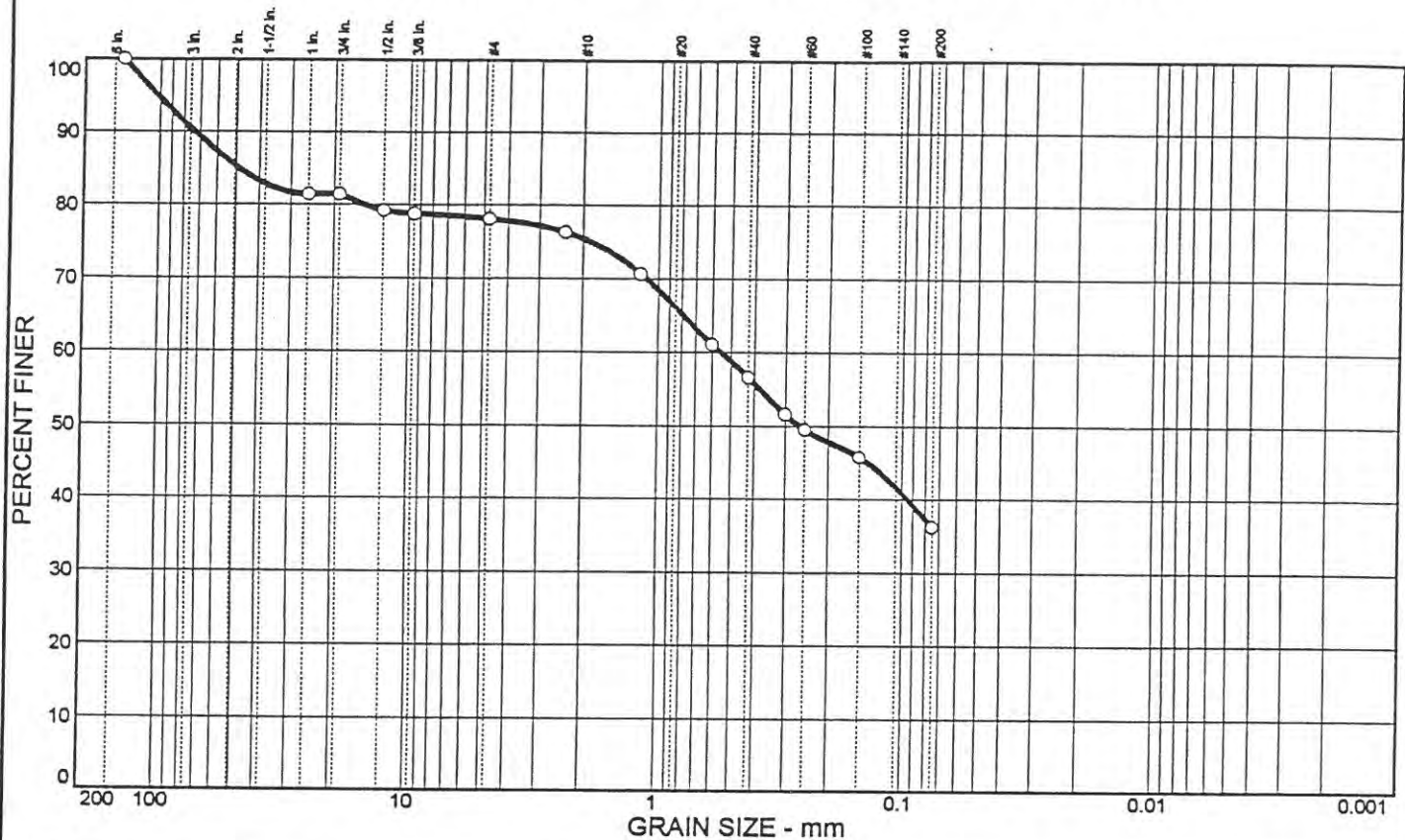
TABLE II-4

SUMMARY OF DIRECT SHEAR TEST RESULTS					
Sample No.	Depth (ft)	Moisture content (% dry wt.)	Dry Unit Weight (pcf)	Friction Angle (ϕ)	Cohesion (pcf)
B-2-6	23.5	18.7	92.3	37	2600

TABLE II-5

SUMMARY OF CORROSIVITY TEST RESULTS			
Sample No.	Depth (feet)	pH	Resistivity (ohm-cm)
B-1-5	19.5	6.7	1478
B-2-3	9.5	7.0	1617

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
0	12.4	41.9						

SIEVE inches size	PERCENT FINER		
	○		
11/2	100.0		
1	81.4		
3/4	81.4		
1/2	79.2		
3/8	78.8		
GRAIN SIZE			
D ₆₀	0.551		
D ₃₀			
D ₁₀			
COEFFICIENTS			
C _c			
C _u			

SIEVE number size	PERCENT FINER		
	○		
#4	78.1		
#8	76.3		
#16	70.7		
#30	61.1		
#40	56.7		
#50	51.6		
#60	49.5		
#100	45.7		
#200	36.2		

SOIL DESCRIPTION

○ Brown silty fine grained SAND w/clay, & 1/2" to 11/2" gravel

REMARKS:

○

○ Source: B1

Sample No.: B1-1

**ESPAÑA
GEOTECHNICAL
CONSULTING**

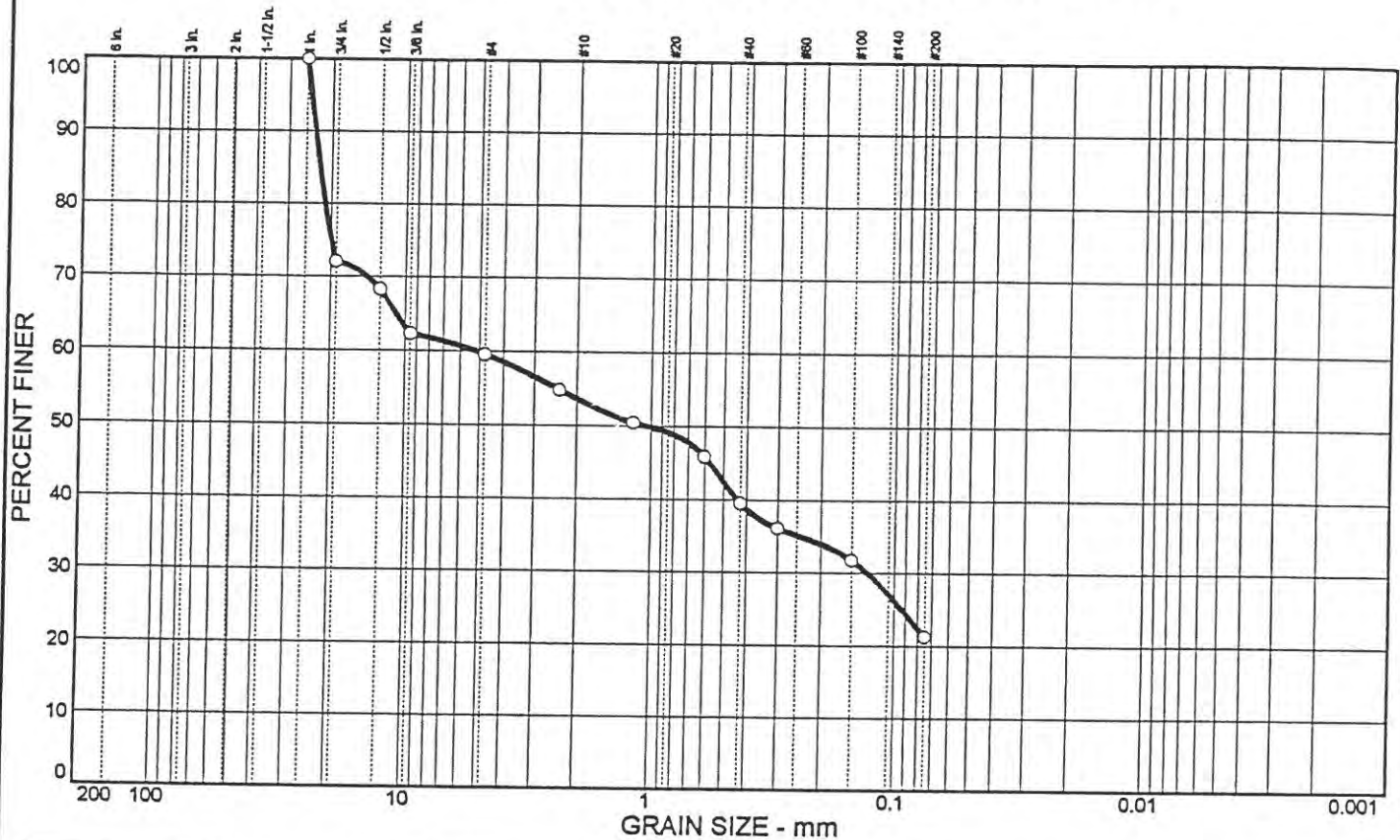
Client: ECO:LOGIC

Project: Roseville SE Sewer and Pump Stations

Project No.: J117

Figure II-1

GRAIN SIZE DISTRIBUTION TEST REPORT



The graph displays the grain size distribution of a soil sample. The y-axis represents the percentage of soil finer than a given grain size, ranging from 0 to 100. The x-axis represents the grain size in millimeters on a logarithmic scale, ranging from 200 mm down to 0.001 mm. A smooth curve is drawn through the data points, showing that approximately 27% of the soil is finer than 0.075 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
30	100
20	100
15	100
10	100
7.5	100
6	100
4.75	100
3.75	100
3.0	100
2.5	100
2.0	100
1.5	100
1.18	100
0.85	100
0.75	100
0.6	100
0.425	100
0.3	100
0.25	100
0.2	100
0.15	100
0.125	100
0.106	100
0.085	100
0.075	100
0.06	100
0.05	100
0.0425	100
0.0375	100
0.03	100
0.025	100
0.02	100
0.015	100
0.0125	100
0.0106	100
0.0085	100
0.0075	100
0.006	100
0.005	100
0.00425	100
0.00375	100
0.003	100
0.0025	100
0.002	100
0.0015	100
0.00125	100
0.00106	100
0.00085	100
0.00075	100
0.0006	100
0.0005	100
0.000425	100
0.000375	100
0.0003	100
0.00025	100
0.0002	100
0.00015	100
0.000125	100
0.000106	100
0.000085	100
0.000075	100
0.00006	100
0.00005	100
0.0000425	100
0.0000375	100
0.00003	100
0.000025	100
0.00002	100
0.000015	100
0.0000125	100
0.0000106	100
0.0000085	100
0.0000075	100
0.000006	100
0.000005	100
0.00000425	100
0.00000375	100
0.000003	100
0.0000025	100
0.000002	100
0.0000015	100
0.00000125	100
0.00000106	100
0.00000085	100
0.00000075	100
0.0000006	100
0.0000005	100
0.000000425	100
0.000000375	100
0.0000003	100
0.00000025	100
0.0000002	100
0.00000015	100
0.000000125	100
0.000000106	100
0.000000085	100
0.000000075	100
0.00000006	100
0.00000005	100
0.0000000425	100
0.0000000375	100
0.00000003	100
0.000000025	100
0.00000002	100
0.000000015	100
0.0000000125	100
0.0000000106	100
0.0000000085	100
0.0000000075	100
0.000000006	100
0.000000005	100
0.00000000425	100
0.00000000375	100
0.000000003	100
0.0000000025	100
0.000000002	100
0.0000000015	100
0.00000000125	100
0.00000000106	100
0.00000000085	100
0.00000000075	100
0.0000000006	100
0.0000000005	100
0.000000000425	100
0.000000000375	100
0.0000000003	100
0.	

[illegible]

SIEVE inches size	O		
X	GRAIN SIZE		
D ₆₀	0.132		
D ₃₀	0.0781		
D ₁₀			
X	COEFFICIENTS		
C _c			
C _u			

SIEVE number size	PERCENT FINER		
	○		
#4	99.9		
#8	96.9		
#16	89.7		
#30	80.6		
#40	76.4		
#50	72.4		
#60	70.2		
#100	64.3		
#200	27.3		

☐ Silty sand

REMARKS:

○ Location: B-2-1

**ESPAÑA
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CONSULTING**

Project: Roseville SE Sewer and Pump Stations

Project No.: J117

Figure

Π-3

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COUNCIL COMMUNICATION

CC #: 2518
File #: 0203-07

Title: Advanced Metering Infrastructure Project - Sole Source Contract Purchase Agreement
Contact: Caitlin Ornelas 916-774-5178 cornelas@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.3.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution authorizing the City Manager to execute a sole source contract purchase agreement with Concord Environmental Energy, Inc. dba Concord Utility Services to perform both the electric and water meter installation and exchanges for the Advanced Metering Infrastructure (AMI) project support, development and implementation services. Staff additionally requests authorization for contract change orders that could increase the agreement amount by no more than 10%.

BACKGROUND

Advanced Metering Infrastructure (AMI) is an integrated system of meters, communications networks, and data management systems that enables two-way communication between utilities and customers. AMI provides customers greater control over their energy and water use. AMI provides the utilities with information about energy and water usage at different times of the day, which provides customers tools to manage their usage proactively. Additionally, AMI provides utilities with the means to optimize electricity and water flows on the distribution systems, improve customer service, and respond to outages, leaks and theft reports faster. Due to regulatory requirements and operational efficiencies provided by AMI technology, over 90% of California residents and businesses currently have utility-installed AMI meters in use.

In December 2017, the City of Roseville engaged Itron to facilitate the installation of the AMI meters and related infrastructure. In August 2022, Itron informed the City of Roseville that their relationship with Concord Utility Services had ended and a new 3rd party meter installer for the City's AMI project would be needed. As a result, the project would have encountered unplanned schedule and budget impacts. To mitigate these impacts, the AMI Project recommends the City enter into a sole source agreement with Concord Utility Services.

The AMI Project has worked with Concord Utility Services for several years to develop, configure, and test the required work order integration between Roseville's Customer Information System, Roseville's Enterprise Asset Management system and Concord's Work Order Management

system, to manage over 110,000 work orders between the systems.

Concord Utility Services is the firm best able to meet critical schedule set forth by the AMI project, which has scheduled the exchange of electric and water meters beginning March 2023 and, as such, the sole source contract purchase agreement request is based on the Critical Schedule Requirement criteria.

FISCAL IMPACT

The total cost of this agreement is \$5,612,677.78 with authorization for contract change orders that could increase the agreement amount by no more than 10%, or \$561,267.78, for a not-to-exceed amount of \$6,173,945.56. This project is funded by the Electric and Environmental Utilities' capital improvement project budgets in the Electric and Water Operations funds.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. This agreement meets the above criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world

Goal E - Deliver exceptional city services

Respectfully Submitted,

Caitlin Ornelas, Advanced Metering Infrastructure Project Manager

Daniel Beans, Electric Utility Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-045

CPA Agreement Concord

RESOLUTION NO. 23-045

APPROVING A SOLE SOURCE CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND CONCORD ENVIRONMENTAL ENERGY, INC. DBA CONCORD UTILITY SERVICES, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, a sole source contract purchase agreement (3002674) for Advanced Metering Infrastructure (AMI) project support, development and implementation services, between the City of Roseville and Concord Environmental Energy, Inc. dba Concord Utility Services, has been reviewed by the Council; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said sole source contract purchase agreement is approved and that the City Manager is authorized to execute it on behalf of the City of Roseville.

BE IT FURTHER RESOLVED that the City Manager or his designee is authorized to approve change orders for the project, consistent with the contract terms, provided that the net cost of all change orders shall not exceed ten percent (10%) of the contract price.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



Contract Purchase Agreement 3002674

Supplier Details:

Company Concord Environmental Energy Inc dba Concord Utility Services
Contact Levi Capaci
Address 24619 Washington Ave Ste 202

Murrieta, CA 92562

Submit your response to:

Company City of Roseville
Contact Tiffany Valdez
Address Purchasing Division
311 Vernon St
Roseville, CA 95678
Phone (916) 746-1109
Fax (916) 746-1115
E-mail TValdez@roseville.ca.us

This Contract Purchase Agreement is sent for your review and acceptance. Notify the Buyer via email of any needed changes to the company name, address, and contact information. The Buyer will update the agreement prior to you signing the document.

Return two (2) signed originals of the agreement to the Buyer noted on the agreement. Alterations or modifications to the agreement are not allowed. Upon receipt of all necessary documents, the City will sign the agreement and return a fully executed copy to you. Receipt of the signed copy will be your notice to proceed with the work in accordance with the terms and conditions of the agreement. Work must not begin until the contract has been fully executed.

The following guidelines must be followed for the signature block on the agreement:

Sole proprietorship - By owner

Partnership - Any general partner

Corporation - Two options:

(1) A signature from the President and the corporate seal; **OR**

(2) One signature from the Chairman of the Board, President, or any Vice President **AND** one signature from the Secretary, any Assistant Secretary, Chief Financial Officer, or any Treasurer or Assistant Treasurer of the corporation

*General Manager, Office Manager and/or Sales Manager are **not** corporate officer titles. The agreement will be rejected if not signed in accordance with these guidelines.

Insurance requirements:

The City's insurance requirements are referenced on Attachment A of the agreement. By signing the agreement, you are confirming that your company has the minimum insurance limits required.



Contract Purchase Agreement 3002674

Agreement	3002674
Agreement Date	04-JAN-2023
Revision	0
Agreement Amount	5,612,677.78 USD

Invoice To **City of Roseville**
Accounts Payable
311 Vernon St
ROSEVILLE CA 95678

Phone: (916) 774-5488
Fax: (916) 784-3796
Email: accountspayable@roseville.ca.us

Supplier **Concord Environmental Energy Inc dba**
Concord Utility Services
24619 Washington Ave Ste 202

Murrieta, CA 92562

Phone: ()
Fax: ()
Email: levi@concordus-inc.com

Description of Labor, equipment and/or materials: VENDOR SHALL PROVIDE THE INSTALLATION AND EXCHANGE OF ITRON ELECTRIC AMI METERS (RESIDENTIAL METERS ONLY), AND THE INSTALLATION, EXCHANGE AND REPROGRAMMING OF WATER METERS, REGISTERS AND ITRON AMI ENDPOINTS (RESIDENTIAL AND COMMERCIAL) FOR THE CITY OF ROSEVILLE'S ELECTRIC UTILITY IN ACCORDANCE WITH THE ATTACHED CONCORD UTILITY SERVICES PROPOSAL NAMED "ROSEVILLE AMI METER INSTALLATION - QUOTE REQUEST" DATED 1/3/23.

START DATE: EXECUTED AGREEMENT
END DATE: FINAL PAYMENT

PLEASE CONTACT CAITLIN ORNELAS AT 916-774-5178 OR BY EMAIL AT CORNELAS@ROSEVILLE.CA.US FOR QUESTIONS REGARDING THIS AGREEMENT.

Customer #	Supplier #	Payment Terms	Freight Terms	FOB	Shipping Method
	15505	Net 30	Freight on Board at the destination	Destination	Best Method
Start Date	End Date		Confirm To		
Tiffany Valdez Phone 1-916-746-1109					

Attention: Total Cost not to exceed the agreement amount without prior approval of the Purchasing office.

Contract Terms and Conditions

1. To the fullest extent allowed by law, Contractor shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees and volunteers from any claims, suits or actions of every name, kind and description brought forth, or on account of, injuries to or death of any person (including but not limited to workers and the public), or damage to property, resulting from or arising out of Contractor's willful misconduct or negligent act or omission while engaged in the performance of obligations or exercise of rights created by this Agreement, except those matters arising from City's sole or active negligence or willful misconduct. The parties intend that this provision shall be broadly construed. Contractor's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law. The defense and indemnity obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.
2. Contractor is an independent contractor, and shall not be considered an officer, agent or employee of the City.
3. Without the written consent of the City, this Agreement is not assignable by Contractor either in whole or in part.
4. Time is of the essence of this Agreement.
5. At any time during the term of this Agreement, the City has the right to terminate this Agreement, provided Contractor is given thirty (30) days written notice. City's termination shall be without further liability to City; however, Contractor shall be entitled to all costs reasonably incurred prior to the date of termination. Contractor acknowledges that City may terminate this Agreement should funds not be appropriated by its governing body to continue services under this Agreement.
6. This Agreement may only be amended or modified in writing. It is integrated and contains the complete understanding of the parties.
7. All equipment, supplies and services sold to the City of Roseville shall conform to the general safety orders of the State of California.
8. Unless notified to the contrary, in writing, the City assumes that the Contractor has accepted the work in accordance with the plans and specifications (if any) and agrees to do the work in compliance with this Agreement.
9. All prevailing wages and fair employment practices must be adhered to. For prevailing wage contracts over \$25,000, copies of certified payroll must be submitted with invoices. Prevailing wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>.
10. Contractor agrees to the below insurance requirements:
 - a. Unless otherwise specified, the Contractor shall maintain the policies of insurance outlined in Attachment A, incorporated herein by this reference, in full force and effect during the term of this Agreement. The City of Roseville retains sole discretion in determining the types and proper levels of insurance coverage.
 - b. Form. Contractor shall submit a certificate evidencing such coverage for the period covered by this Agreement in a form satisfactory to Risk Management and the City Attorney, prior to undertaking any work hereunder. Any insurance written on a claims made basis is subject to the approval of Risk Management and the City Attorney.
 - c. Additional Insureds. Contractor shall also provide a separate endorsement or

section of the policy showing City, its officers, agents, employees, and volunteers as additional insureds for each type of coverage (except Workers' Compensation) and for ongoing and completed operations. Such insurance shall specifically cover the contractual liability of Contractor. The additional insured coverage under the Contractor's policy shall be primary and noncontributory, as evidenced by a separate endorsement or section of the policy, and shall not seek contribution from City's insurance or self-insurance. In addition, the additional insured coverage shall be at least as broad as the Insurance Services Office (ISO) CG 20 01 Endorsement. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be:

- (1) the minimum coverage and limits specified in this Agreement; or
 - (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.
- d. Cancellation/Modification. Contractor shall provide ten (10) days written notice to City prior to cancellation or modification of any insurance required by this Agreement.
 - e. Umbrella/Excess Insurance. The limits of insurance required in this Agreement may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of City (if agreed to in a written contract) before City's own insurance shall be called upon to protect it as a named insured.
 - f. Subcontractors. Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Agreement, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor's work. Furthermore, Contractor shall require its subcontractors to agree to be bound to Contractor and City in the same manner and to the same extent as Contractor is bound to City under this Agreement. Additionally, Contractor shall obligate its subcontractors to comply with these same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request.
 - g. Self-Insured Retentions. All self-insured retentions (SIR) must be disclosed to Risk Management for approval and shall not reduce the limits of liability. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.
 - h. Waiver of Subrogation. Contractor hereby agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss under a Workers Compensation, Commercial General Liability or Automobile Liability policy. All Workers Compensation, Commercial General Liability and Automobile Liability policies shall be endorsed with a waiver of subrogation in favor of City, its officers, agents, employees and volunteers for all work performed by Contractor, its employees, agents and subcontractors.
 - i. Liability/Remedies. Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve Contractor of liability in excess of such coverage, nor shall it preclude City from taking such other actions as are available to it under any other provisions of this Agreement or law.
11. Contractor shall comply with all federal, state and local laws and ordinances, including but not limited to the City's storm water regulations, as may be applicable to the

performance of services under this Agreement. Failure to comply with local ordinances may result in monetary fines and cancellation of this Agreement. Refer to www.roseville.ca.us/stormwater for links to more information on the City's storm water regulations.

12. In the event that the terms of any attachment or exhibit conflict with any terms of this Agreement, the terms of this Agreement shall control.
13. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.
14. If either party commences any legal action against the other party arising out of this Agreement or the performance thereof, the prevailing party in such action shall be entitled to recover its reasonable litigation expenses, including but not limited to, court costs, expert witness fees, discovery expenses, and attorneys' fees. Any action arising out of this Agreement shall be brought in Placer County, California, regardless of where else venue may lie. This Agreement shall be governed by and construed in accordance with the laws of the State of California.
15. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.
16. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.
17. For purposes of this Agreement, the terms "Contractor," "Consultant," and "Supplier" are used interchangeably.
18. No contractor or subcontractor may work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. During the performance of this agreement, Contractor and its subcontractors shall have a continuing legal obligation to maintain current registration with the Department of Industrial Relations. Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
19. Contractor must submit all claims as defined in and in accordance with the claim resolution process set forth in Section 9204 of the Public Contract Code. Each such claim must be sent to the City by registered mail or certified mail with return receipt requested and must contain reasonable documentation to support the claim. All claims must be received prior to acceptance of the work.
20. Contractor certifies that Contractor, its employees, directors, officers, agents, subcontractors, vendors, and volunteers are not presently debarred, excluded, suspended, declared ineligible, voluntarily excluded, or proposed for debarment, exclusion, suspension or ineligibility by any federal, state, or local department or agency.
21. This Agreement may be amended via change order, but only if such change order is made in writing, approved by the City, and signed by both parties.
22. CONTRACTOR agrees to defend and indemnify CITY if, despite the parties intent and practice, any venue, agency, or court with competent jurisdiction determines that CONTRACTOR and/or any of its agents, officers, employees, volunteers, independent contractors, or subcontractors, are characterized as employee(s) of CITY.

CONTRACTOR and CITY agree that: (a) CONTRACTOR is free from the control and direction of CITY in connection with the performance of the work; (b) CONTRACTOR is providing services directly to CITY; (c) CONTRACTOR has and will maintain at all relevant times a business license; (d) CONTRACTOR maintains a business location that is separate from CITY; (e) CONTRACTOR is customarily engaged in an independently

established business of the same nature as that involved in the work performed hereunder; (f) CONTRACTOR actually contracts with other businesses to provide the same or similar services and maintains a clientele without restrictions from CITY; (g) CONTRACTOR advertises and holds itself out to the public as available to provide the same or similar services; (h) CONTRACTOR provides its own tools, vehicles, and equipment to perform the services; (i) CONTRACTOR has negotiated its own rates; (j) CONTRACTOR set its own hours and location of work in accomplishing CITY's on-call needs; and (k) CONTRACTOR has the right to control the manner and means of accomplishing the result desired and exercises its own expert independent judgement.

The supplier named hereon by the acceptance of this order agrees to the provisions of this document titled "Contract Purchase Agreement" and all accompanying terms, conditions, and attachments.

Roseville Business License No. 11/4

Contractor License No. 931301

DIR Registration No. 000012574

Check mark the applicable company type below:

☒ Corporation

☐ Limited Liability Company

☐ Partnership

☐ Sole Proprietor

City Reserves the right to withhold any payments to contractor in the event of noncompliance with insurance requirements or if required by law.

Construction T&C
REV 3/2/21 JS

**ATTACHMENT A
HUMAN RESOURCES/RISK MANAGEMENT DIVISION
INSURANCE REQUIREMENTS
AGREEMENT OVER FORMAL BID LIMIT OR INVOLVING HIGH RISK ACTIVITIES**

General - Required Coverage/Documentation

- General Liability: \$1 Million per occurrence /\$2 Million aggregate
- Automobile Liability: \$1 Million combined single limit
- Workers' Compensation: Statutory *Must provide a Waiver of subrogation
- Additional Insured Endorsement (AIE) - General Liability policy: CG 20 38 04 13 or an equivalent, blanket endorsement or section of the policy. Endorsement shall cover the City of Roseville, its officers, agents, employees and volunteers as additional insured.
- Policies must be primary and non-contributory
- A 30 day notice of cancellation must be provided
- List certificate holder as: The City of Roseville - Insurance Compliance, PO Box 100085-R1, Duluth, GA 30096

Additional Liability/Insurance Requirements if required by Agreement (and marked below):

Construction: X

General Liability:
\$2 Million/occurrence
\$4 Million aggregate

Design Professional: _____

General Liability:
\$2 Million/occurrence
\$4 Million aggregate
Professional Liability:
\$2 Million/occurrence

Professional Consultant: _____

Professional Liability:
\$1 Million/occurrence

IT Services: _____

Professional Liability:
\$1 Million/occurrence
No auto required

Hazardous Materials: _____

Pollution Liability:
\$1 Million/occurrence

Special Events/Caterers-Vendors: _____

No auto required
No workers' comp required

Professional Counseling/ Psychological: _____

Professional Liability:
\$1 Million/occurrence
No auto required

Pyrotechnics: _____

General Liability:
\$5 Million/occurrence
\$10 Million aggregate
Auto - \$2 Million/occurrence

Chemical/Environmental: _____

General Liability:
\$3 Million/occurrence
\$6 Million aggregate
Pollution – \$2 Million/Occurrence
Auto - \$2 Million/Occurrence

Insurance Submission Process

The City of Roseville Human Resources/Risk Management Department uses a service called EBIX to manage our insurance certificate tracking.

How It Works

- The vendor's contact information is entered into EBIX. EBIX will contact the vendor to request proof of insurance.
- The Vendor can forward the request to their Insurance Agent(s) if necessary.
- Vendor/Insurance Agent submits insurance to EBIX by email to roseville@ebix.com or by fax to (770) 325-5727. After faxing or emailing the certificate, please DO NOT send the certificate by mail to EBIX. Please do not mail, email or fax any certificates to the City of Roseville.
- Once submitted, EBIX reviews the insurance documentation. If there are deficiencies, EBIX will send a follow up letter or email requesting additional information.

Questions Regarding Insurance Submission: Contact EBIX at (951) 652-4239

Questions Regarding Insurance Requirements Contact Risk Management at (916) 774-5202

Asbestos-Containing Materials in City-Owned Buildings

California Health and Safety Code Section 25915 requires that all City of Roseville employees, contractors and lessees be notified annually of the presence of asbestos in City-owned buildings constructed prior to 1979. Please post this notice in an area(s) accessible to all employees, contractors and lessees. Contact Facility Maintenance & Operations at (916) 774-5740 for more information about Asbestos Containing Materials (ACMs) in specific City-owned buildings. For more information about asbestos refer to the OSHA website.

The City of Roseville is committed to maintaining a safe and healthy work environment. The City's Facility Maintenance & Operations staff conducts ongoing inspections to identify and safely manage previously installed asbestos-containing products. Renovation of City-owned buildings **MUST** be reviewed in advance by Facility Maintenance & Operations to ensure the City is in compliance with building codes, Americans with Disabilities Act and that no ACMs are disturbed without proper safeguards. Work that requires removal or repair of ACMs is restricted to trained and qualified persons only. **Facility Maintenance & Operations will need to approve the qualified contractors.**

Use the following measures to protect you and others from exposure to airborne asbestos:

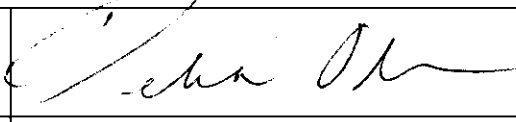
- Presume all building materials contain asbestos until determined otherwise by Facility Maintenance & Operations.
- Do not install walls, closets, cabinets, ceilings.
- Do not remove, cut, drill, sand, grind or otherwise disturb any material in the buildings, including carpet and tile.
- Do not paint (this includes any walls, ceilings, floors and electrostatic painting of office furniture).
- Do not remove any items nailed or screwed to the walls (this includes pictures, cabinets, electrical, etc.).
- Do not go above ceilings, behind walls or into building spaces such as attics and crawlspaces unless these areas have been inspected and cleared by Facility Maintenance & Operations.
- Do not pull cable or wiring through above-ceiling spaces with asbestos.
- Do not install screws, pins, nails or hangers into asbestos ceiling or wall plaster.
- Be careful not to damage walls, ceilings or floors when moving furniture or equipment. It is recommended that Facility Maintenance & Operations be contacted prior to moving furniture or equipment.
- Do not brush, sweep or vacuum textured asbestos ceiling plaster or plaster debris.
- Immediately report any damage or deterioration of suspect building materials to Facility Maintenance & Operations or Risk Management.

It is important to note that the presence of asbestos does not mean you have been exposed. Exposure results when friable asbestos particles are inhaled or ingested. Asbestos becomes friable when material containing asbestos is drilled, sanded or disturbed by remodeling or demolition work or when the ACM has deteriorated. Intact, bonded, sealed or undisturbed asbestos does not pose a hazard.

Employees may review the asbestos survey reports, results of bulk sampling or air monitoring conducted in City-owned buildings. All asbestos data will be available by appointment with Facility Maintenance & Operations.

Facilities Built Pre 1979 That May Contain Asbestos	Year Built
Downtown Library - 225 Taylor Street 95678	1974
Carnegie Museum - 557 Lincoln Street 95678	1912
Tower Theatre - 415 Vernon Street 95678	1940
Fire Station #3 - 1300 Cirby Way 95661	1963
Old Corp Yard - 100 Old Corp Yard Road 95678	1940
Water Treatment Plant Operations Bldg. - 9595 Barton Road 95746	1965
Waste Water Treatment Plant Operations Bldg. - 1800 Booth Road 95747	1962
Royer Recreation Bldg. - 190 Park Drive 95678	1950
Fire Museum - 400 Lincoln Street 95678	1930
Diamond Oaks Golf - 349 Diamond Oaks Road 95678	1965
Johnson Pool, 4th & D Street	1950
330 Vernon Street	1940
107 Sutter Avenue	1962

Sign to acknowledge receipt of asbestos notification:

SIGNATURE	
COMPANY NAME	Concord Environmental Energy, Inc. dba Concord Utility Services
DATE	1/6/23

Asbestos
Rev 01/16/19

Supplier

Signature: _____

Print Name: _____

Title: _____

Date: _____

Supplier

Signature: _____

Print Name: _____

Title: _____

Date: _____

City of Roseville, A Municipal Corporation

Signature: _____

Print Name: **Dominick Casey**

Title: **City Manager**

Date: _____



Date: 1/3/2023

To: City of Roseville – Caitlin Ornelas

Project: Roseville AMI Meter Installation - Quote Request

The City of Roseville may be referred to as “City of Roseville,” “Roseville” or “Utility”

Concord Utility Services may be referred to as “Concord Utility Services,” “Concord” or “CUS”

Install Scope

- Completion of approximately 110,000 combined electric and water accounts:
 - Installation and exchange of Itron Electric AMI Meters (residential meters only)
 - Installation, exchange and reprogramming of water meters, registers and Itron AMI endpoints (residential and commercial)
- The Roseville AMI installation project will be a 2 phased approach: Beta and Full Deployment. Please see attached document which outlines the scope of Beta and Full Deployment
- Contractor will need to obtain a secure warehouse for new and removed inventory.
- A special wage determine is not available through the DIR. DIR has advised Roseville, the following crafts should be used: Plumber, and Electrician – Inside Wireman (DIR response attached for reference)

Timeline:

- Installation schedule will be based on black-out schedule
- Beta deployments would need to be done in 10 days
- Full Deployment would commence upon successful completion of Beta, approximately June 2023.
- Full Deployment would need to be done in 14 months including 2 months ramp up, 11-month full deployment, 1 month ramp down
- Full Deployment installs or exchanges cannot exceed 2,000 per week (combined electric and water).
- Beta deployments are scheduled to begin March 9, 2023, and would need to be completed 10 days



Work Order

- Must be able to receive Customer Information from Roseville into Work Order Management System
- Must be able to send completed work order information from Work Order Management System to Roseville
- Must support as ToHost/FromHost integration between Roseville
- Must take pictures at the time of installation and provide to Roseville
- Must provide status reporting during both Beta and Full Deployment - Reports TBD
- Field personal will need to install door hanger once complete with the Electric meter exchange
- Installation schedule is Monday-Friday, 8am-6pm PST
- Roseville will provide a call center to support appointment scheduling, questions, and claims. Calls may need to be routed to Concord Utility Services through an IVR system/process.



Pricing:

Beta Phase:	Quantity	Unit Price	Extended Price
Water Meter Retrofit with Endpoint Only, No Register Replacement			
3/4" Endpoint Only	586	\$ 34.21	\$ 20,049.70
1" Endpoint Only	97	\$ 34.21	\$ 3,318.81
1.5" Endpoint Only	3	\$ 89.42	\$ 268.26
2" Endpoint Only	5	\$ 89.42	\$ 447.11
3" Endpoint Only	1	\$ 97.38	\$ 97.38
6" Endpoint Only	2	\$ 97.38	\$ 194.75
Subtotal	694		\$ 24,376.00

Full Deployment:	Quantity	Unit Price	Extended Price
Installation of new Water Meter/Register, in-line Itron ERT Connector, Tamper Clip, Tamper Tag and Endpoint			
3/4" Meter Replacement	7,612	\$ 69.19	\$ 526,655.25
1" Meter Replacement	336	\$ 69.19	\$ 23,247.00
1.5" Sensus Omni T2 Meter Replacement	103	\$ 322.88	\$ 33,256.13
2" Sensus Omni T2 Meter Replacement	82	\$ 322.88	\$ 26,475.75
2" Sensus Omni C2 Meter Replacement	30	\$ 322.88	\$ 9,686.25
Subtotal	8,163		\$ 619,320.38

Water Meter Retrofit with Endpoint Only, No Register Replacement			
3/4" Endpoint Only	18,178	\$ 24.86	\$ 451,836.91
1" Endpoint Only	4,184	\$ 24.86	\$ 103,998.55
1.5" Endpoint Only	700	\$ 69.86	\$ 48,904.80
2" Endpoint Only	244	\$ 69.86	\$ 17,046.82
Subtotal	23,306		\$ 621,787.08

Water Meter Reprogramming from CFF to CF			
BETA: Water Meter Reprogramming from CFF to CF with existing work order	694	\$ 5.38	\$ 3,734.59
FULL DEPLOYMENT: Water Meter Reprogramming from CFF to CF with existing work order	23,339	\$ 6.41	\$ 149,515.47
FULL DEPLOYMENT: Water Meter Reprogramming from CFF to CF (Stand-alone reprograming) up to 1"	16,357	\$ 24.86	\$ 406,573.68
Subtotal	40,390		\$ 559,823.74



OPTIONAL WATER METER WORK			
Lid Drilling - Metal	1	\$ 42.00	
Residential Lid Replacement - Labor Only	1	\$ 13.13	
Endpoint Splice - Labor Only	1	\$ 6.25	
Itron Leak Sensor Installation	1	\$ 25.46	
Subtotal		\$	-

Beta Phase: Electric Meter Installation Services	Quantity	Unit Price	Extended Price
2S CL200+CL320	722	\$ 46.35	\$ 33,465.06
Subtotal		722	\$ 33,465.06

Full Deployment: Electric Meter Installation Services	Quantity	Unit Price	Extended Price
1S Electric Meter	29	\$ 46.35	\$ 1,344.16
2S CL200+CL320 Electric Meters	49,486	\$ 46.35	\$ 2,293,700.84
12S Network	9,098	\$ 46.35	\$ 421,696.85
Subtotal		58,613	\$ 2,716,741.86

OPTIONAL ELECTRICAL WORK			
Indoor Appointments for Electric Meter Exchanges	1	\$ 107.10	
Subtotal		\$	-



OTHER FEES			
WOMS - Programming and Setup	1	\$ 7,500.00	\$ 7,500.00
WOMS - Integration	1	\$ 7,500.00	\$ 7,500.00
WOMS - Implementation	107,855	\$ 0.90	\$ 97,069.50
Subtotal			\$ 112,069.50
FACILITIES			
Warehouse: (lease, security, utilities, communication, janitorial, insurance, etc.)	24	\$ 18,000.00	\$ 432,000.00
Mobilization	1	\$ 35,000.00	\$ 35,000.00
Waste & Spoils:(Excludes hazardous waste)	12	\$ 1,900.00	\$ 22,800.00
Forklift & Pallet Jack	1	\$ 35,000.00	\$ 35,000.00
Subtotal			\$ 524,800.00
PROFESSIONAL SERVICES			
Project Management	15	\$ 11,000.00	\$ 165,000.00
Subtotal			\$ 165,000.00
BONDING:			
Bonding Fees: Prime Contractor	1	\$ 166,539.00	\$ 166,539.00
Bonding Fees: Sub Contractor	1	\$ 68,755.17	\$ 68,755.17
Subtotal			\$ 235,294.17
INSTALLATION TOTAL:			\$ 5,612,677.78

Project Assumptions:

1. Terms: Invoice weekly Net 30 for completed installations and professional services in arrears; while other fees, facilities fees and bonding fees shall be paid in advance of performance; Optional 1.5% discount if payment is received Net 15 or better.
2. There will be a mutually agreed upon contract upon award of the project.
3. Pricing valid for one year (365 days) from date of price quote. If project kickoff commences at the expiry of year 1, the quote price will increase annually by the standard CPI rate at the commencement of Full Deployment.
4. Installation Services are warrantied against leaks for a period of 30 days from the work order completion date, as recorded through the work order management system and completed work order installation data. The warranty applies only to the area of work performed by the Contractor, as documented by data and photos within the work order management system and attributed to the installation process.
5. Demobilization/Remobilization/Stand Down Contingency: The project mobilization and demobilization are assumed for a single-phase move on and move off for full deployment. If demobilization and remobilization occur during the project due to reasons beyond Concord



Utility Services' control (e.g., lack of materials and inventory, lack of data or account information), additional contingency fees will be assessed.

- a. Demobilization/Remobilization Fees: If CUS is forced to demobilize due to lack of inventory (e.g., meters, registers, endpoint modules, lids, boxes, fittings), CUS will invoice for cost plus 15% to move in and out of the market (i.e., travel fees, cancellation fees, vehicle transportation fees.)
 - b. Stand Down Time: If CUS is unable to perform due to lack of inventory of materials (e.g., meters, registers, endpoint modules, lids, boxes, fittings), and installation resources remain deployed, CUS will invoice at \$95.00 per hour, per technician for time CUS is stood down.
 - c. Warehouse and Staging Area Fees: If the schedule is extended due to circumstances beyond Concord Utility Services control, e.g., stand down requests, low or no inventory events, lack of data, etc., Concord shall invoice Roseville at the listed per month rate (see itemized pricing) to extend the property lease and services associated with the warehouse. All associated warehouse and staging fees are subject to full year leasing terms and may not be applicable for month-to-month or pro-rated pricing.
6. CUS will not be responsible for any community outreach programs or program materials other than leaving a Utility-provided door hanger, post installation.
 7. Meter installation unit pricing assumes shutoff valve and both meter couplings will be visible and accessible within the meter box.
 8. Excludes additional visits to meter locations after the initial installation has been performed. If requested to return to a site to investigate endpoint/network communications, Concord shall correct found issues at no charge if endpoint failure is attributed to installation processes or installation quality. If the investigation proves communication failure is caused by technology or network equipment, Concord shall invoice for the return visit, at the installation rate based on the service size from the installation price schedule.
 9. It is expected that all hard-to-find meters will have location descriptions and assistance (mark service with paint) from the Utility. If a hard-to-find meter is encountered, Concord shall contact Roseville for immediate assistance.
 10. CUS will not install any equipment (meters, radios, or meter retrofits) or perform any services in a permit required confined spaces.
 11. Concord has primary responsibility, with approval from the City of Roseville, for project planning, management, scheduling and installation of the Electric Meters, Water meters and Water endpoint modules. All Concord Project resources will report to Concord Project Manager.
 12. Concord methodologies, tools and templates will be used for the delivery of the project. All deliverables completed by Concord will conform to standards defined by Concord.
 13. Concord will provide access, credentials, and training to designated Roseville staff for, Peak Workflow, Concord's work order management system.
 14. Concord will use their Work Order Management System (WOMS) to interface with City of Roseville Customer Information System (CIS) (or middleware) via hosted SFTP, assign work, track, and manage orders and report progress.
 15. Roseville will be responsible for and facilitate all scrap material bins to be placed at Concord provided warehouse and shall pickup scrap from Concord warehouse facilities monthly,



including old equipment, electric meters, water meters, water meter registers, and endpoints radios, and all hazardous waste.

16. CONCORD shall be solely responsible for the performance of all its employees, agents, or subcontractors under this Agreement including the means and methods utilized for the performance of the Services.
17. Roseville to provide Concord with Barrel Lock keys. If any barrel lock cannot be removed the TECHNICIAN will spray the lock with penetrating solvent (PB Blaster or similar) and move to the next site in route. The TECHNICIAN will return to the site immediately after completion of the adjacent service to re-attempt barrel lock. If the lock remains frozen the TECHNICIAN will reassign the work order to the Project Manager or Project Lead who will attempt to use a barrel lock extractor to remove the lock and complete the installation. If the barrel lock is still unremovable Concord will return to utility (RTU) the work order. Use of the barrel lock extractor as defined is not to exceed 1% of the total Project Electric Meters. All services with locks which cannot be extracted will be returned to the utility to be removed from the From Host data File.
 - a. If the city would like Concord to continue to use a barrel lock extractor beyond the specified 1%, a revisit fee of \$45.00 per site will be charged, to attempt to extract a frozen barrel lock. If the barrel lock cannot be extracted with an extraction tool, the work order will be returned to the utility to be removed the SOW.
18. Concord will employ a stringent quality program, including 100% follow-up quality audit attempts for all TECHNICIAN's (existing and newly hired Concord employee assigned to this project) during their probation period (two-week period after hiring) and 5% subsequent data and photo quality audit after an employee completes his/her probation period.
19. Concord field personnel shall wear a recognizable uniform (i.e., vests) and a prominently displayed picture identification badge with the company name, employee name and employee picture. Concord team members shall be issued and carry contractor identification cards issued by the Utility if required. The identification cards will only be worn during Work covered by this Agreement. Concord shall control the issuance and retrieval of ID cards so that only active installation employees have them.
20. Should a TECHNICIAN encounter a vacant property with an inside installation or a safety issue, a supervisor will validate the condition prior to returning the work order. Where possible, Concord will provide an image and/or written description of the issue and the action required to resolve.
21. Before a TECHNICIAN completes a work order as a return to utility (RTU), it shall be verified by a field supervisor or Roseville designee. If a work order has met the meter access program requirements, Concord will notify Roseville. Utility may elect to employ shut-off notification letters to terminate service should the customer refuse to provide access. Should this occur, the Roseville call center rep will process the call and where appropriate, transfer the customer to the Concord Project Manager to schedule an appointment in the WOMS. A Concord TECHNICIAN will be assigned the work order through the WOMS and complete the installation.
22. Water Modules located in vaults will utilize through-the-lid antennas provided by the city of Roseville to enhance read performance. If unable to install a water module through-the-lid, Concord shall notify the water utility to review each instance.



23. Concord will be responsible for removing a reasonable amount of dirt needed to access a meter in a meter pit/vault. In situations where excessive dirt is present (to be decided by the project team) Roseville will facilitate the provision for a vacuum truck or alternative method to clean out vault.
24. Work Order Images:
 - a. Installers will take six (6) pictures for water meters, water registers, and endpoints, and seven (7) pictures of the electric meters as directed by City of Roseville as they are installed and detailed below.
 - b. The following are the seven (7) pictures to be captured:
 - i. Area surrounding service point prior to reaching service point. (This is to document condition of property prior to accessing service point.
 - ii. Service Point/Endpoint condition at arrival.
 1. For electric, this is the socket and immediately surrounding area.
 2. For water, this is the pit with the lid removed. If the lid is damaged upon arrival, the installer should provide a picture of the lid as well.
 - iii. Endpoint meter reading and ID/register reading and ID on old device prior to removal.
 - iv. Service Point after removal of existing equipment (electric only).
 - v. Endpoint meter reading/register reading on new device after installation or old device if not possible to replace old device.
 - vi. Service Point/Endpoint condition after installation or installation attempt.
 - vii. Area surrounding service point after installing new equipment service point. (This is to document condition of property after accessing service point.)
 - c. Note: GPS location capture for electric and water services should be within approximately 5 to 7 meters utilizing a standard IOS cell phone GPS chipset.
25. Concord will only be compensated for verified completed Work Orders.
26. Concord will not perform any repairs that may be identified. If a repair situation is identified, Concord will notify Roseville of the premise and repair that may be required to complete the work order.
27. No Concord employee or contractor shall enter a residence without the permission of the owner, tenant, or authorized representative. Additionally, no Concord employee or contractor shall enter a residence without an adult (18 years or older) present.
28. Roseville will facilitate the provision of all materials including miscellaneous gaskets, wiring, gel caps, wall plugs, fasteners, rings, seals, harden locks, and bolt kits.
29. Installation services of electric meters are assumed "like for like" and for water meters are assumed "like for like" and "lay length for lay length." If modifications are encountered, additional installation fees may be incurred via the Change Control process.
30. Concord will repair, to a usable and safe condition, any Customer side service line break caused by Concord, up to 3 ft on the Customers side.
31. Concord will not be responsible for any inoperative, damaged, or leaky valves identified prior to installation.
32. Utility will be responsible to deploy all transformer rated meters, meters greater than 240V, medical facilities and public safety meters; these meters will be installed as a part of the deployment plan to ensure no gaps are created in the network.



- a. Approximately 7,000 OpenWay Riva Centron Meters will be installed by Roseville Electric:
 - i. Form 4S, CL20, 120/240v
 - ii. Form 16S CL200 120/480v
 - iii. Form 9S CL20 120/480v
33. If a vault meter is potted to touch pad wire, the water endpoint module will be installed with a Roseville supplied splice kit. If meter screw terminals were used, water endpoint module will be attached to terminals and Concord will apply gel supplied by Roseville over the terminals.
34. Water endpoint modules will be installed under lid in Roseville provided Itron through-the-lid (TTL) mount kit.
35. Roseville will facilitate the coordination for all road closures and excessive Traffic Control measures for all Traffic Control during Water Meter installation in roadways or parking lots as needed. Otherwise, Concord will provide traffic cones to installers for cases where trucks must be in low-traffic roadways.
36. Return to Utility (RTUs) may include, but not limited to the following:
 - a. Meter and meter assembly not accessible inside of box due to: meter shifted outside of the pit box, blocked by paving materials or tree roots.
 - b. Existing broken, leaking, or damaged service side lines, customer side lines, meter assemblies, curb stops, angle stops, or pipes.
 - c. Locations where it is assumed that reasonable damage may occur to Customer's property.
 - d. Water Meter installation or replacement where tree roots have encroached into the pit box.
 - e. Installations behind locked fences unless keys are provided.
 - f. Locations with aggressive or unsupervised dogs, or a situation that presents danger or safety concern to the TECHNICIAN.
 - g. Lock Rings cannot be accessed after being using PB Blaster
37. Concord will secure a warehouse sufficient to house and stage their fleet of vehicles (no vehicle parking will be available at City yard) and inventory taken into their possession
38. Concord will provide their own vehicles for installation services.
39. Concord will take into their possession 8-12 weeks of inventory supply at any given time for each Water and Electric materials, and once in their possession will be responsible for inventory. Roseville shall take possession of materials after installation into the electric or water system. A completed installation is defined when a meter or device is attached or affixed into the system and recorded in the work order management system with date and time stamp.
40. On a weekly basis, Concord will review with Roseville targeted geographic areas planned for upcoming weeks (3- weeks in advance). Concord will work closely with Roseville to ensure Roseville receives updates as to the progress of the installation schedule.
41. Concord and Roseville will develop a mutually agreed upon deployment schedule. Concord will conduct Installation in accordance with Roseville's specified project completion schedule considering geography, routes, location of meter and available inventory.
42. Concord will conduct installation by geographic territory and meter reading route
43. Concord will attempt to complete the majority of the Electric Meter and Water Module installations during normal work hours consisting of Monday- Friday 8 AM to 6 PM and



Saturdays as necessary from 8 AM to 5 PM Pacific time. When necessary, Concord will work during "Off-hours" to meet customer appointment schedule needs.

44. The Installation Contractor Project Manager will receive Installation scheduling calls at a minimum Monday through Friday 8:00 AM thru 6:00 PM Pacific time for appointments and with a limited staff on Saturday, as necessary.
45. Work shall not take place on the Roseville holidays except by mutual agreement.
46. Roseville will provide a call center function supporting English and Spanish speaking customers, and if required support a "Language Line" translation service for other languages (as necessary). The call center will support appointment scheduling, questions, and claims. Concord will provide a point of contact for calls to be routed, as necessary. Call volumes and transfers to Concord will be monitored during weekly meeting. If necessary, Concord may have to increase resources to support calls.
47. Concord will provide Roseville an electronic daily work schedule report daily prior to 9:00 AM for work scheduled for that day. The report will include scheduled appointments for that day and a list of general areas/routes in which crews will be working.
48. Appointments will be scheduled as requested by the customer with a two-hour window unless the customer approves a larger appointment window.
49. Concord will notify Customer of the install by knocking on the premise door at the time of installation if service is to be interrupted by an electric or water meter installation.
50. Concord will deliver a daily ToHost file that will be placed on an SFTP site or other agreed upon location on day following the completion of the work orders. This file will be processed through the WOMS to ensure all exceptions are addressed before the file is delivered to Roseville. Work orders with exceptions will not be send until the exception is resolved.
51. Concord will resolve work order data exceptions identified through work order system to Roseville in a timely and efficient manner. Work order exceptions will be cleared within five business days unless in conflict with blackout window and/or customer access. Examples of exceptions are duplicate meter module or meter numbers, meter manufacturer exceptions, meter number mismatched, meter size exceptions, meter multiplier, High-Low exceptions, dial mismatch, meters found in field but not in work order file, meter location exceptions. The exception process will be managed through the WOMS.
52. Concord will report nuances identified at individual premises including property vacant, unmetered service, broken or unsafe sockets, meter tampers, and other nuances captured in the WOMS requirements document
53. Roseville anticipates some meters will be found in the field that are not recorded property In Customer Information System (CIS). Concord will provide location information for meters found in the field during their normal course of work which were not in the field work order system. In most circumstances, Concord will be expected to proceed with the meter exchange/retrofit with verbal approval from Roseville. The completed work will be captured in the work order system.
54. Roseville shall provide a point of contact during business hours for work order exceptions resolution and approvals to proceed with work orders with data exceptions.
55. For electric meter exchanges, Concord will use the electric FromHost file provided by Roseville to populate the WOMS. Concord will maintain installation records electronically in the WOMS



56. For water meter exchanges or retrofits, Concord will use the water FromHost file provided by Roseville to populate the WOMS. Concord will maintain installation records electronically in the WOMS
57. Roseville will deliver an initial introductory letter/message notifying their customer base of the impending project. Roseville will deliver a door hanger prior to installation work being performed by Concord. Concord will leave a door hanger upon completion of installation or if installation was unable to be completed after 3 attempts have been made.
58. Concord shall make at least three field attempts (the last being a Final Notice) within the predefined period as defined in the schedule. At least one attempt will be made outside of normal business hours. The Roseville provided door hangers will be left after each field attempt in addition, Concord will make at least two phone attempts, with one being after hours. Each attempt to Concord a customer will be documented in the WOMS. Documentation shall include, at a minimum, customer name, account number, address, date and time of attempt, notification method, name of individual making the attempt, and (If applicable) name of customer spoken to and reason for refusal.
59. Each Work Order provided by Roseville will include, at a minimum, a primary key (unique ID), the customer's address, premises identification number, customer phone numbers [If available], meter location, meter access notes, designation of replacement, retrofit, programming meter, or endpoint only (Work Type), existing meter number, existing register number, meter make, model and size, and most recent meter reading. Where telephone number is not available, Roseville will attempt to locate telephone number using a reverse directory.
60. The blackout period for each Electric and Water Meter work order will be limited to five (5) business days per month.
61. Roseville will provide Concord a call center number that customers can call to schedule installation appointments to ask questions concerning the project or to report problems concerning installations.
62. Upon completion of the work order, Concord will provide Roseville with validated data within two business days.
63. Concord shall specify the estimated number of installers and supervisors at each phase, Beta and Full Deployment
64. Roseville should reserve the right to remove any given installer from the project.
65. Project personnel are subject to a criminal background check and pre-employment drug screen to determine eligibility. If investigation of a prospective employee reveals criminal history, Concord or its subcontractor must notify Roseville if they pursue the individual for employment. Concord must identify any potential hires to Roseville for prior approval for former Roseville employees and contractors. Roseville at its discretion has the authority to refuse to allow any individual to work on the project. Roseville reserves the right to audit compliance with this requirement.
66. Concord will provide PPE to installers.
67. Concord will leave post-installation site in similar or better condition.
68. Concord will provide Standard Operating Procedures if requested by Roseville. SOPs may be modified in collaboration between Concord and Roseville after execution.



69. Concord will reimburse Roseville for the original labor unit cost of a work order, if repaired by Roseville, due to an installation failure reasonably caused by the installation contractor; provided there are no "Existing Faults." "Existing Faults" are defined as, a) pre-existing deterioration to infrastructure or adjoining infrastructure; b) existing substandard materials; c) preexisting substandard installation processes; d) or owner activities that contribute or in any way cause any damage or adverse conditions.



COUNCIL COMMUNICATION

CC #: 2512
File #: 0203-01

Title: Fleet Vehicle and Truck Purchases – Purchase Orders
Contact: Brandy LeBeau 916-774-5531 blebeau@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.4.

RECOMMENDATION TO COUNCIL

RFQ 10-3339

Staff recommends City Council approve a purchase order to Knight Sacramento CD Inc dba Elk Grove Dodge for two (2) Subaru Ascent SUVs utilizing RFQ 10-3339 as replacements for Fleet ID 11-203 and 15-274 approved in the FY2022-23 Fleet Replacement budget. The total cost, including options and sales tax, is \$86,325.

Sourcwell

Staff recommends City Council approve a purchase order to Dobbs Heavy Duty Holdings LLC dba Western Truck Center for two (2) Autocar CNG trucks with Wittke Starlight front-end loading bodies utilizing Sourcwell contract# 060920-ATC for the Autocar chassis and Sourcwell contract# 091219-LEG for the Wittke bodies as replacements for Fleet ID 15-482 and 15-483 approved in the FY2022-23 Fleet Replacement budget. The total cost, including options and sales tax, is \$1,001,797.

Sourcwell

Staff recommends City Council approve a purchase order to Dobbs Heavy Duty Holdings LLC, dba Western Truck Center, for two (2) Autocar CNG trucks with New Way Mammoth front-end loading bodies utilizing Sourcwell contract# 060920-ATC for the Autocar chassis and Sourcwell contract# 091219-NWY for the New Way bodies as replacements for Fleet ID 16-392 and 12-455 approved in the FY2022-23 Fleet Replacement budget. The total cost, including options and sales tax, is \$939,102.

BACKGROUND

RFQ 10-3339

The Police Department is purchasing two (2) Subaru Ascent SUVs as replacements for Fleet ID 11-203 and 15-274. The Department's crime suppression and special investigation units use these vehicles for locating criminals, serving search warrants, and assisting patrol with in-progress calls.

A formal bid was issued with the following vendor responses:

Vendor Total price (with all potential options)
AutoNation Subaru Roseville \$84,473.64
Roseville, CA

Elk Grove Dodge \$86,325.25
Elk Grove, CA

Royal Media Network \$113,000.00
Windsor Mill, MD

After staff reviewed the bids, it was discovered that the low bidder did not include the vehicle specification proposal and was deemed non-responsive; the next lowest bidder is Elk Grove Dodge.

Sourcewell

The Environmental Utilities Waste Services division is purchasing two (2) Autocar CNG trucks with Wittke Starlight front-end loading bodies to replace Fleet ID 15-482 and 15-483. These trucks collect trash, organics, and recyclables up to 7 days per week. The Waste Services division was able to utilize these vehicles for up to an additional two years beyond their life expectancy but the increasing cost of repairs now necessitates their replacement.

Sourcewell

The Environmental Utilities Waste Services division is purchasing two (2) Autocar CNG trucks with New Way Mammoth front-end loading bodies to replace Fleet ID 16-392 and 12-455. These trucks collect trash, organics, and recyclables up to 7 days per week. The Waste Services division was able to utilize these vehicles for up to an additional two years beyond their life expectancy but the increasing cost of repairs now necessitates their replacement.

Vehicle replacements are based on the Fleet Scoring System, which considers factors such as age, mileage, reliability, prior maintenance and repair costs, and current condition. Below are the vehicle replacement scores. A score of 23 or more indicates that the vehicle is eligible for replacement.

Vehicle ID	Replacement Score	Vehicle Condition
11-203	28	Meets City replacement criteria
15-274	23	Meets City replacement criteria
15-482	33	Meets City replacement criteria
15-483	33	Meets City replacement criteria
16-392	32	Meets City replacement criteria
12-455	36	Meets City replacement criteria

FISCAL IMPACT

RFQ 10-3339

The total cost for two (2) Subaru Ascent SUVs, including options and sales tax, is \$86,325. Funding is included in the FY2022-23 Fleet Replacement budget.

Sourcewell

The total cost for two (2) Autocar CNG trucks with Wittke Starlight front-end loading bodies, including options and sales tax, is \$1,001,797. Funding is included in the FY2022-23 Fleet Replacement budget.

Sourcewell

The total cost for two (2) Autocar CNG trucks with New Way Mammoth front-end loading bodies, including options and sales tax, is \$939,102. Funding is included in the FY2022-23 Fleet Replacement budget.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. The purchase of vehicles meets the above criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A – Remain fiscally responsible in a changing world.

Goal E – Deliver exceptional city services.

Goal F – Invest in well-planned infrastructure and growth.

Respectfully Submitted,

Brandy LeBeau, Fleet Manager

Jason Shykowski, Public Works Director

A handwritten signature in blue ink, consisting of several overlapping loops and a horizontal line, likely belonging to Dominick Casey.

Dominick Casey, City Manager

ATTACHMENTS:

Description



COUNCIL COMMUNICATION

CC #: 2522
File #: 0203-04

Title: Flooring Repair and Installation Services – Contract Purchase Agreement
Contact: Darci Carpenter 916-727-5702 drcarpenter@roseville.us.ca

Meeting Date: 2/1/2023
Item #: 7.5.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution authorizing the City Manager to execute a contract purchase agreement (3002660) with Simas Floor & Design Co., to provide flooring repairs and installation services. Staff also requests authorization to utilize the four (4) optional one (1) year renewals without further Council approval, provided that the applicable budget is approved by the City Council each year, or until City staff determines that continuing with the same vendor is not in the City's best interest.

BACKGROUND

The Public Works Department released Request for Proposals (RFP) No. 01-062 for Flooring Services in October of 2022 to solicit proposals to provide the City with flooring repair and installation services. One qualified proposal was received. After review, staff recommends awarding a contract purchase agreement to Simas Floor & Design Co., for as-needed services as well as scheduled projects. Projects may include repairs, replacement, rehabilitation, or maintenance of existing City facilities. The intent of the City is to enter into a five (5) year agreement, with an initial one (1) year period and four (4) optional one (1) year renewals, with the selected vendor.

FISCAL IMPACT

The initial one (1) year agreement amount is \$500,000. Funding for this agreement is available in the adopted FY2022-23 budget and will be included in the proposed FY2023-24 budget. Funds will be encumbered one year at a time, pending Council approval of the budget each year. Projected spending for the optional renewal years is as follows: FY2023-24 \$525,000; FY2024-25 \$550,000; FY2025-26 \$575,000; and FY2026-27 \$600,000.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Approval of a contract purchase agreement for flooring services meets the above criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world

Goal E - Deliver exceptional city services

Respectfully Submitted,

Darci Carpenter, Administrative Technician

Jason Shykowski, Public Works Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-049

3002660 CPA Simas Floor & Design Co Inc

RESOLUTION NO. 23-049

APPROVING A CONTRACT PURCHASE AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND SIMAS FLOOR COMPANY, INC. DBA SIMAS FLOOR & DESIGN COMPANY, INC., AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, a contract purchase agreement (3002660) for flooring repair and installation services, by and between the City of Roseville and Simas Floor Company, Inc. dba Simas Floor & Design Company, Inc., has been reviewed by the City Council; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said agreement is approved and the City Manager is authorized to execute it on behalf of the City of Roseville.

BE IT FURTHER RESOLVED that the City Manager or his designee is authorized to execute four (4) additional one (1) year renewals without further City Council approval, provided that the applicable budget is approved by the City Council each year, or until City staff determines that continuing with the same vendor is not in the City's best interest.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



Contract Purchase Agreement 3002660

Agreement	3002660
Agreement Date	29-NOV-2022
Revision	0
Agreement Amount	500,000.00 USD

Invoice To **City of Roseville**
Accounts Payable
311 Vernon St
ROSEVILLE CA 95678

Phone: (916) 774-5488
Fax: (916) 784-3796
Email: accountspayable@roseville.ca.us

Supplier **Simas Floor Company Inc dba Simas Floor & Design Company Inc**
3550 Power Inn Rd

Sacramento, CA 95826
Phone: ()
Fax: ()
Email: david.highfill@simasfloor.com

Description of Labor, equipment and/or materials THE SERVICES CALLED FOR UNDER CITY OF ROSEVILLE REQUEST FOR PROPOSAL #01-062 AND CONTRACTOR'S PROPOSAL THERETO TITLED FLOORING SERVICES (HEREINAFTER "PROPOSAL"). THE TERMS AND SCOPE OF WORK OF CITY OF ROSEVILLE REQUEST FOR PROPOSAL #01-062 AND CONTRACTOR'S PROPOSAL ARE HEREIN MADE PART OF THIS CONTRACT PURCHASE AGREEMENT AND FULLY INCORPORATED BY REFERENCE.

PLEASE CONTACT LORI CRITTENDEN AT 916-774-5707 OR BY EMAIL AT LCRITTENDEN@ROSEVILLE.CA.US FOR QUESTIONS REGARDING THIS AGREEMENT.

The total cost of service is an approximate value only. The City cannot guarantee whatsoever the actual value of this contract.

Customer #	Supplier #	Payment Terms	Freight Terms	FOB	Shipping Method
	12173	Net 30	Freight on Board at the destination	Destination	Best Method
Start Date	End Date	Confirm To			
19-Jan-2023	18-Jan-2024	Tiffany Valdez Phone 1-916-746-1109			

Attention: Total Cost not to exceed the agreement amount without prior approval of the Purchasing office.

Contract Terms and Conditions

1. To the fullest extent allowed by law, Contractor shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees and volunteers from any claims, suits or actions of every name, kind and description brought forth, or on account of, injuries to or death of any person (including but not limited to workers and the public), or damage to property, resulting from or arising out of Contractor's willful misconduct or negligent act or omission while engaged in the performance of obligations or exercise of rights created by this Agreement, except those matters arising from City's sole or active negligence or willful misconduct. The parties intend that this provision shall be broadly construed. Contractor's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law. The defense and indemnity obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.
2. Contractor is an independent contractor, and shall not be considered an officer, agent or employee of the City.
3. Without the written consent of the City, this Agreement is not assignable by Contractor either in whole or in part.
4. Time is of the essence of this Agreement.
5. At any time during the term of this Agreement, the City has the right to terminate this Agreement, provided Contractor is given thirty (30) days written notice. City's termination shall be without further liability to City; however, Contractor shall be entitled to all costs reasonably incurred prior to the date of termination. Contractor acknowledges that City may terminate this Agreement should funds not be appropriated by its governing body to continue services under this Agreement.
6. This Agreement may only be amended or modified in writing. It is integrated and contains the complete understanding of the parties.
7. All equipment, supplies and services sold to the City of Roseville shall conform to the general safety orders of the State of California.
8. Unless notified to the contrary, in writing, the City assumes that the Contractor has accepted the work in accordance with the plans and specifications (if any) and agrees to do the work in compliance with this Agreement.
9. All prevailing wages and fair employment practices must be adhered to. For prevailing wage contracts over \$25,000, copies of certified payroll must be submitted with invoices. Prevailing wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>.
10. Contractor agrees to the below insurance requirements:
 - a. Unless otherwise specified, the Contractor shall maintain the policies of insurance outlined in Attachment A, incorporated herein by this reference, in full force and effect during the term of this Agreement. The City of Roseville retains sole discretion in determining the types and proper levels of insurance coverage.
 - b. Form. Contractor shall submit a certificate evidencing such coverage for the period covered by this Agreement in a form satisfactory to Risk Management and the City Attorney, prior to undertaking any work hereunder. Any insurance written on a claims made basis is subject to the approval of Risk Management and the City Attorney.
 - c. Additional Insureds. Contractor shall also provide a separate endorsement or

section of the policy showing City, its officers, agents, employees, and volunteers as additional insureds for each type of coverage (except Workers' Compensation) and for ongoing and completed operations. Such insurance shall specifically cover the contractual liability of Contractor. The additional insured coverage under the Contractor's policy shall be primary and noncontributory, as evidenced by a separate endorsement or section of the policy, and shall not seek contribution from City's insurance or self-insurance. In addition, the additional insured coverage shall be at least as broad as the Insurance Services Office (ISO) CG 20 01 Endorsement. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be:

- (1) the minimum coverage and limits specified in this Agreement; or
- (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

- d. Cancellation/Modification. Contractor shall provide ten (10) days written notice to City prior to cancellation or modification of any insurance required by this Agreement.
 - e. Umbrella/Excess Insurance. The limits of insurance required in this Agreement may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of City (if agreed to in a written contract) before City's own insurance shall be called upon to protect it as a named insured.
 - f. Subcontractors. Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Agreement, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor's work. Furthermore, Contractor shall require its subcontractors to agree to be bound to Contractor and City in the same manner and to the same extent as Contractor is bound to City under this Agreement. Additionally, Contractor shall obligate its subcontractors to comply with these same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request.
 - g. Self-Insured Retentions. All self-insured retentions (SIR) must be disclosed to Risk Management for approval and shall not reduce the limits of liability. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.
 - h. Waiver of Subrogation. Contractor hereby agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss under a Workers Compensation, Commercial General Liability or Automobile Liability policy. All Workers Compensation, Commercial General Liability and Automobile Liability policies shall be endorsed with a waiver of subrogation in favor of City, its officers, agents, employees and volunteers for all work performed by Contractor, its employees, agents and subcontractors.
 - i. Liability/Remedies. Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve Contractor of liability in excess of such coverage, nor shall it preclude City from taking such other actions as are available to it under any other provisions of this Agreement or law.
11. Contractor shall comply with all federal, state and local laws and ordinances, including but not limited to the City's storm water regulations, as may be applicable to the

performance of services under this Agreement. Failure to comply with local ordinances may result in monetary fines and cancellation of this Agreement. Refer to www.roseville.ca.us/stormwater for links to more information on the City's storm water regulations.

12. In the event that the terms of any attachment or exhibit conflict with any terms of this Agreement, the terms of this Agreement shall control.
13. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.
14. If either party commences any legal action against the other party arising out of this Agreement or the performance thereof, the prevailing party in such action shall be entitled to recover its reasonable litigation expenses, including but not limited to, court costs, expert witness fees, discovery expenses, and attorneys' fees. Any action arising out of this Agreement shall be brought in Placer County, California, regardless of where else venue may lie. This Agreement shall be governed by and construed in accordance with the laws of the State of California.
15. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.
16. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.
17. For purposes of this Agreement, the terms "Contractor," "Consultant," and "Supplier" are used interchangeably.
18. No contractor or subcontractor may work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. During the performance of this agreement, Contractor and its subcontractors shall have a continuing legal obligation to maintain current registration with the Department of Industrial Relations. Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.
19. Contractor must submit all claims as defined in and in accordance with the claim resolution process set forth in Section 9204 of the Public Contract Code. Each such claim must be sent to the City by registered mail or certified mail with return receipt requested and must contain reasonable documentation to support the claim. All claims must be received prior to acceptance of the work.
20. Contractor certifies that Contractor, its employees, directors, officers, agents, subcontractors, vendors, and volunteers are not presently debarred, excluded, suspended, declared ineligible, voluntarily excluded, or proposed for debarment, exclusion, suspension or ineligibility by any federal, state, or local department or agency.
21. This Agreement may be amended via change order, but only if such change order is made in writing, approved by the City, and signed by both parties.
22. CONTRACTOR agrees to defend and indemnify CITY if, despite the parties intent and practice, any venue, agency, or court with competent jurisdiction determines that CONTRACTOR and/or any of its agents, officers, employees, volunteers, independent contractors, or subcontractors, are characterized as employee(s) of CITY.

CONTRACTOR and CITY agree that: (a) CONTRACTOR is free from the control and direction of CITY in connection with the performance of the work; (b) CONTRACTOR is providing services directly to CITY; (c) CONTRACTOR has and will maintain at all relevant times a business license; (d) CONTRACTOR maintains a business location that is separate from CITY; (e) CONTRACTOR is customarily engaged in an independently

Contract Purchase Agreement 3002660

established business of the same nature as that involved in the work performed hereunder; (f) CONTRACTOR actually contracts with other businesses to provide the same or similar services and maintains a clientele without restrictions from CITY; (g) CONTRACTOR advertises and holds itself out to the public as available to provide the same or similar services; (h) CONTRACTOR provides its own tools, vehicles, and equipment to perform the services; (i) CONTRACTOR has negotiated its own rates; (j) CONTRACTOR set its own hours and location of work in accomplishing CITY's on-call needs; and (k) CONTRACTOR has the right to control the manner and means of accomplishing the result desired and exercises its own expert independent judgement.

The supplier named hereon by the acceptance of this order agrees to the provisions of this document titled "Contract Purchase Agreement" and all accompanying terms, conditions, and attachments.

Roseville Business License No. 00800583

Contractor License No. 191380

DIR Registration No. 1000002580

Check mark the applicable company type below:

☒ Corporation

☐ Limited Liability Company

☐ Partnership

☐ Sole Proprietor

*City Reserves the right to withhold any payments to contractor in the event of noncompliance with insurance requirements or if required by law.
Construction T&C
REV 3/2/21 JS*

**ATTACHMENT A
HUMAN RESOURCES/RISK MANAGEMENT DIVISION
INSURANCE REQUIREMENTS
AGREEMENT OVER FORMAL BID LIMIT OR INVOLVING HIGH RISK ACTIVITIES**

General - Required Coverage/Documentation

- General Liability: \$1 Million per occurrence /\$2 Million aggregate
- Automobile Liability: \$1 Million combined single limit
- Workers' Compensation: Statutory *Must provide a Waiver of subrogation
- Additional Insured Endorsement (AIE) - General Liability policy: CG 20 38 04 13 or an equivalent, blanket endorsement or section of the policy. Endorsement shall cover the City of Roseville, its officers, agents, employees and volunteers as additional insured.
- Policies must be primary and non-contributory
- A 30 day notice of cancellation must be provided
- List certificate holder as: The City of Roseville - Insurance Compliance, PO Box 100085-R1, Duluth, GA 30096

Additional Liability/Insurance Requirements if required by Agreement (and marked below):

Construction: X

General Liability:
\$2 Million/occurrence
\$4 Million aggregate

Design Professional:

General Liability:
\$2 Million/occurrence
\$4 Million aggregate
Professional Liability:
\$2 Million/occurrence

Professional Consultant:

Professional Liability:
\$1 Million/occurrence

IT Services:

Professional Liability:
\$1 Million/occurrence
No auto required

Hazardous Materials:

Pollution Liability:
\$1 Million/occurrence

Special Events/Caterers-Vendors:

No auto required
No workers' comp required

Professional Counseling/ Psychological:

Professional Liability:
\$1 Million/occurrence
No auto required

Contract Purchase Agreement 3002660

Pyrotechnics: _____
General Liability:
\$5 Million/occurrence
\$10 Million aggregate
Auto - \$2 Million/occurrence

Chemical/Environmental: _____
General Liability:
\$3 Million/occurrence
\$6 Million aggregate
Pollution – \$2 Million/Occurrence
Auto - \$2 Million/Occurrence

Insurance Submission Process

The City of Roseville Human Resources/Risk Management Department uses a service called EBIX to manage our insurance certificate tracking.

How It Works

- The vendor's contact information is entered into EBIX. EBIX will contact the vendor to request proof of insurance.
- The Vendor can forward the request to their Insurance Agent(s) if necessary.
- Vendor/Insurance Agent submits insurance to EBIX by email to roseville@ebix.com or by fax to (770) 325-5727. After faxing or emailing the certificate, please DO NOT send the certificate by mail to EBIX. Please do not mail, email or fax any certificates to the City of Roseville.
- Once submitted, EBIX reviews the insurance documentation. If there are deficiencies, EBIX will send a follow up letter or email requesting additional information.

Questions Regarding Insurance Submission: Contact EBIX at (951) 652-4239

Questions Regarding Insurance Requirements Contact Risk Management at (916) 774-5202

Asbestos-Containing Materials in City-Owned Buildings

California Health and Safety Code Section 25915 requires that all City of Roseville employees, contractors and lessees be notified annually of the presence of asbestos in City-owned buildings constructed prior to 1979. Please post this notice in an area(s) accessible to all employees, contractors and lessees. Contact Facility Maintenance & Operations at (916) 774-5740 for more information about Asbestos Containing Materials (ACMs) in specific City-owned buildings. For more information about asbestos refer to the OSHA website.

The City of Roseville is committed to maintaining a safe and healthy work environment. The City's Facility Maintenance & Operations staff conducts ongoing inspections to identify and safely manage previously installed asbestos-containing products. Renovation of City-owned buildings **MUST** be reviewed in advance by Facility Maintenance & Operations to ensure the City is in compliance with building codes, Americans with Disabilities Act and that no ACMs are disturbed without proper safeguards. Work that requires removal or repair of ACMs is restricted to trained and qualified persons only. **Facility Maintenance & Operations will need to approve the qualified contractors.**

Use the following measures to protect you and others from exposure to airborne asbestos:

- Presume all building materials contain asbestos until determined otherwise by Facility Maintenance & Operations.
- Do not install walls, closets, cabinets, ceilings.
- Do not remove, cut, drill, sand, grind or otherwise disturb any material in the buildings, including carpet and tile.
- Do not paint (this includes any walls, ceilings, floors and electrostatic painting of office furniture).
- Do not remove any items nailed or screwed to the walls (this includes pictures, cabinets, electrical, etc.).
- Do not go above ceilings, behind walls or into building spaces such as attics and crawlspaces unless these areas have been inspected and cleared by Facility Maintenance & Operations.
- Do not pull cable or wiring through above-ceiling spaces with asbestos.
- Do not install screws, pins, nails or hangers into asbestos ceiling or wall plaster.
- Be careful not to damage walls, ceilings or floors when moving furniture or equipment. It is recommended that Facility Maintenance & Operations be contacted prior to moving furniture or equipment.
- Do not brush, sweep or vacuum textured asbestos ceiling plaster or plaster debris.
- Immediately report any damage or deterioration of suspect building materials to Facility Maintenance & Operations or Risk Management.

It is important to note that the presence of asbestos does not mean you have been exposed. Exposure results when friable asbestos particles are inhaled or ingested. Asbestos becomes friable when material containing asbestos is drilled, sanded or disturbed by remodeling or demolition work or when the ACM has deteriorated. Intact, bonded, sealed or undisturbed asbestos does not pose a hazard.

Employees may review the asbestos survey reports, results of bulk sampling or air monitoring conducted in City-owned buildings. All asbestos data will be available by appointment with Facility Maintenance & Operations.

Contract Purchase Agreement 3002660

Facilities Built Pre 1979 That May Contain Asbestos	Year Built
Downtown Library - 225 Taylor Street 95678	1974
Carnegie Museum - 557 Lincoln Street 95678	1912
Tower Theatre - 415 Vernon Street 95678	1940
Fire Station #3 - 1300 Cirby Way 95661	1963
Old Corp Yard - 100 Old Corp Yard Road 95678	1940
Water Treatment Plant Operations Bldg.- 9595 Barton Road 95746	1965
Waste Water Treatment Plant Operations Bldg. - 1800 Booth Road 95747	1962
Royer Recreation Bldg. - 190 Park Drive 95678	1950
Fire Museum - 400 Lincoln Street 95678	1930
Diamond Oaks Golf - 349 Diamond Oaks Road 95678	1965
Johnson Pool, 4th & D Street	1950
330 Vernon Street	1940
107 Sutter Avenue	1962

Sign to acknowledge receipt of asbestos notification:

SIGNATURE	
COMPANY NAME	Simas Floor Company, Inc.
DATE	12/20/22

Asbestos
Rev 01/16/19

Supplier

Signature: 

Print Name: Mark Simas

Title: President

Date: 12/28/22

Supplier

Signature: _____

Print Name: _____

Title: _____

Date: _____

City of Roseville, A Municipal Corporation

Signature: _____

Print Name: **Dominick Casey**

Title: **City Manager**

Date: _____



CONTRACTORS
STATE LICENSE BOARD
ACTIVE LICENSE



License Number **191380** Entity **CORP**

Business Name **SIMAS FLOOR CO INC DBA SIMAS
FLOOR & DESIGN COMPANY INC.**

Classification(s) **C54 C15 C61/D52 C61/D12**

Expiration Date **04/30/2024**

www.csib.ca.gov





COUNCIL COMMUNICATION

CC #: 2515

File #: 0707 & 0203-21

Title: Johnson Pool House Renovation Project - Reject all Bids, Approve Plans and Specifications, and Authorize Staff to Call for Bids

Contact: Heather Buck 916-774-5254 hcbuck@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.6.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution to reject all bids, approve the plans and specifications for the Johnson Pool House Renovation Project (re-bid), and authorize staff to call for bids.

BACKGROUND

Location and Size

Johnson Pool is located on 0.47 acres at the intersection of Vernon and D Streets in the Cherry Glen/Theiles Manor neighborhood. The David R. Johnson Memorial Pool has been in operation by the City since 1963.

Vision Plan

Over the last five years, the City has been addressing accessibility and structural repairs to the facility. In 2021, City staff developed a Vision/Master Plan for this facility to ensure that the repairs, upgrades, and programming of the facility fit the community needs, and to develop the phasing, prioritization, cost estimates and schedule for implementation. The Vision Plan enhances the City's goal to keep residents' safe by promoting water safety and providing swim lessons at this site. The main building recently had a mural painted on the exterior to improve aesthetics, and the Vision Plan ensures that this remains intact. Other priorities incorporated into the Vision Plan include more shade and a zero depth entry.

Previous work at Johnson Pool included exterior building repairs addressing dry rot, the roof, ADA parking and new exterior paint. This current project, which includes accessibility/code upgrades to the pool house building, is the first phase of the Vision Plan implementation.

The project was bid in the fall of 2022. One bid was received and opened on October 11, 2022. The bid results and engineer's estimate are as follows:

Bidder	Total Lump Sum Bid
--------	--------------------

Carter Kelly, Inc.	\$961,900
Engineer's Estimate	\$429,852

A strategy to reduce the scope of work for the first phase was identified. The revised (rebid) scope of work will include accessibility/code upgrades to the pool house restrooms and the entry vestibule only. If funding allows, the remaining work in the pool house building may be included in the second phase.

Schedule

This project is the first phase of the Vision Plan and includes ADA upgrades to the men's and women's restrooms and entry vestibule. Bids are scheduled to be opened in February 2023. Staff plans to return to Council to seek approval to award the project.

Design of the second and final phase of the Vision Plan will begin this winter and include improvements to the pool, deck, equipment room, and associated site work.

FISCAL IMPACT

Initial funding (\$150,000) for the first phase of the project was approved in the FY2020-21 budget. Additional grant funds (\$280,000) were awarded from the Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) in August 2022 for a total first phase budget of \$430,000 for soft and hard costs.

Ongoing maintenance costs are funded through the Parks, Recreation & Libraries operating budget in the General Fund. There will be no additional maintenance cost as a result of this project.

ENVIRONMENTAL REVIEW

The proposed project involves the minor alteration of an existing facility, the replacement or reconstruction of existing structures and facilities, and the construction of a limited number of small facilities. These activities are categorically exempt from CEQA as Class 1 (Existing Facilities), 2 (Replacement or Reconstruction), and 3 (New Construction or Conversion of Small Structures) Categorical Exemptions (State CEQA Guidelines Section 15301, 15302, and 15303). The Exemption has been prepared and no further CEQA action is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world
Goal B - Support community engagement and advocacy
Goal C - Maintain a safe and healthy community
Goal E - Deliver exceptional city services
Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Heather Buck, Park Development Project Manager

Jill Geller, Director, Parks, Recreation & Libraries

A handwritten signature in blue ink, consisting of several overlapping loops and a final horizontal stroke.

Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-042

Vicinity Map

Master Plan

Plans

Project Manual

RESOLUTION NO. 23-042

REJECTING ALL BIDS FOR THE JOHNSON POOL HOUSE RENOVATION PROJECT

WHEREAS, the City of Roseville requested bids for the Johnson Pool House Renovation project; and

WHEREAS, the bid results were well in excess of the engineer's estimate; and

WHEREAS, staff will issue a new bid with updated specifications and will include accessibility/code upgrades to the pool house restrooms and the entry vestibule only; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that all bids received for the Johnson Pool House Renovation project are hereby rejected per staff recommendation.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 20_, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

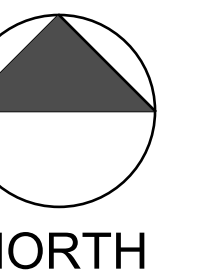
City Clerk

Johnson Poolhouse Renovation Project Vicinity Map



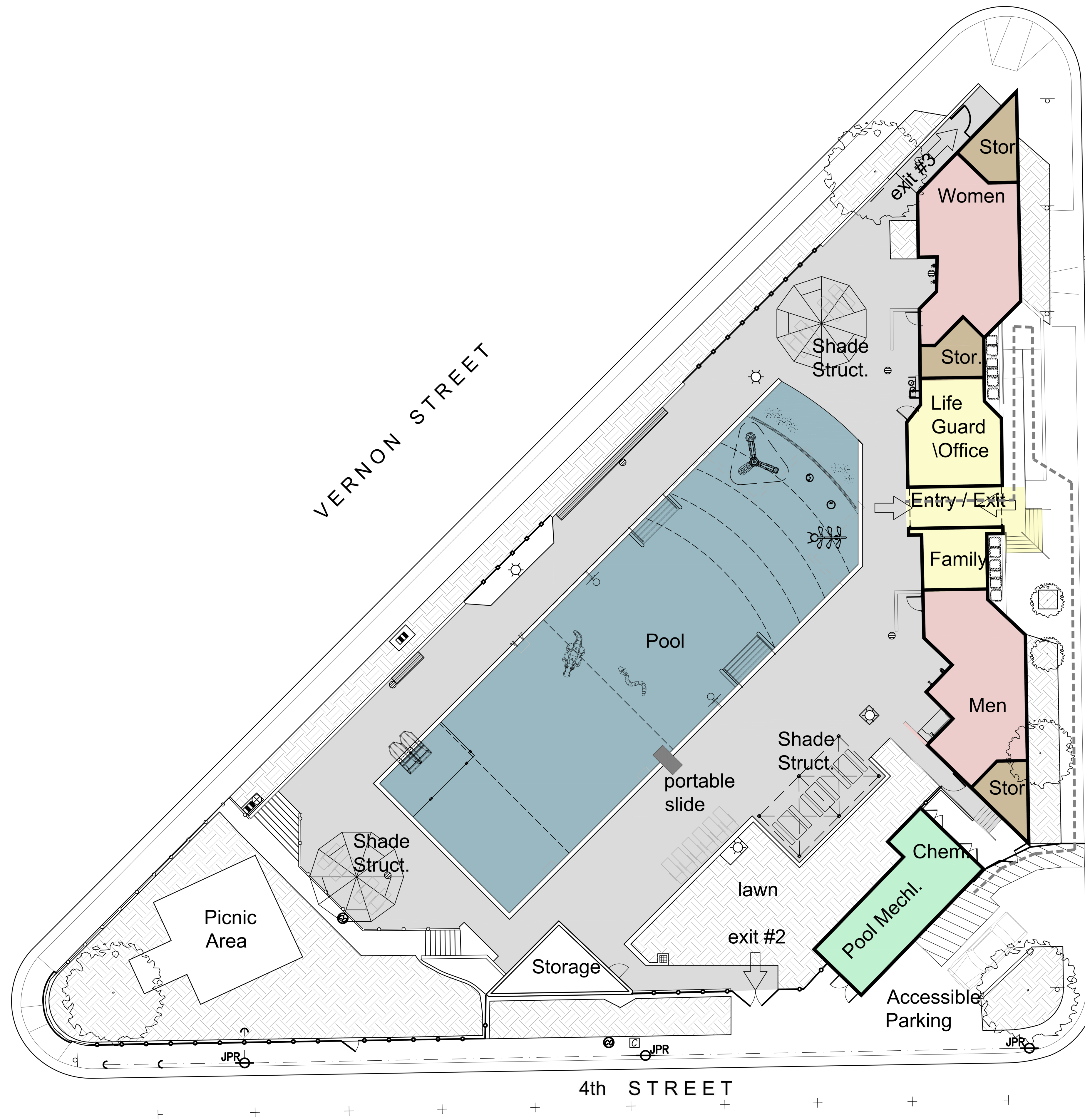


0 8' 16'
SCALE



JOHNSON POOL MASTER PLAN

EXISTING SITE PLAN



Open up Main Entrance / Stairs to make entrance more inviting and functional
Upgrade stairs and ramp to make them ADA compliant
Remodel Life Guard Room to improve site lines & functionality & add First Aid area
Add a Family Changing Room to provide a family friendly changing option



Pool improvements to provide more swimming options for all ages including:
Zero depth beach entrance and shallow area with interactive spray features
Wide pool entrance steps for 'learn to swim' activities
Floatables, basketball hoops and climbing walls for the active young people
Lap lanes for fitness and exercise swimmers



New pool mechanical building to replace aging and undersized equipment with new and improved pool mechanical equipment, pool mechanical piping and new chemical storage equipment



Replace aging and cracking pool deck and add new pool deck amenities including:
Shade structures for comfortable seating and picnicking
New fencing and gates to provide security and code required exits
Replace solid low wall at south/west corner with a low picket railing to provide better visibility to lower picnic area
New ADA compliant drinking fountains and outdoor showers



Upgrade Men's and Women's Restroom / Changing Rooms to include:
ADA compliant plumbing fixtures
ADA compliant & upgraded changing booths
ADA compliant & upgraded showers



Reconfigure underutilized spaces to provide three storage rooms for pool supplies, equipment, and outdoor furniture



JOHNSON POOL HOUSE REMODEL

100 D STREET, ROSEVILLE, CA 95678



PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



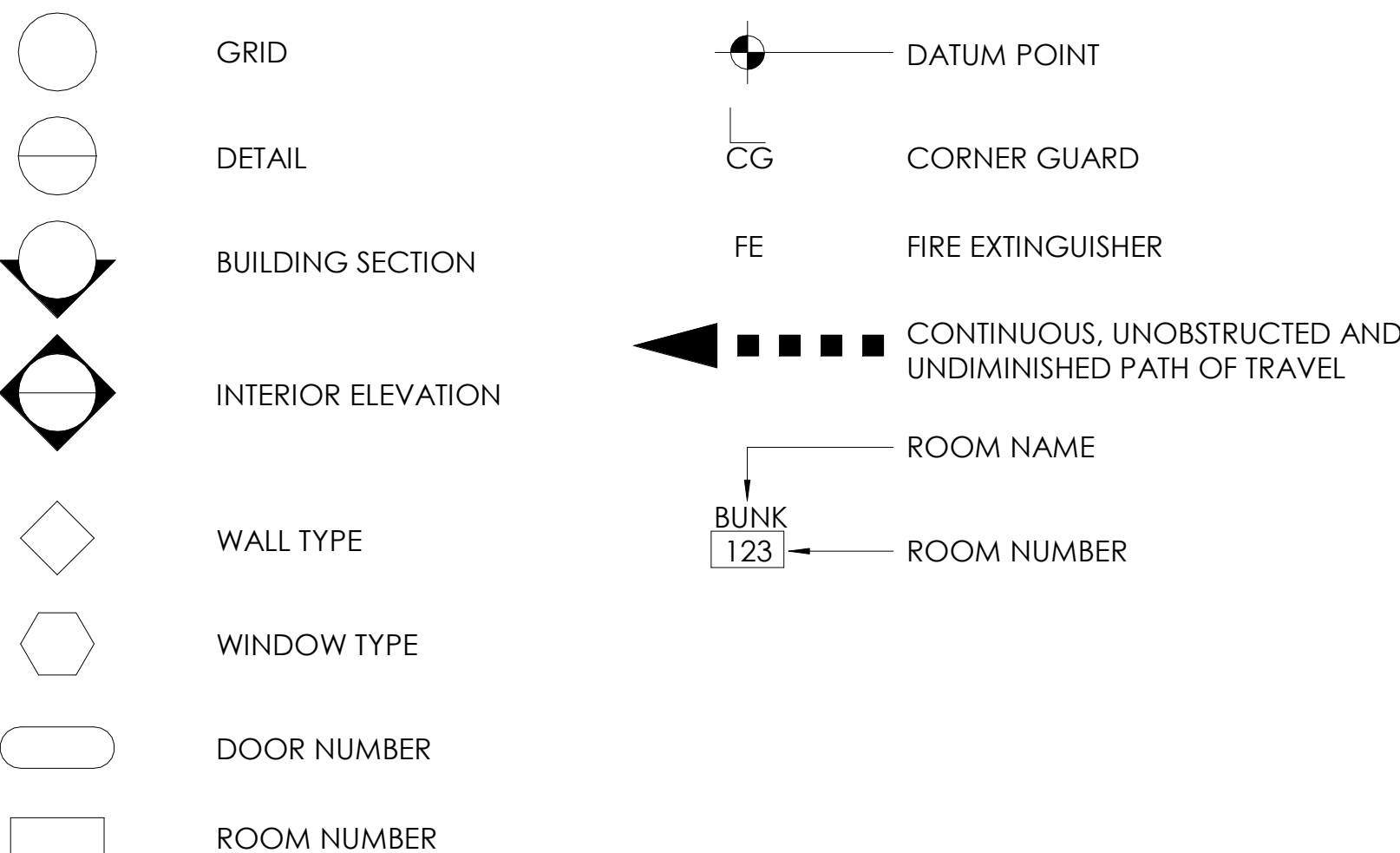
Description: Date:
REVISED SCOPE 12/14/22
SUBMITTAL

Project Number: 400702
Approved By: MK
Checked By: JB
Drawn By: SC

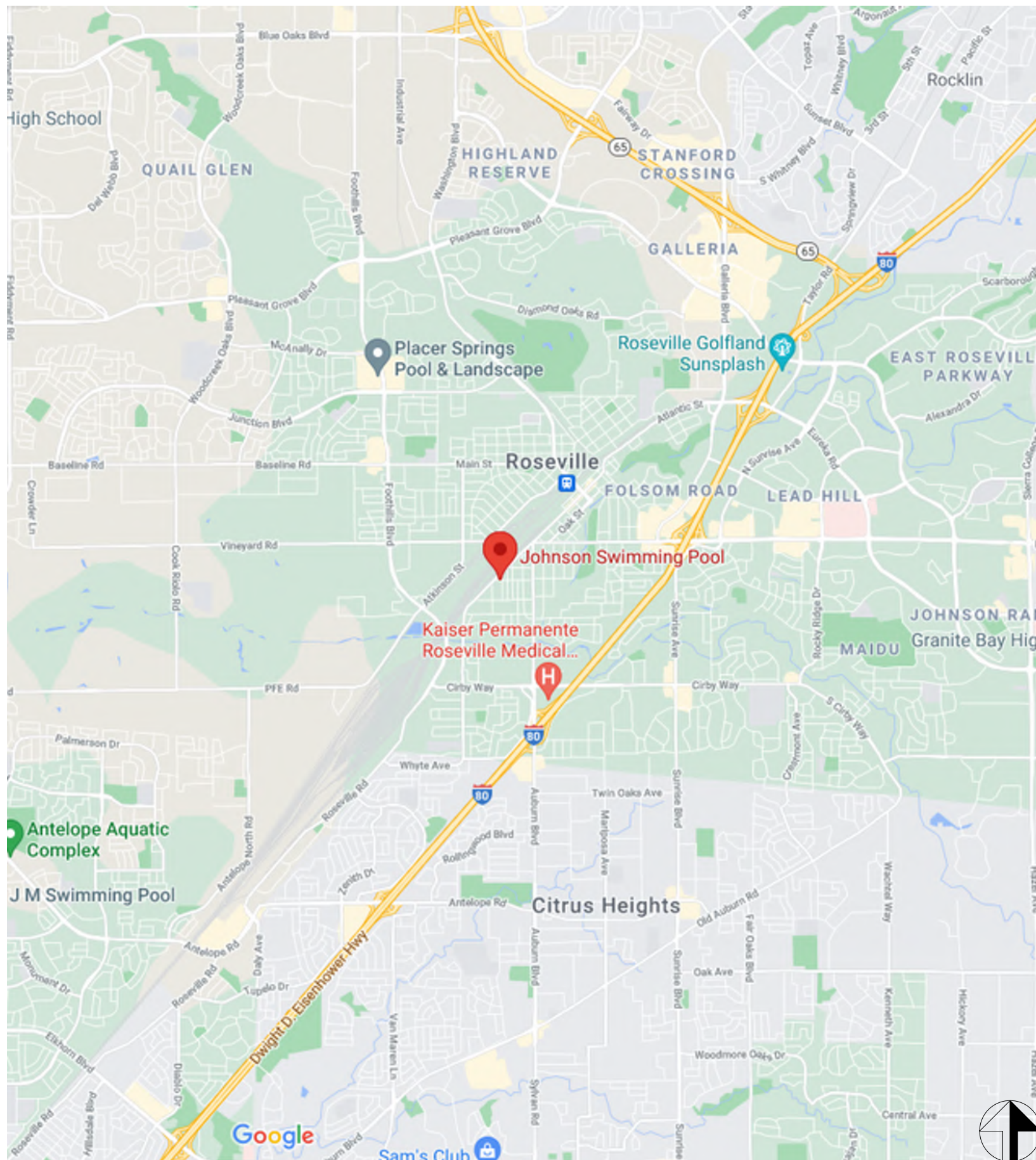
SHEET NAME:
TITLE SHEET

SHEET NUMBER:
T-1

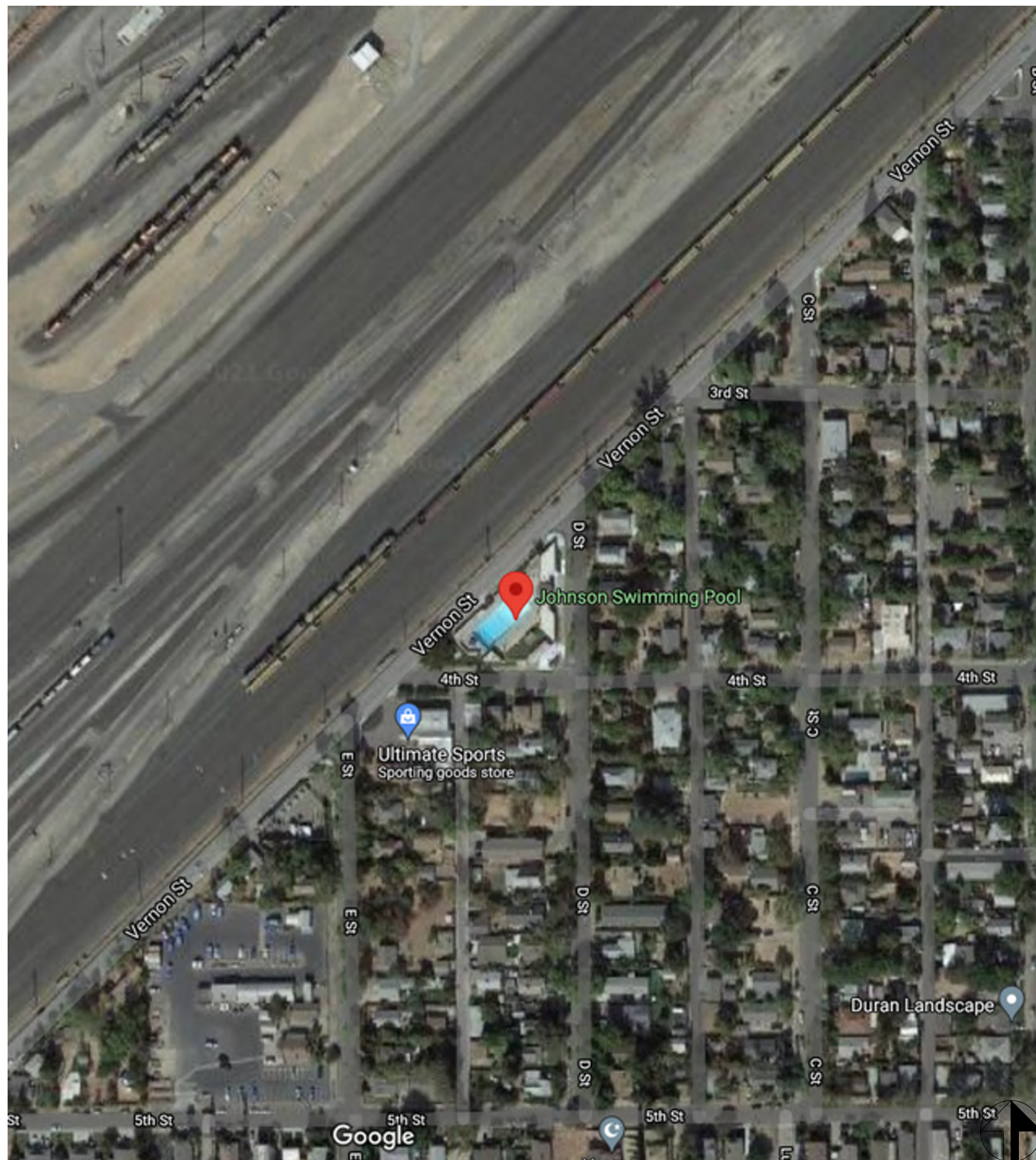
SYMBOLS



LOCATION MAP



VICINITY MAP



PROJECT DATA

PROJECT ADDRESS: 100 D STREET
ROSEVILLE, CA 95678
ASSESSOR'S PARCEL NO.: 014-021-001-000
OWNER: CITY OF ROSEVILLE
311 VERNON STREET
ROSEVILLE, CA 95678
GOVERNING AGENCY: CITY OF ROSEVILLE
GOVERNING CODES: 2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA FIRE CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA MECHANICAL CODE
2019 PLUMBING CODE
2019 CALIFORNIA GREEN BUILDING CODE

SCOPE OF WORK: ACCESSIBILITY UPGRADES TO THE POOL
HOUSE AND RELATED MECHANICAL,
ELECTRICAL AND PLUMBING UPGRADES

OCCUPANCY GROUP: B

CONSTRUCTION TYPE: VB, NON-SPRINKLERED

ALLOWABLE BLDG AREA: 9000 SF PER TABLE 506.2

ACTUAL BLDG AREA: 2,496 SF

SITE AREA: .4465 ACRES

NUMBER OF STORIES: ONE STORY

MAX BUILDING HEIGHT: TWO STORIES

PARKING: Parking Required: Public: No Requirement
Parking Provided: (E) Accessible Parking Spaces: 1
Total: 1

LEGAL DESCRIPTION

PARCEL: 014-021-001-000

PROJECT TEAM

ARCHITECTURE
JEFF KATZ ARCHITECTURE
200 E Street
Santa Rosa, CA 95404
(707) 544-3920 / (707) 544-2514 (FAX)
Contact: Jeff Katz, AIA
jeff@jeffkatzarchitecture.com
MECHANICAL
CAPITAL ENGINEERING
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Rancho Cordova, CA 95670
(916) 851-3500
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AColacchia@capital-engineering.com
CIVIL
BKF ENGINEERS
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jmcurdy@bkf.com
PLUMBING
CAPITAL ENGINEERING
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(916) 851-3500
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ZFA STRUCTURAL ENGINEERS
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Santa Rosa, CA 95404
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Contact: Luke Wilson
lukew@zfa.com
ELECTRICAL
ELEN CONSULTING
9150 Chesapeake Drive, Suite 220
San Diego, CA 92123
(619) 550-1085
Contact: Anton Nathanson
ANathanson@elenconsulting.com

BID ALTERNATES

ADDITIVE ALTERNATES GENERALLY CONSIST OF THE FOLLOWING:
ADDITIVE ALTERNATE #1 - REMOVE TWO EXISTING OVERHEAD DOORS AT ENTRY
VESTIBULE AND REPLACE WITH TWO NEW OVERHEAD DOORS.

Not for Construction
For Council Approval
Re-Bid

ABBREVIATIONS

& L	AND ANGLE	I.D.	INSIDE DIAMETER
@	AT	INT.	INTERIOR
Q	QUARTERLINE	IRRIG.	IRRIGATION
Ø	DIAMETER OR ROUND	JOINT	JOINT
ACOUS.	ACOUSTICAL	LAM.	LAMINATED
A.D.	AREA DRAIN	LAV.	LAVATORY
ADJ.	ADJUSTABLE	MAX.	MAXIMUM
AGGR.	AGGREGATE	M.C.	MEDICINE CABINET
ALUM.	ALUMINUM	MECH.	MECHANICAL
APPROX.	APPROXIMATE	MET.	METAL
ARCH.	ARCHITECTURAL	MFR.	MANUFACTURER
ASPH.	ASPHALT	MIN.	MINIMUM
BD.	BOARD	MISC.	MISCELLANEOUS
BITUM.	BITUMINOUS	M.O.	MASONRY OPENING
BLDG.	BUILDING	MTD.	MOUNTED
BLK.	BLACK	NO.	NORTH
BLOCK.	BLOCKING	N.I.C.	NOT IN CONTRACT
BM.	BEAM	N.T.S.	NOT TO SCALE
B.O.F.	BOTTOM OF FRAMING	O.A.	OVERALL
BOT.	BOTTOM	O.C.	ON CENTER
CAB.	CABINET	O.D.	OUTSIDE DIAMETER
C.B.	CATCH BASIN	OPNG.	OPENING
CEM.	CEMENT	OPP.	OPPOSITE
CER.	CERAMIC	P.C.	PRE-CAST
C.I.	CAST-IRON	PL.	PLATE
CJ	CONTROL JOINT	P.LAM.	PLASTIC LAMINATE
CLG.	CEILING	PLAS.	PLASTER
CLKG.	CAULKING	PLYWD	PLYWOOD
CLO.	CLOSET	PR.	PAIR
CLR.	CLEAR	PT.	POINT
COL.	COLUMN	P.T.DISP.	PAPER TOWEL DISPENSER
CONC.	CONCRETE	RECPT.	RECEPTACLE
CONN.	CONNECTION	RAD.	RADIUS
CONSTR.	CONSTRUCTION	R.D.	ROOF DRAIN
CONT.	CONTINUOUS	REF.	REFERENCE
CORR.	CORRIDOR	REFR.	REFRIGERATOR
CTSK.	COUNTERSUNK	REINF.	REINFORCED
CT.	CERAMIC TILE	REQ.	REQUIRED
DBL.	DOUBLE	RM.	ROOM
DET	DETAIL	R.O.	ROUGH OPENING
DIA.	DIAMETER	RS.	RE-SAWN
DIM.	DIMENSION	RWD.	REDWOOD
DISP.	DISPENSER	R.W.L.	RAIN WATER LEADER
DN.	DOWN	SO.	SOUTH
DYWR.	DOWNSPOUT	S.C.	SOLID CORE
D.S.P.	DRY STANDPIPE	S.C.DISP.	SEAT COVER DISPENSER
DWG.	DRAWING	SCH.	SCHEDULE
E.	EAST	S.DISP.	SOAP DISPENSER
EA.	EACH	SECT.	SECTION
E.J.	EXPANSION JOINT	SH.	SHELF OR SHEET
ELE.	ELEVATION	SHR.	SHOWER
ELEC.	ELECTRICAL	SIM	SIMILAR
ELEV.	ELEVATION	SPEC.	SPECIFICATION
EMER.	EMERGENCY	SQ.	SQUARE
ENCL.	ENCLOSURE	ST.STL.	STAINLESS STEEL
EQ.	EQUAL	STA.	STATION
EQPT.	EQUIPMENT	STD.	STANDARD
EXT.	EXISTING	STL.	STEEL
EXPO.	EXPANDED	STOR.	STORAGE
EXP.	EXPANSION	STRUC.	STRUCTURAL
EXT	EXTERIOR	SUSP.	SUSPENDED
F.A.	FIRE ALARM	SYM.	SYMMETRICAL
F.D.	FLOOR DRAIN	S.M.	SHEET METAL
FDN	FOUNDATION	T.C.	TOP OF CURB
F.E.	FIRE EXTINGUISHER	TEL.	TELEPHONE
F.E.C.	FIRE EXTINGUISHER CABINET	TER.	TERRAZZO
F.H.C.	FIRE HOSE CABINET	TG	TEMPERED GLASS
FIN.	FINISH	T&G	TONGUE AND GROOVE
FL	FLOOR	THK.	THICK
FLASH	FLASHING	T.P.	TOP OF PAVEMENT
FLUOR.	FLUORESCENT	T.P.DISP.	TOILET PAPER DISPENSER
F.O.B.	FACE OF BLOCK	T.V.	TELEVISION
F.O.C.	FACE OF CONCRETE	TYP.	TYPICAL
F.O.F.	FACE OF FINISH	T.O.	TOP OF
F.O.S.	FACE OF STUDS	T.O.F.	TOP OF FRAMING
F.S.	FEET SIZE	T.O.M.	TOP OF MASONRY
FT	FOOT OR FEET	T.O.P.	TOP OF PLATE
FTG.	FOOTING	T.O.R.	TOP OF ROOF
FURR.	FURRING	T.O.S.	TOP OF SHEATHING
F.F.E.	FINISHED FLOOR ELEVATION	U.O.N.	UNLESS OTHERWISE NOTED
GA.	GAUGE	URINAL	URINAL
GALV.	GALVANIZED	VERT.	VERTICAL
G.B.	GRAB BAR	VEST.	VESTIBULE
GLASS	GLASS	V.I.F.	VERIFY IN FIELD
GR	GRADE	V.T.R.	PLUMBING VENT THRU ROOF
GYP.	GYPSPUM	W.	WEST
H.B.	HOSE BIB	W/.	WITH
H.C.	HOLLOW CORE	W.C.	WATER CLOSET
HDWD.	HARDWOOD	WD.	WOOD
HDW.	HARDWARE	W/O	WITHOUT
H.M.	HOLLOW METAL	WP.	WATERPROOF
HORIZ.	HORIZONTAL	WPJ	WEAKENED PLANE JOINT
H	HEIGHT	WSCT	WAINSCOT
		WT.	WEIGHT

FIRE NOTES

1.

AT LEAST ONE PORTABLE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2A10BC SHALL BE PROVIDED WITHIN 75' MAXIMUM DISTANCE FOR EACH 3,000 SQUARE FEET OR PROVIDED THEREOF ON EACH FLOOR (CFC 906, UFC STANDARD 10-1, TITLE 19, SECT. 3.29). SEE PLANS FOR LOCATIONS.

2.

AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 4A20BC SHALL BE PROVIDED OUTSIDE OF EACH MECHANICAL, ELECTRICAL OR BOILER ROOM. (CFC 906, UFC STANDARD 10-1, TITLE 19, SECT. 3.29). SEE PLANS FOR LOCATIONS.

3.

ANY TIME A BUILDING IS OCCUPIED THE MEANS OF EGRESS SHALL BE ILLUMINATED AT AN INTENSITY OF NOT LESS THEN 1 FOOT-CANDLE AT THE FLOOR LEVEL.

4.

EGRESS ILLUMINATION REQUIRES A SOURCE OF EMERGENCY POWER WHEN THE OCCUPANT LOAD IS 100 OR MORE.

GENERAL NOTES

1.

DIMENSIONS SHOWN ON THE FLOOR PLANS, SECTIONS AND DETAILS ARE TO FACE OF STUDS, COLUMN GRID LINES AND FACE OF CONCRETE AND BLOCK WALLS, UNLESS OTHERWISE NOTED OR SHOWN.

2.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.

3.

ALL ITEMS ARE BASE BID UNLESS OTHERWISE NOTED OR SPECIFIED.

4.

ALL DRAIN LINES WITHIN WALLS ARE TO BE WRAPPED IN SOUND INSULATION BATTS.

5.

EVERY EXIT DOOR SHALL BE OPERABLE FROM THE INSIDE WITHOUT USE OF A KEY OR ANY SPECIAL KNOWLEDGE.

6.

CONTRACTOR SHALL PROVIDE ACCESS PANELS REQUIRED BY THE PLUMBING, AIR CONDITIONING AND OTHER INSTALLERS, AS REQUIRED BY CODE. ANY ACCESS PANEL IN A FIRE RATED WALL OR CEILING SHALL HAVE THE SAME FIRE RATING AS THE WALL OR CEILING IN WHICH THEY OCCUR.

7.

STRUCTURAL AND FIRE RESISTIVE INTEGRITY SHALL BE MAINTAINED AT PENETRATIONS FOR MECHANICAL, PLUMBING, ELECTRICAL, AND COMMUNICATIONS PIPE, DUCT AND CONDUIT AS INDICATED.

8.

PROVIDE FIRE BLOCKING AT FLOOR, CEILING AND MID HEIGHT OF WALLS OVER 10'-0".

9.

STUCCO, PLASTER AND GYPSUM BOARD SHALL TERMINATE WITH A "J" MOLDING WHERE THE EDGE IS EXPOSED UNLESS NOTED OR SPECIFIED OTHERWISE.

10.

A FLOOR OR LANDING NOT MORE THE 1/4" BELOW THE THRESHOLD IS REQUIRED AT EACH SIDE OF AN EXIT DOOR.

11.

BRAND OR TRADE NAME, SUBSTITUTIONS OF "EQUALS"; REQUESTS FOR SUBSTITUTIONS OF AN ITEM AS AN "EQUAL" TO ANY ITEM INDICATED OR SPECIFIED MUST BE INCLUDED AS A PART OF THE CONTRACTOR'S BID PROPOSAL, AS SPECIFIED IN THE GENERAL CONDITIONS.

12.

WRITTEN DIMENSIONS TAKE PRECEDENCE OVER GRAPHIC SCALE. DO NOT SCALE DRAWINGS.

13.

IT SHOULD BE NOTED THAT WHILE EXISTING UTILITY DRAWINGS ARE AVAILABLE, THERE IS NO ASSURANCE THAT ALL UTILITIES ARE SHOWN. THE CONTRACTOR SHALL PROCEED WITH CAUTION TO INSURE THAT ALL UTILITIES ENCOUNTERED, WHETHER OR NOT OF RECORD, SHALL BE PROTECTED FROM DAMAGE. THE CONTRACTOR SHALL ALSO TAKE PRECAUTIONS NECESSARY TO PROTECT HIMSELF AND ALL EMPLOYEES FROM INJURY WHICH MAY BE CAUSED BY CONTACT WITH UTILITY SERVICES.

14.

GYPSUM BOARD FOR FIRE RATED ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH CBC CHAPTER 7.

15.

DOOR HARDWARE SHALL BE LEVER TYPE.

16.

MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 POUNDS FOR EXTERIOR DOORS AND 5 POUNDS FOR INTERIOR DOORS.

17.

FIRE DAMPER ASSEMBLIES, INCLUDING SLEEVES AND INSTALLATION PROCEDURES SHALL BE APPROVED BY THE BUILDING INSPECTOR PRIOR TO INSTALLATION.

18.

INTERIOR FINISHES SHALL COMPLY WITH THE PROVISIONS OF CBC CHAPTER 8.

19.

ALL DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION.

20.

ALL REQUIRED PERMITS MUST BE OBTAINED FROM FIRE PLAN CHECK BEFORE BUILDING IS OCCUPIED.

21.

BUILDING NUMBERS SHALL BE EASILY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY.

22.

THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY OF ROSEVILLE.

23.

THESE PLANS AND ALL WORK SHALL COMPLY WITH THE CALIFORNIA BUILDING STANDARDS CODE FOUND IN THE STATE OF CALIFORNIA TITLE 24 CCR, AS AMENDED AND ADOPTED BY THE CITY OF ROSEVILLE.

24.

CONTRACTOR SHALL THOROUGHLY COORDINATE ALL TRADES AS REQUIRED TO COMPLETE ALL WORK INDICATED AND NECESSARY FOR THE PROJECT.

25.

CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES AND SHALL REPAIR OR REPLACE ALL ITEMS DAMAGED DURING CONSTRUCTION.

26.

EXIT SIGNS MUST BE INTERNALLY ILLUMINATED (UFC SEC. 1212.4 & CBC SEC.1006).

27.

TWO SEPARATE POWER SUPPLIES SHALL BE PROVIDED FOR EXIT SIGNS PER(CBC SEC. 1006).

28.

THE CONTRACTOR SHALL ENFORCE ALL SAFETY MEASURES. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATION.

29.

CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

30.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENTATION AND / OR BENCHMARKS WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEY OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE LAND SURVEYOR'S ACT.

31.

CONTRACTOR SHALL REPLACE IN KIND ANY TRAFFIC SENSORS DAMAGED DURING CONSTRUCTION.

32.

PENETRATION OF FIRE RESISTIVE WALLS, FLOOR - CEILING ASSEMBLIES AND ROOF - CEILINGS SHALL BE PROTECTED AS REQUIRED IN CBC SECTION 712 AND 713.

33.

NO HAZARDOUS MATERIALS WILL BE USED OR STORED WITHIN THE BUILDING WHICH EXCEED THE QUANTITIES SHOWN ON CBC TABLE 5003.1.1.

34.

WHEN SERVING MORE THAN 100 SPRINKLER HEADS, AUTOMATIC SPRINKLER SYSTEMS SHALL BE SUPERVISED BY AN APPROVED CENTRAL PROGRAM OR REMOTE STATION SERVICE OR SHALL BE PROVIDED WITH A LOCAL ALARM WHICH WILL GIVE AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION.

35.

WORK NOT SPECIFICALLY INDICATED OR SPECIFIED BUT WHICH IS REQUIRED FOR THE COMPLETION OF THE WORK SHALL BE PROVIDED IN THE SAME MANNER AS SIMILAR WORK WHICH IS REQUIRED OR SPECIFIED WITHOUT ADDITIONAL CHARGE.

GREEN CODE MANDATORY CHECKLIST

ITEM #	CODE SECTION	REQUIREMENT	REFERENCE SHEET (Sheet # or N/A)	COMMENTS (note # or detail #)	RESPONSIBLE FOR VERIFICATION
PLANNING AND DESIGN					
1	5.106.1	Storm Water Pollution Prevention Plan	C5.0	Erosion control plan	Contractor / Installer
2	5.106.4.1.1	Short term bicycle parking (≥ 10 vehicular parking spaces added)	N/A	(E) Unaltered	N/A
3	5.106.4.1.2	Long term bicycle parking (Over 10 tenant occupants or ≥ 10 vehicular parking spaces added)	N/A	(E) Unaltered	N/A
4	5.106.5.2	Designated parking (≥ 10' vehicular parking spaces added)	N/A	(E) Unaltered	N/A
5	5.106.10	Grading and Paving	N/A	Doesn't alter drainage path	N/A
WATER EFFICIENCY & CONSERVATION					
6	5.303.1	Meters	N/A	(E) Unaltered	N/A
7	5.303.3	Water Conserving Fixtures	P0.2	Fixture Schedule	Contractor / Installer
8	5.304	Outdoor Water Use	N/A	(E) Unaltered	N/A
MATERIAL CONSERVATION & RESOURCE EFFICIENCY					
9	5.407.1	Weather protection	N/A	(E) Unaltered	N/A
10	5.407.2.1	Sprinklers	N/A	(E) Unaltered	N/A
11	5.407.2.2	Entries and Openings	N/A	(E) Unaltered	N/A
12	5.407.2.2.2	Flashing	N/A	(E) Unaltered	N/A
13	5.408.1	Construction waste reduction (recycle 65%)	T-2	Green Code Notes	Contractor / Installer
14	5.408.3	Excavated soil and land clearing debris	N/A	(E) Unaltered	N/A
15	5.410.1	Recycling by occupants	N/A	(E) Unaltered	N/A
16	5.410.4	Testing, Adjusting and Balancing (<10,000 sq. ft.)	N/A	Less than 10,000 SF	N/A
17	5.410.4.2	Systems	N/A	None	N/A
18	5.410.4.3	Procedures	M2.1 & T-2	Green Code Notes	Contractor / Installer
19	5.410.4.3.1	HVAC Balancing	M2.1 & T-2	Green Code Notes	Contractor / Installer
20	5.410.4.4	Reporting	M2.1 & T-2	Green Code Notes	Contractor / Installer
21	5.410.5	Operation and Maintenance Manual	M2.1 & T-2	Green Code Notes	Contractor / Installer
22	5.410.5.1	Inspections and Reports	M2.1 & T-2	Green Code Notes	Contractor / Installer

ITEM #	CODE SECTION	REQUIREMENT	REFERENCE SHEET (Sheet # or N/A)	COMMENTS (note # or detail #)	
ENVIRONMENTAL QUALITY					
23	5.503.1	Fireplaces and Woodstoves	N/A	None	N/A
24	5.503.1.3	Temporary Ventilation	T-2	Green Code Notes	Contractor / Installer
25	5.504.3	Covering of Duct Openings and Protection of Mechanical Equipment During Construction	T-2	Green Code Notes	Contractor / Installer
26	5.504.4	Finish Material Pollutant Control	T-2	Green Code Notes	Contractor / Installer
27	5.504.4.1	Adhesives, Sealants, Caulks	T-2	Green Code Notes	Contractor / Installer
28	5.504.4.3	Paints and Coatings	T-2	Green Code Notes	Contractor / Installer
29	5.504.4.3.1	Aerosol Paints and Coatings	T-2	Green Code Notes	Contractor / Installer
30	5.504.4.3.2	Verification/ Cert. of Compliance	T-2	Green Code Notes	Contractor / Installer
31	5.504.4.4	Carpet Systems	N/A	None	N/A
32	5.504.4.4.1	Carpet Cushion	N/A	None	N/A
33	5.504.4.4.2	Carpet Adhesive	N/A	None	N/A
34	5.504.4.5	Composite Wood Products	T-2	Green Code Notes	Contractor / Installer
35	5.504.4.6	Resilient Flooring Systems	T-2	Green Code Notes	Contractor / Installer
36	5.504.4.6.1	Verification/ Cert. of Compliance	T-2	Green Code Notes	Contractor / Installer
37	5.504.5.3	Filters (MERV 8 minimum)	T-2	Green Code Notes	Contractor / Installer
38	5.504.7	Environmental Tobacco Smoke (ETS) Control	T-2	Green Code Notes	Contractor / Installer
39	5.505.1	Indoor Moisture Control	T-2	Green Code Notes	Contractor / Installer
40	5.506.1	Outside Air Delivery	T-2	Green Code Notes	Contractor / Installer
41	5.506.2	Carbon Dioxide (CO2) Monitoring	T-2	Green Code Notes	Contractor / Installer
42	5.507.4	Acoustical Control	N/A	(E) Unaltered	N/A
43	5.507.4.1	Exterior Noise Transmission	N/A	(E) Unaltered	N/A
44	5.507.4.3	Interior Sound Transmission	N/A	(E) Unaltered	N/A
45	5.508.1	Ozone Depletion and Global Warming Reductions (CFCs or Halons)	T-2	Green Code Notes	Contractor / Installer

GREEN CODE REQUIREMENTS NOTES

COMPOSITE WOOD PRODUCTS:
COMPOSITE WOOD PRODUCTS USED ON THE INTERIOR OR EXTERIOR OF THE BUILDING SHALL MEET THE REQUIREMENTS FOR FORMALDEHYDE AS SPECIFIED IN ARB'S AIR TOXICS CONTROL MEASURE (ATCM) FOR COMPOSITE WOOD; LIMITS SHOWN BELOW:
HARDWOOD PLYWOOD VENEER CORE: 0.05 ppm
HARDWOOD PLYWOOD COMPOSITE CORE: 0.05 ppm
PARTICLEBOARD: 0.09 ppm
MEDIUM DENSITY FIBERBOARD: 0.11 ppm
THIN MEDIUM DENSITY FIBERBOARD: 0.13 ppm
VERIFICATION OF COMPLIANCE SHALL BE PROVIDED AS REQUESTED BY THE ENFORCING AGENCY.

RESILIENT FLOORING:
FOR AT LEAST 80% OF THE FLOOR AREA RECEIVING RESILIENT FLOORING, INSTALLED FLOORING SHALL MEET ONE OF THE FOLLOWING:
1. CERTIFIED UNDER RESILIENT FLOOR COVERING INSTITUTE (RFCI) FLOORSORE PROGRAM
2. COMPLIANT WITH THE VOC EMISSION LIMITS AND TESTING REQUIREMENTS SPECIFIED IN THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH'S 2010 STANDARD METHOD FOR THE TESTING AND EVALUATION CHAMBERS, VERSION 1.1, FEBRUARY 2010
3. CERTIFIED UNDER THE UL GREENGUARD GOLD.
VERIFICATION OF COMPLIANCE SHALL BE PROVIDED AS REQUESTED BY THE ENFORCING AGENCY.

CARPET:
CARPET INSTALLED IN THE BUILDING INTERIOR SHALL MEET AT LEAST ONE OF THE FOLLOWING TESTING AND PRODUCT REQUIREMENTS:
1. CARPET AND RUG INSTITUTE'S GREEN LABEL PLUS PROGRAM
2. COMPLIANT WITH THE VOC EMISSION LIMITS AND TESTING REQUIREMENTS SPECIFIED IN THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH STANDARD METHOD FOR THE TESTING OF VOLATILE ORGANIC CHEMICAL EMISSIONS FROM INTERIOR SOURCES USING ENVIRONMENTAL CHAMBERS, VERSION 1.1, FEBRUARY 2010
3. NSF/ANSI 140 AT THE GOLD LEVEL OR HIGHER
4. SCIENTIFIC CERTIFICATION SYSTEMS SUSTAINABLE CHOICE
CARPET CUSHION INSTALLED IN BUILDING SHALL MEET THE REQUIREMENTS OF THE CARPET AND RUG INSTITUTE'S GREEN LABEL PROGRAM.
CARPET ADHESIVE VOC LIMITS IN GRAMS/LITER:
INDOOR CARPET ADHESIVE: 50
CARPET PAD ADHESIVE: 50

SEALANT AND PAINTS:
ADHESIVES, SEALANTS AND PAINTS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE OR AS FOLLOWS:
COVE BASE ADHESIVES: 70 VOC LIMIT
MULTIPURPOSE CONSTRUCTION ADHESIVES: 70 VOC LIMIT
OTHER ADHESIVES NOT LISTED: 50 VOC LIMIT
ARCHITECTURAL SEALANTS: 250 VOC LIMIT
OTHER SEALANTS: 420 VOC LIMIT
PAINTS AND COATINGS SHALL COMPLY WITH THE FOLLOWING LIMITS:
FLAT COATINGS: 50 g/l
NONFLAT COATINGS: 100 g/l
NONFLAT HIGH-GLOSS COATINGS: 150 g/l
CONCRETE CURING COMPOUNDS: 350 g/l
CONCRETE SEALERS: 100 g/l
FLOOR COATINGS: 100 g/l
PRIMERS, SEALERS: 100 g/l

PLUMBING FIXTURES:
PER CGBSC TABLE 5.303.2.3: MAXIMUM FIXTURE FLOW RATES
LAV FAUCETS: 0.5 gpm @ 60 psi
WATER CLOSETS: 1.28 g/flush
URINALS, WALL MOUNTED: 0.125 g/flush
KITCHEN FAUCETS: 1.8 gpm @ 60 psi
SHOWERHEAD, SINGLE: SHALL NOT EXCEED 1.8 gpm @ 80 psi
ALL NEWLY INSTALLED PLUMBING FIXTURES SHALL COMPLY WITH CA PLUMBING CODE & SHALL MEET APPLICABLE STANDARDS REFERENCED IN TABLE 1701.1 & CHAPTER 6 OF THE CA PLUMBING CODE.

HVAC RECONFIGURATION AND CONTROLS:
TESTING, ADJUSTING AND BALANCING: TEST ADJUST AND BALANCE SYSTEMS INSTALLED/ALTERED TO SERVE ALTERED AREAS. DEVELOP A WRITTEN PLAN OF PROCEDURES FOR TESTING AND ADJUSTING SYSTEMS.
PERFORM TESTING AND ADJUSTING PROCEDURES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND APPLICABLE STANDARDS.
PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THE TESTING/BALANCING SERVICES.
PROVIDE THE BUILDING OWNER WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND COPIES OF WARRANTIES FOR EACH SYSTEM.
INCLUDE A COPY OF ALL INSPECTION VERIFICATIONS AND REPORTS REQUIRED BY THE ENFORCING AGENCY.
FILTERS: PROVIDE REGULARLY OCCUPIED AREAS WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR THAT PROVIDE AT LEAST MERV 8. FILTERS SHALL BE INSTALLED AFTER ANY FLUSH OUT OR TESTING AND PRIOR TO OCCUPANCY, AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.
TEMPORARY VENTILATION: IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE REMOTE AIR INTAKES WITH A SERV OF 8. REPLACE ALL FILTERS PRIOR TO OCCUPANCY.
DURING CONSTRUCTION, COVER ALL HVAC EQUIPMENT AND DUCTWORK SYSTEM COMPONENTS WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.
ENVIRONMENTAL TOBACCO SMOKE CONTROL: PROHIBIT SMOKING WITHIN 25 FEET OF BUILDING ENTRIES, OUTDOOR AIR INTAKES AND OPERABLE WINDOWS AND WITHIN THE BUILDING AS ALREADY PROHIBITED BY OTHER LAWS OR REGULATIONS. POST SIGNAGE TO INFORM BUILDING OCCUPANTS OF THE PROHIBITION.

WASTE REDUCTION:
RECYCLE AND/OR REUSE A MINIMUM OF 65% OF THE NON-HAZARDOUS CONSTRUCTION AND DEMOLITION WASTE.
RECYCLE AND/OR REUSE 100% OF TREES, STUMPS, ROCKS AND ASSOCIATED VEGETATION.
SUBMIT A WASTE MANAGEMENT PLAN COMPLYING WITH SECTION 5.408.1.1 ITEM 1-4. USE WASTE MANAGEMENT COMPANY THAT CAN PROVIDE VERIFICATION OF COMPLIANCE. PROVIDE VERIFICATION THAT UNIVERSAL WASTE ITEMS (SUCH AS FLUORESCENT LAMPS & BALLAST & MERCURY) ARE DISPOSED OF PROPERLY.

AIR QUALITY:
CO2 -FOR ADDITIONS EQUIPPED WITH DEMAND CONTROL VENTILATION, CO2 SENSORS AND VENTILATION CONTROLS SHALL BE INSTALLED PER 2016 CALIFORNIA ENERGY CODE.
CFC -INSTALL HVAC, REFRIGERATION & FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN CFC'S.
HALONS -INSTALL HVAC, REFRIGERATION & FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN HALONS.

STORMWATER POLLUTION PREVENTION:
PREVENT THE POLLUTION OF STORMWATER RUNOFF FROM CONSTRUCTION ACTIVITIES.

PLUMBING CALCULATIONS

POOL AREA = 4,250 SF / 15 = 284 POOL USERS

142 MALE POOL USERS / 142 FEMALE POOL USERS

DRINKING FOUNTAINS*

284 OCCUPANTS

1 > 250 OCCUPANTS
2 > 450 OCCUPANTS
3 > 650 OCCUPANTS

2 DRINKING FOUNTAINS REQUIRED, 2 DRINKING FOUNTAINS PROVIDED, (1 SEPARATE HIGH/LOW FIXTURES, 50% PROVIDED ACCESSIBLE PER 11B-211.3 OF 2016 CBC

SHOWERS**

284 OCC /50 = 5.7 6 SHOWERS REQUIRED, 6 PROVIDED

WOMENS TOILETS**

142 OCC /60 = 2.4 3 TOILETS REQUIRED, 3 PROVIDED

MENS TOILETS & URINALS**

142 OCC. /75 =1.9 2 TOILETS/URINALS REQUIRED, 2 TOILETS/URINALS PROVIDED

LAVATORIES**

284 OCC. /80 =3.6 4 LAVATORIES REQUIRED, 4 PROVIDED

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E602	TITLE 24 FORMS
E603	TITLE 24 FORMS
E604	TITLE 24 FORMS

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE REMODEL

100 D STREET
ROSEVILLE, CA 95678

CITY OF ROSEVILLE
CALIFORNIA

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE REMODEL

100 D STREET
ROSEVILLE, CA 95678

DESCRIPTION:

12/14/22

REVISED SCOPE

SUBMITTAL

DESCRIPTION:

12/14/22

REVISED SCOPE

SUBMITTAL

NOT FOR CONSTRUCTION

FOR COUNCIL APPROVAL

RE-BID

PROJECT NUMBER: 200702

APPROVED BY: MK

CHECKED BY: JB

DRAWN BY: SC

SHEET NAME:

TITLE SHEET

SHEET NUMBER:

T-2

1. MINIMUM CLEAR FLOOR OR GROUND SPACE REQUIRED TO ACCOMMODATE A SINGLE, STATIONARY WHEELCHAIR AND OCCUPANT IS 30" x 48". MINIMUM CLEAR FLOOR OR GROUND SPACE FOR WHEELCHAIRS MAY BE POSITIONED FOR FORWARD OR PARALLEL APPROACH TO AN OBJECT. FLOOR OR GROUND SPACE FOR WHEEL CHAIRS MAY BE PART OF THE KNEE SPACE AND TOE CLEARANCE REQUIRED UNDER SOME OBJECTS. ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR OR GROUND SPACE SHALL ADJOIN AN ACCESSIBLE ROUTE OR ADJOIN ANOTHER CLEAR FLOOR SPACE.

- ### HAZARDS AND PROTRUDING OBJECTS

1. OBJECTS WITH LEADING EDGES BETWEEN 27" AND 80" ABOVE THE FINISHED FLOOR SHALL PROTRUDE NO MORE THAN 4" INTO CIRCULATION PATH.
2. OBJECTS MOUNTED WITH THEIR LEADING EDGES AT OR BELOW 27" ABOVE THE FINISHED FLOOR MAY PROTRUDE ANY AMOUNT.
3. OBJECTS MOUNTED ON POSTS / PYLONS MAY OVERHANG 12" MAXIMUM FROM 27" TO 80" ABOVE THE GROUND OR FINISHED FLOOR.
4. PROTRUDING OBJECTS SHALL NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE OR MANEUVERING SPACE.
5. ANY OBSTRUCTION OVERHANGING A PEDESTRIAN WAY SHALL BE A MINIMUM OF 80" ABOVE THE WALKING SURFACE AS MEASURED TO THE BOTTOM OF THE OBSTRUCTION. GUARDRAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE THE VERTICAL CLEARANCE IS LESS THAN 80". SUCH GUARDRAILS SHALL BE LOCATED 27" MAX ABOVE FINISHED FLOOR.

1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTE TO AN ACCESSIBLE ENTRANCE.

2. SURFACE SLOPES OF PARKING SPACES FOR THE PHYSICALLY DISABLED SHALL NOT EXCEED 1/4 INCH PER FOOT (2% GRADIENT) IN ANY DIRECTION.
3. DISABLED PARKING SPACES SHALL BE LOCATED SO AS NOT TO REQUIRE USERS TO WHEEL OR WALK BEHIND ANY OTHER NON-DISABLED OR DISABLED PARKING SPACE, OTHER THAN TO PASS BEHIND THE PARKING SPACE IN WHICH THEY PARKED.
4. IN EACH PARKING AREA, A BUMPER OR CURB SHALL BE PROVIDED AND LOCATED TO PREVENT ENCRoACHMENT OF CARS OvER THE REQUIRED WIDTH OF ADJACENT ACCESSIBLE ROUTES.
5. PARKING SPACES RESERVED FOR PERSONS WITH DISABILITIES SHALL BE IDENTIFIED BY A REFLECTORIZED SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE, CONSISTING OF A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT, IN WHITE ON DARK BLUE BACKGROUND. THE SIGN SHALL NOT BE SMALLER THAN 70" IN AREA AND, WHEN IN THE PATH OF TRAVEL, SHALL BE POSTED AT A MINIMUM HEIGHT OF 80" FROM THE BOTTOM OF THE SIGN TO THE PARKING SPACE FINISHED GRADE. WHEN NOT IN THE PATH OF TRAVEL SIGNS MAY ALSO BE ON THE WALL AT THE INTERIOR END OF THE PARKING SPACE AT A MIN. HEIGHT OF 60" FROM THE PARKING SPACE FINISHED GRADE, GROUND, OR SIDEWALK MEASURED TO THE BOTTOM OF THE SIGN.
6. ADDITIONAL LANGUAGE OR AN ADDITIONAL SIGN BELOW THE ISA SHALL STATE "MINIMUM FINE \$250"
7. VAN ACCESSIBLE SPACES SHOULD BE IDENTIFIED WITH THE ADDITIONAL WORDS "VAN ACCESSIBLE" ON THE SPACE IDENTIFICATION SIGN. ONE IN EVERY SIX ACCESSIBLE SPACES, BUT NEVER LESS THAN ONE, MUST BE VAN ACCESSIBLE.

1. WALKS AND SIDEWALKS SHALL HAVE A CONTINUOUS COMMON SURFACE NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGES IN LEVEL WHICH EXCEED 1/4", AND SHALL BE A MINIMUM OF 48" IN WIDTH.

2. SURFACE CROSS SLOPES SHALL NOT EXCEED 2%. THE RUNNING SLOPE OF WALKING SURFACES SHALL NOT BE STEEPER THAN 5%.
3. OPENINGS IN FLOOR OR GROUND SURFACES SHALL NOT ALLOW PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.
4. WHEN THE SLOPE IN THE DIRECTION OF TRAVEL OF ANY WALK EXCEEDS 1 VERTICAL TO 20 HORIZONTAL, IT SHALL COMPLY WITH THE PROVISIONS OF RAMPS.
5. WHEN ABRUPT CHANGES IN LEVEL NOT EXCEEDING 1/2" OCCUR, THEY SHALL BE BEVELED WITH A SLOPE NO GREATER THE 1 UNIT VERTICAL TO 2 UNITS HORIZONTAL (50%), EXCEPT THAT LEVEL CHANGES NOT EXCEEDING 1/4" MAY BE VERTICAL.
6. ABRUPT CHANGES IN LEVEL ALONG ANY ACCESSIBLE RAMP EXCEEDING 1/2" SHALL COMPLY WITH THE REQUIREMENTS FOR CURB RAMPS AND RAMPS.
7. WALKS SHALL BE PROVIDED WITH A LEVEL AREA NOT LESS THAN 60" X 60" AT A DOOR OR GATE THAT SWINGS TOWARD THE WALK, AND NOT LESS THAN 48" X 44" DEEP AT A DOOR OR GATE THAT SWINGS AWAY FROM THE WALK.
8. WALKS SHALL EXTEND A MINIMUM OF 24" TO THE SIDE OF THE STRIKE EDGE OF A DOOR OR GATE THAT SWINGS TOWARD THE WALK.
9. WALK AND SIDEWALK SURFACES SHALL BE STABLE, FIRM, AND SLIP-RESISTANT.

1. ALL PRIMARY ENTRANCES AND EXTERIOR GROUND FLOOR EXIT DOORS TO BUILDINGS AND FACILITIES SHALL BE MADE ACCESSIBLE TO THE PHYSICALLY DISABLED.
2. ALL ACCESSIBLE ENTRANCES SHALL BE IDENTIFIED WITH ONE STANDARD INTERNATIONAL SYMBOL OF ACCESSIBILITY SIGN AND WITH ADDITIONAL DIRECTIONAL SIGNS IDENTIFYING THE LOCATION OF NEAREST ACCESSIBLE ENTRANCE, AS REQUIRED, VISIBLE FROM APPROACHING PEDESTRIAN WAYS.
3. EVERY REQUIRED ENTRANCE OR PASSAGE DOORWAY SHALL BE OF A SIZE AS TO PERMIT THE INSTALLATION OF A DOOR NOT LESS THAN 36 INCHES IN WIDTH, AND NOT LESS THAN 80" IN HEIGHT. DOORS SHALL BE CAPABLE OF OPENING AT LEAST 90 DEGREES AND SHALL BE MOUNTED SO THAT THE CLEAR WIDTH OF THE DOORWAY IS NOT LESS THAN 32".
4. LATCHING AND LOCKING DOORS THAT ARE HAND ACTIVATED AND WHICH ARE IN A PATH OF TRAVEL, SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS, OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP, PINCH OR TWIST THE OPENING HARDWARE AND MUST BE OPERABLE WITH ONE HAND.
5. THE OPERABLE PARTS OF LEVER HAND ACTIVATED DOOR OPENING HARDWARE SHALL BE MOUNTED BETWEEN 34" MINIMUM AND 44" MAXIMUM ABOVE THE FLOOR AND NOT REQUIRE MORE THAN 5 POUNDS OF FORCE TO OPERATE.
6. THE FLOOR OR LANDING LENGTH ON EACH SIDE OF AN ENTRANCE OR A PASSAGE DOOR SHALL BE LEVEL AND CLEAR AT LEAST 60" IN THE DIRECTION OF THE DOOR SWING AND AT LEAST 48" OPPOSITE THE DIRECTION OF THE DOOR SWING AS MEASURED AT RIGHT ANGLE TO THE FACE OF THE DOOR IN THE CLOSED POSITION, THE WIDTH OF THE LEVEL AND CLEAR AREA ON THE SIDE WHICH THE DOOR SWINGS SHALL EXTEND A MINIMUM OF 24" PAST THE STRIKE EDGE OF THE DOOR FOR DOORS WITH LATCH SIDE APPROACH AND 36" FOR DOORS REQUIRING HINGE SIDE APPROACH. REFER TO DETAIL B3 ON THIS DRAWING FOR ADDITIONAL CLEARANCE REQUIREMENTS.
7. THE FLOOR OR LANDING SHALL NOT BE MORE THAN 1/2" LOWER THAN THE THRESHOLD OF THE DOORWAY. CHANGES IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2.

8. THE BOTTOM 10" OF ALL DOORS (EXCEPT SLIDING) SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION WHERE NARROW FRAME DOORS ARE USED. A 1" HIGH SMOOTH PANEL SHALL BE INSTALLED ON THE PUSH SIDE OF THE DOOR, WHICH WILL ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST. SURFACES ALONG THIS AREA MUST BE WITHIN 1/16" OF THE SAME PLANE AS THE OTHER. CAVITIES CREATED BY KICK PLATES MUST BE CAPPED.
9. THE MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 LBS. FOR EXTERIOR DOORS AND 5 LBS. FOR INTERIOR DOORS. SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COORDINATING WITH THE ARCHITECT OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY NOT EXCEED 15 LBS.
10. DOOR CLOSERS REQUIRE AT LEAST 5 SECONDS TO CLOSE FROM AN OPEN POSITION OF 90 DEGREES TO 12 DEGREES FROM THE LATCH
11. EACH GRADE-LEVEL EXTERIOR EXIT DOOR SHALL BE IDENTIFIED BY A TACTILE SIGN WITH THE WORD "EXIT". EACH EXIT DOOR THAT LEADS DIRECTLY TO GRADE-LEVEL EXTERIOR EXIT BY MEANS OF STAIRWAY OR RAMP IS IDENTIFIED BY A TACTILE SIGN THAT STATES "EXIT STAIR DOWN", "EXIT RAMP DOWN", "EXIT STAIR UP", OR "EXIT RAMP UP" AS APPROPRIATE. EACH EXIT DOOR THAT LEADS DIRECTLY TO GRADE-LEVEL EXTERIOR EXIT BY MEANS OF AN EXIT ENCLOSURE OR EXIT PASSAGEWAY IS IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS "EXIT", "EXIT STAIR", "EXIT RAMP", OR "EXIT ROOM OR AREA TO A CORRIDOR OR HALLWAY" THAT IS REQUIRED TO HAVE A VISUAL EXIT SIGN IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS "EXIT ROUTE". EACH DOOR THROUGH AN HORIZONTAL EXIT IS IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS "TO EXIT".

1. STAIRWAYS SHALL HAVE HANDRAILS ON EACH SIDE. EVERY STAIRWAY REQUIRED TO BE MORE THAN 88" IN WIDTH SHALL BE PROVIDED WITH NOT LESS THAN ONE INTERMEDIATE HANDRAIL FOR EACH 88" OF REQUIRED WIDTH. INTERMEDIATE HANDRAILS SHALL BE SPACED APPROXIMATELY EQUALLY WITHIN THE ENTIRE WIDTH OF THE STAIRWAY.

2. THE UPPER APPROACH AND THE LOWER TREAD OF EACH INTERIOR STAIR SHALL BE MARKED BY A STRIPE OF CLEARLY CONTRASTING COLOR 2" WIDE MINIMUM & 4" WIDE MAXIMUM AND PLACED PARALLEL TO, AND NOT MORE THAN, 1" FROM THE NOSE OF THE STEP OR LANDING TO ALERT THE VISUALLY IMPAIRED. THE STRIPE IS TO EXTEND THE FULL WIDTH OF THE STEP. THE STRIPE SHALL BE OF A MATERIAL THAT IS AT LEAST AS SLIP RESISTANT AS THE TREADS OF THE STAIR.
3. WHERE STAIRS OCCUR OUTSIDE OF A BUILDING, THE UPPER APPROACH AND ALL TREADS SHALL BE MARKED BY A STRIPE OF CLEARLY CONTRASTING COLOR 2" WIDE MIN & 4" WIDE MAX PLACED PARALLEL TO, AND NOT MORE THAN 1" FROM THE NOSE OF THE STEP OR LANDING TO ALERT THE VISUALLY IMPAIRED. THE STRIPE IS TO EXTEND THE FULL WIDTH OF THE STEP. THE STRIPE SHALL BE OF A MATERIAL THAT IS AT LEAST AS SLIP-RESISTANT AS THE TREADS OF THE STAIR. A PAINTED STRIPE SHALL BE ACCEPTABLE.
4. ALL STAIR TREAD SURFACES SHALL BE SLIP-RESISTANT.

1. HANDRAILS AT STAIRWAYS SHALL BE 34" TO 38" ABOVE THE NOSING OF THE TREADS.
2. HANDRAILS AT THE TOP OF STAIRWAYS SHALL EXTEND A MINIMUM OF 12" OF LEVEL DISTANCE BEYOND THE TOP NOSING. HANDRAILS AT THE BOTTOM OF STAIRWAYS SHALL EXTEND A MINIMUM OF TREAD WIDTH PLUS 12" BEYOND THE BOTTOM NOSING BEFORE THEY ARE RETURNED. AT THE BOTTOM, THE HANDRAIL SHALL CONTINUE TO SLOPE FOR A DISTANCE OF THE WIDTH OF ONE TREAD FROM THE BOTTOM RISER. THE REMAINDER OF THE EXTENSION IS HORIZONTAL (LEVEL).

3. WHERE THE EXTENSION OF THE HANDRAIL IN THE DIRECTION OF THE STAIR RUN WOULD CREATE A HAZARD, THE EXTENSION SHALL BE MADE AT RIGHT ANGLES, ON THE FACE OF A RETURNING WALL, WHERE THE STAIRS ARE CONTINUOUS THE HANDRAIL SHALL BE CONTINUOUS AND NEED NOT EXTEND OUT TO THE LANDING.
 4. HANDRAILS SHALL NOT REDUCE THE REQUIRED WIDTH OF STAIR, WHERE HANDRAIL EXTENSIONS PROTRUDE MORE THAN 4 1/2" INTO AN ADJACENT ROUTE OF TRAVEL, PROVIDE CANE-DETECTABLE RAIL AT 27" ABOVE LANDING.
 5. HANDRAILS SHALL BE CONTINUOUS WITHIN THE FULL LENGTH OF EACH STAIR FLIGHT OR RAMP RUN. INSIDE HANDRAILS ON SWITCHBACK OR DOGLEG STAIRS AND RAMPS SHALL BE CONTINUOUS BETWEEN FLIGHTS OR RUNS.
- RAMPS**
1. ALL RAMPS USED AS EXITS AND ANY PATH OF TRAVEL HAVING A SLOPE GREATER THAN 1:20 SHALL COMPLY WITH THE REQUIREMENTS OF THIS SECTION. RAMPS SHALL HAVE THE LEAST POSSIBLE SLOPE.
 2. PEDESTRIAN RAMPS SHALL HAVE A MINIMUM WIDTH OF 48". RAMPS SERVING AN OCCUPANCY LOAD GREATER THAN 300 SHALL HAVE A MINIMUM WIDTH OF 60".
 3. ALL RAMPS IN AREAS ACCESSIBLE TO PERSONS WITH DISABILITIES ON A PATH OF TRAVEL OR SERVING EXITS SHALL HAVE A 1:12 MAXIMUM SLOPE WITH CROSS SLOPES NO GREATER THAN 1:50. LANDINGS NOT TO EXCEED 1:50 IN ANY DIRECTION.
 4. INTERMEDIATE LANDINGS OCCURRING AT NO DIRECTION CHANGE TO BE 60" LONG, RAMPS AT INTERMEDIATE LANDING < OR EQUAL TO 30 DEGREES SHALL BE OF 60" LENGTH AND 60" WIDTH, INTERMEDIATE LANDINGS OCCURRING AT > EQUAL TO 30 DEGREES SHALL BE OF 72" LENGTH AND 60" WIDTH.

EXTERIOR DOOR OR GATE.

6. DOORS STANDING IN ANY POSITION SHALL NOT REDUCE THE MINIMUM DIMENSION OF THE RAMP TO LESS THAN 42" OR THE REQUIRED WIDTH BY MORE THAN 3".

7. HANDRAILS ARE REQUIRED ON RAMPS WHEN THE SLOPE EXCEEDS 1:20 (5%). HANDRAILS AT RAMPS SHALL RUN ALONG BOTH SIDES OF A RAMP, BE CONTINUOUS THE FULL LENGTH, AND EXTENSIONS AT THE TOP AND BOTTOM OF THE RAMP SHALL BE 12" MIN.

8. THE HANDRAIL GRIP SURFACE AT RAMPS SHALL BE MOUNTED BETWEEN 34" AND 38" ABOVE THE RAMP SURFACE.
 9. ALL HANDRAIL ENDS SHALL BE RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS.
 10. ALL HANDRAILS PROJECTED FROM A WALL SHALL BE MOUNTED WITH A MINIMUM 1-1/2 INCHES BETWEEN THE WALL AND THE HANDRAIL.
 11. THE HAND GRIP PORTION OF HANDRAILS SHALL BE NOT LESS THAN 1-1/4" NOR MORE THAN 2" IN CROSS-SECTIONAL DIMENSION OR SHAPE AND SHALL PROVIDE AN EQUIVALENT SMOOTH GRIPPING SURFACE WITH NO SHARP CORNERS, HANDRAIL GRIPPING SURFACES WITH A NON-CIRCULAR CROSS SECTION SHALL HAVE A PERIMETER DIMENSION OF 4" MIN. AND 6 1/4" MAX. AND A CROSS SECTION DIMENSION OF 2 1/4" MAX.
 12. HANDRAILS CANNOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP MORE THAN 3 1/2" FROM EACH SIDE OF THE RAMP AT THE HANDRAIL HEIGHT.
- SANITARY FACILITIES (GENERAL)**
1. ALL DOORWAYS LEADING TO SANITARY FACILITIES SHALL HAVE 32" CLEAR, UNOBSTRUCTED OPENINGS.
 2. ALL SINKS, FAUCET CONTROLS, AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. LEVER-OPERATED, PUSH TYPE, AND ELECTRONICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. SELF-CLOSING VALVES ARE ALLOWED IF THE FAUCET REMAINS OPEN FOR AT LEAST 10 SECONDS.

PARTITION TO THE CENTER OF THE FIXTURE. ACCESSIBLE LAVATORIES SHALL BE MOUNTED WITH THE RIM AND/OR COUNTER SURFACE NO HIGHER THAN 34" ABOVE THE FLOOR.

1. THE HEIGHT OF ACCESSIBLE WATER CLOSETS SHALL BE A MINIMUM OF 17" AND A MAXIMUM OF 19" MEASURED TO THE TOP OF THE TOILET SEAT.
2. PROVIDE 17" MINIMUM - 18" MAXIMUM FROM THE CENTERLINE OF THE WATER CLOSET TO THE ADJACENT WALL.
3. TOILET AND URINAL FLUSH CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. CONTROLS FOR THE FLUSH VALVES SHALL BE MOUNTED ON THE OPEN (WIDE) SIDE OF THE TOILET STALL. TOILET AND URINAL FLUSH CONTROLS SHALL BE NO MORE THAN 44" ABOVE THE FLOOR. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS.
4. WHERE URINALS ARE PROVIDED, AT LEAST ONE SHALL HAVE A CLEAR SPACE 30" WIDE BY 4' LONG IN FRONT OF THE URINAL. AT LEAST ONE URINAL WITH 13 1/2" MIN. RIM PROJECTION FROM THE WALL AND A MAXIMUM OF 17" ABOVE THE FLOOR SHALL BE INSTALLED.

5. AMBULATORY STALLS ARE REQUIRED WHERE 6 OR MORE STALLS ARE PROVIDED WITHIN A MULTIPLE ACCOMMODATION TOILET ROOM OR WHERE THE COMBINATION OF URINALS AND WATER CLOSETS TOTALS SIX OR MORE FIXTURES. AMBULATORY ACCESSIBLE COMPARTMENTS SHALL BE 60" DEEP MIN. AND 35" MIN. - 37" MAX. WIDE. COMPARTMENT DOORS SHALL NOT SWING INTO THE MINIMUM REQUIRED COMPARTMENT AREA.
6. A CLEAR FLOOR SPACE 36" WIDE BY 48" LONG SHALL BE PROVIDED IN FRONT OF A LAVATORY TO ALLOW FOR FORWARD APPROACH. SHALL BE CLEAR SPACE, ADJOIN OR OVERLAP AN ACCESSIBLE ROUTE AND SHALL EXTEND INTO KNEE AND TOE SPACE UNDERNEATH LAVATORY.

7. LAVATORIES SHALL BE MOUNTED WITH A CLEARANCE OF AT LEAST 29" FROM THE FLOOR TO THE BOTTOM OF THE APRON WITH 27" MINIMUM KNEE CLEARANCE UNDER THE FRONT UP EXTENDING A MINIMUM OF 30" IN WIDTH WITH 8" MINIMUM DEPTH AT THE TOP. TOE CLEARANCE SHALL BE SAME WIDTH AND A MINIMUM OF 9 INCHES HIGH FROM THE FLOOR AND A MINIMUM OF 17-19" MAXIMUM DEEP FROM THE FRONT OF THE LAVATORY.
8. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
9. MIRRORS LOCATED ABOVE LAVATORIES OR COUNTERTOPS SHALL HAVE BOTTOM OF REFLECTIVE SURFACE 40" MAX. ABOVE FINISHED FLOOR; MIRRORS MOUNTED ELSEWHERE SHALL HAVE BOTTOM EDGE OF REFLECTIVE SURFACE 35" MAX. ABOVE FINISHED FLOOR. TOP EDGE OF MIRRORS SHOULD BE 74" HIGH TO BE USEABLE BY AMBULATORY PEOPLE.
10. LOCATE PAPER TOWEL DISPENSERS, SANITARY NAPKIN DISPENSERS, AND WASTE RECEPTACLES WITH ALL OPERABLE PARTS NOT MORE THAN 40" FROM THE FLOOR.

11. LOCATE TOILET TISSUE DISPENSERS ON THE WALL 7'-9" FROM THE FRONT OF THE WATER CLOSET TO THE CENTERLINE OF THE DISPENSER, THE OUTLET OF THE DISPENSER SHALL BE 19" MIN. ABOVE FINISHED FLOOR AND SHALL NOT BE LOCATED BEHIND GRAB BARS. DISPENSERS SHALL NOT BE OF A TYPE THAT CONTROLS DELIVERY OR THAT DOES NOT ALLOW CONTINUOUS PAPER FLOW.
12. DOORS CANNOT SWING INTO THE REQUIRED CLEAR FLOOR SPACE AT ANY FIXTURE OTHER THAN THE DOOR TO THE ACCESSIBLE WATER CLOSET COMPARTMENT, A DOOR, IN ANY POSITION, MAY ENCRoACH INTO THE TURNING SPACE BY 12" MAX
13. CLEARANCE AROUND WATER CLOSET SHALL BE 60" WIDE x 56" DEEP PROVIDED IN FRONT OF THE WATER CLOSET, NO OTHER FIXTURES CAN BE LOCATED WITHIN THIS AREA, A MIN. 6' WIDE AND 48" DEEP MANUEVRING SPACE SHALL BE PROVIDED IN FRONT OF THE WATER CLOSET.
14. SANITARY NAPPY DISPOSAL UNITS, IF PROVIDED, SHALL COMPLY WITH SECTION 11B-309.4 AND SHALL BE WALL MOUNTED AND LOCATED ON THE SIDE WALL BETWEEN THE REAR WALL OF THE TOILET AND THE TOILET PAPER DISPENSER, ADJACENT TO THE TOILET PAPER DISPENSER, THE DISPOSAL UNIT SHALL BE LOCATED BELOW THE GRAB BAR WITH THE OPENING OF THE DISPOSAL UNIT 19 INCHES MINIMUM ABOVE THE FINISH FLOOR.

1. A CLEAR SPACE, MEASURED FROM THE FLOOR TO A HEIGHT OF 27" ABOVE THE FLOOR, WITHIN THE SANITARY FACILITY ROOM, OF SUFFICIENT SIZE TO INSCRIBE A CIRCLE OF A DIAMETER NOT LESS THAN 60 INCHES, OR A T SHAPED SPACE IN ACCORDANCE WITH 11B-304.3.2 SHALL BE PROVIDED.

2. CLEARANCE AROUND A WATER CLOSET SHALL BE 60" MIN. MEASURED PERPENDICULAR FROM THE SIDE WALL AND 56" MIN. MEASURED PERPENDICULAR FROM THE REAR WALL. A 48" LONG CLEAR SPACE IN FRONT OF WATER CLOSET SHALL BE PROVIDED IF THE COMPARTMENT HAS AN END OPENING DOOR (FACING THE WATER CLOSET). A 60" LONG CLEAR SPACE SHALL BE PROVIDED IN COMPARTMENT WHEN DOOR IS LOCATED AT THE SIDE. GRAB BARS SHALL NOT PROJECT MORE THAN 3" INTO CLEAR SPACE SPECIFIED ABOVE.
3. WATER CLOSET COMPARTMENT SHALL BE EQUIPPED WITH DOOR THAT HAS AN AUTOMATIC CLOSING DEVICE, AND A CLEAR UNOBSTRUCTED OPENING WIDTH OF 32" WHEN LOCATED AT THE END, AND 34" WHEN LOCATED AT SIDE, WHEN THE DOOR IS POSITIONED AT AN ANGLE OF 90 DEGREES FROM ITS CLOSED POSITION.
4. EXCEPT FOR DOOR OPENINGS, A CLEAR UNOBSTRUCTED ACCESS NOT LESS THAN 44" SHALL BE PROVIDED TO ALL WATER CLOSET COMPARTMENTS DESIGNED FOR USE BY THE DISABLE. THE SPACE IMMEDIATELY IN FRONT OF A WATER CLOSET COMPARTMENT SHALL BE NOT LESS THAN 48" AS MEASURED AT RIGHT ANGLES TO THE COMPARTMENT DOOR IN ITS CLOSED POSITION.
5. THE WATER CLOSET AND DOOR MANEUVERING CLEARANCE CANNOT OVERLAP IN THE ACCESSIBLE STALL.
6. STALL DOORS TO BE HINGED 4" MAXIMUM OPPOSITE THE WATER CLOSET FOR FRONT OR SIDE OPENING DOORS.
7. STALL DOORS CANNOT SWING INTO THE REQUIRED CLEAR AREA AT THE WATER CLOSET.
8. A DOOR PULL SHALL BE PLACED ON BOTH SIDES OF THE DOOR NEAR THE LATCH.

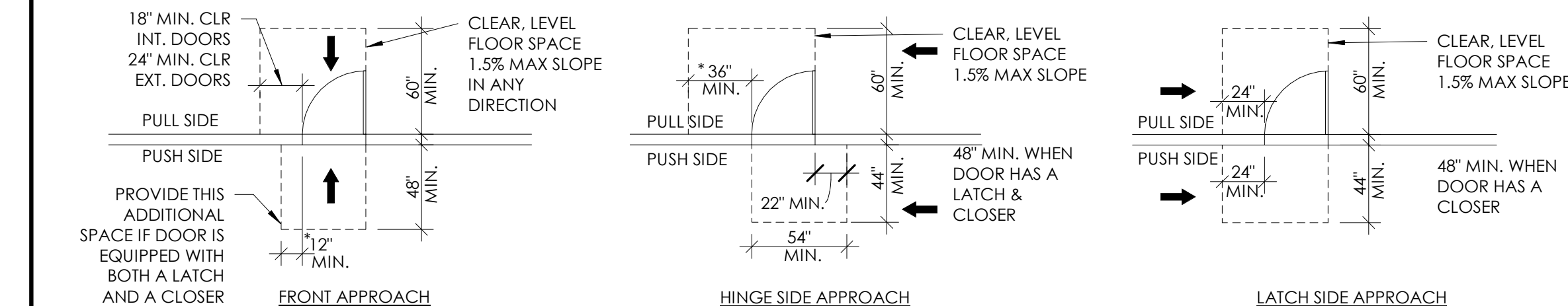
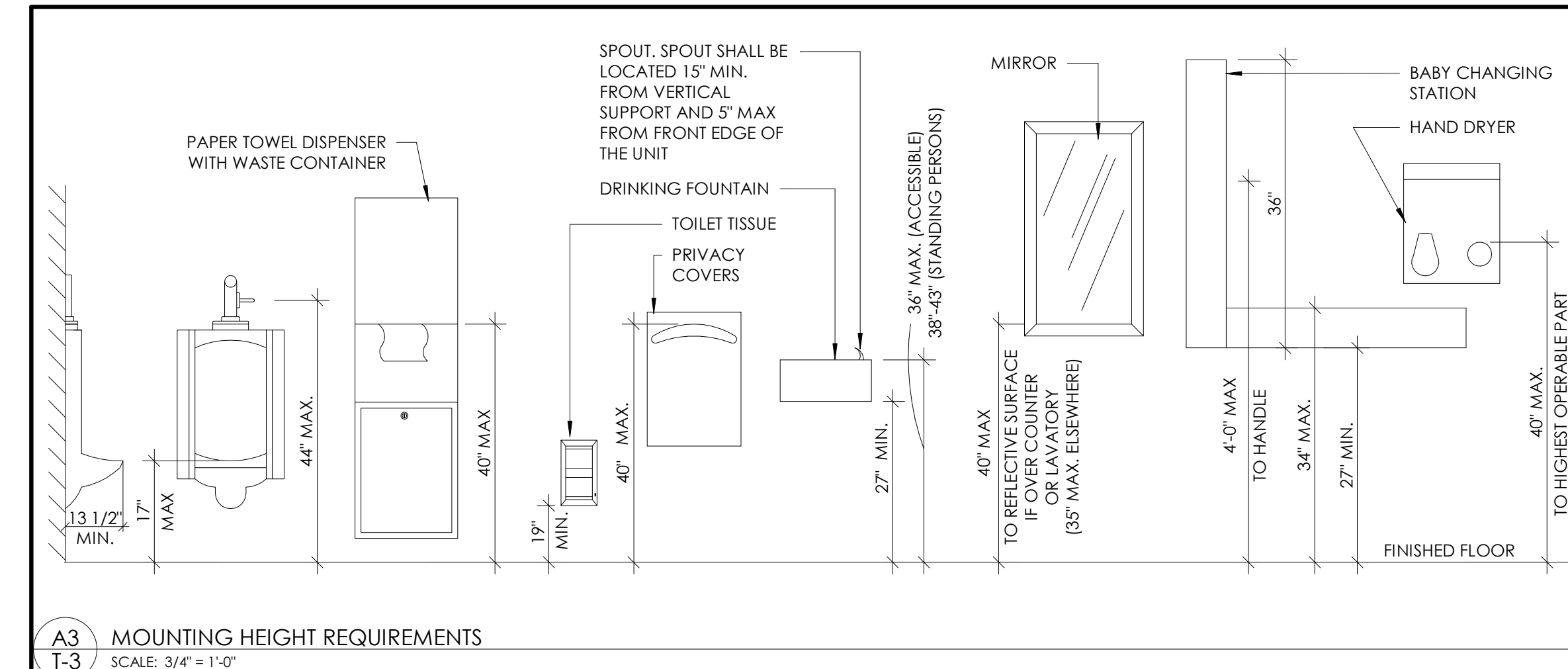
1. GRAB BARS SHALL BE LOCATED ON ONE SIDE AND THE BACK OF THE PHYSICALLY DISABLED TOILET STALL OR COMPARTMENT AND SHALL BE SECURELY ATTACHED 33" MINIMUM-36" MAXIMUM, MEASURED TO THE TOP OF GRIPING SURFACE, ABOVE AND PARALLEL TO THE FLOOR.

2. GRAB BARS AT THE SIDE SHALL BE AT LEAST 42" LONG WITH THE FRONT END POSITIONED 54" MINIMUM FROM THE BACK OF THE STALL AND WITH THE FRONT END POSITIONED 24" MINIMUM IN FRONT OF THE WATER CLOSET. THE SIDE GRAB BAR SHALL BE LOCATED 12" MAXIMUM FROM THE REAR WALL. GRAB BARS AT THE BACK SHALL NOT BE LESS THAN 36" LONG AND SHALL EXTEND FROM THE CENTERLINE OF THE WATER CLOSET 12" MINIMUM ON ONE SIDE AND 24" MINIMUM ON THE OTHER SIDE.
3. THE DIAMETER OR WIDTH OF THE GRIPPING SURFACES OF A GRAB BAR WITH CIRCULAR CROSS SECTIONS SHALL HAVE AN OUTSIDE DIAMETER OF 1 1/4" MIN AND 2" MAXIMUM. GRAB BARS WITH NON CIRCULAR CROSS SECTIONS SHALL HAVE A CROSS SECTION DIMENSION OF 2" MAXIMUM AND A PERIMETER DIMENSION OF 4" MIN AND 4.8" MAXIMUM IF THE GRAB BARS ARE MOUNTED ADJACENT TO A WALL, THE SPACE BETWEEN THE WALL AND THE GRAB BARS SHALL BE 1-1/2".
4. GRAB BARS, AND ANY WALL OR OTHER SURFACE ADJACENT TO IT, SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS.
5. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.
6. GRAB BARS SHALL BE DESIGNED TO SUPPORT A 250 POUND FORCE.
7. NO OBJECT TO BE MOUNTED WITHIN 1 1/2" BELOW OR 12" ABOVE ANY GRAB BAR.

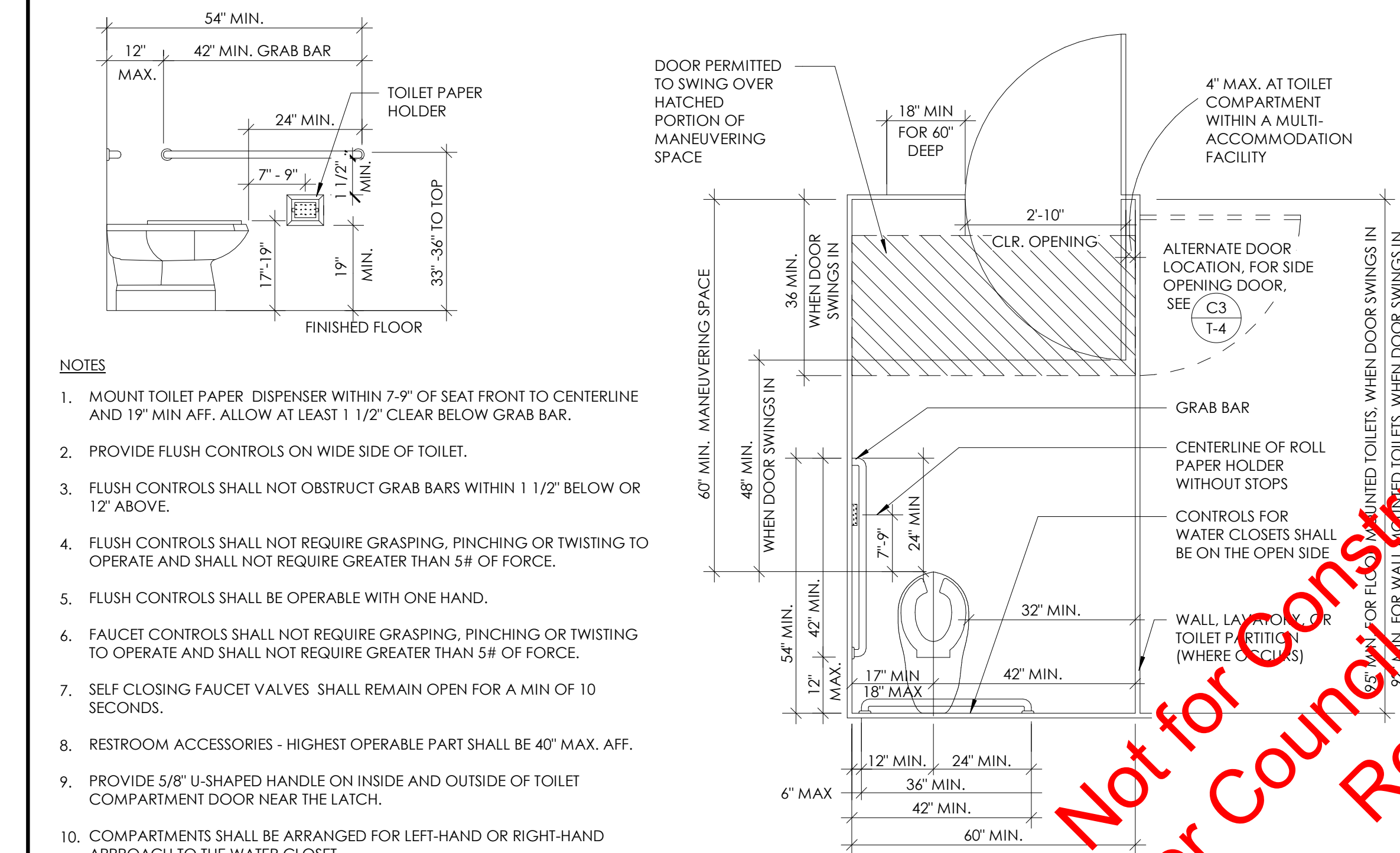
1. BASELINE OF THE HIGHEST LINE OF RAISED CHARACTER TO BE 60" MAXIMUM AND BASELINE OF THE LOWEST BRAILLE CELLS TO BE 48" MINIMUM ABOVE FINISHED FLOOR.
2. TACTILE ROOM IDENTIFICATION SIGNS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18" MIN. x 18" MIN. CENTERED ON SIGN IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING.

1. PROVIDE A 30" X 48" CLEAR SPACE AT TELEPHONE. THE CLEAR SPACE MAY INCLUDE KNEE SPACE UNDER THE TELEPHONE.
2. THE HIGHEST OPERABLE PART OF THE TELEPHONE SHALL BE 48" MAX.
3. TELEPHONES MOUNTED IN A CORNER THAT REQUIRE WHEELCHAIR USERS TO REACH DIAGONALLY SHALL HAVE THE HIGHEST OPERABLE PART NO HIGHER THAN 48" AFF.
4. THE CORD FROM THE TELEPHONE TO THE HANDSET SHALL BE AT LEAST 29" LONG.
5. ALL PUBLIC TELEPHONES SHALL HAVE VOLUME CONTROL AND BE IDENTIFIED WITH APPROPRIATE SIGNAGE
6. TELEPHONES SHALL HAVE PUSH-BUTTON CONTROLS WHERE SERVICE FOR SUCH EQUIPMENT IS AVAILABLE. ALL OPERABLE PARTS, INCLUDING BUT NOT LIMITED TO COIN RETURN, SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE TO ACTIVATE OPERABLE PARTS SHALL NOT EXCEED 5 LBS MAX.

1. THE TOP OF THE BOX OF THE OPERATING HANDLE OF SWITCHES INTENDED TO BE USED BY OCCUPANTS OF A ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES, OR EQUIPMENT SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX. SECTION 11B-308 EXCEPT THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX.
2. ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL COMPLY WITH SECTION 11B-308 EXCEPT THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX.



T-3 SCALE: 1/2" = 1'-0"



T-3 SCALE: 1" = 1'-0"



PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
REMODEL

100 D STREET
ROSEVILLE, CA 95678



Description:	Date:
REVISED SCOPE SUBMITTAL	12/14/2011

Project Number:	200702
Approved By:	MK
Checked By:	JB
Drawn By:	SC

~~ACCESSIBILITY
DETAILS~~

SHEET NUMBER:

T-3

GRAB BAR

CENTERLINE OF ROLL PAPER HOLDER WITHOUT STOPS

CONTROLS FOR WATER CLOSETS SHALL BE ON THE OPEN SIDE

" MIN.

WALL LATCHING FOR TOILET PARTITION (WHERE REQUIRED)

" MIN.

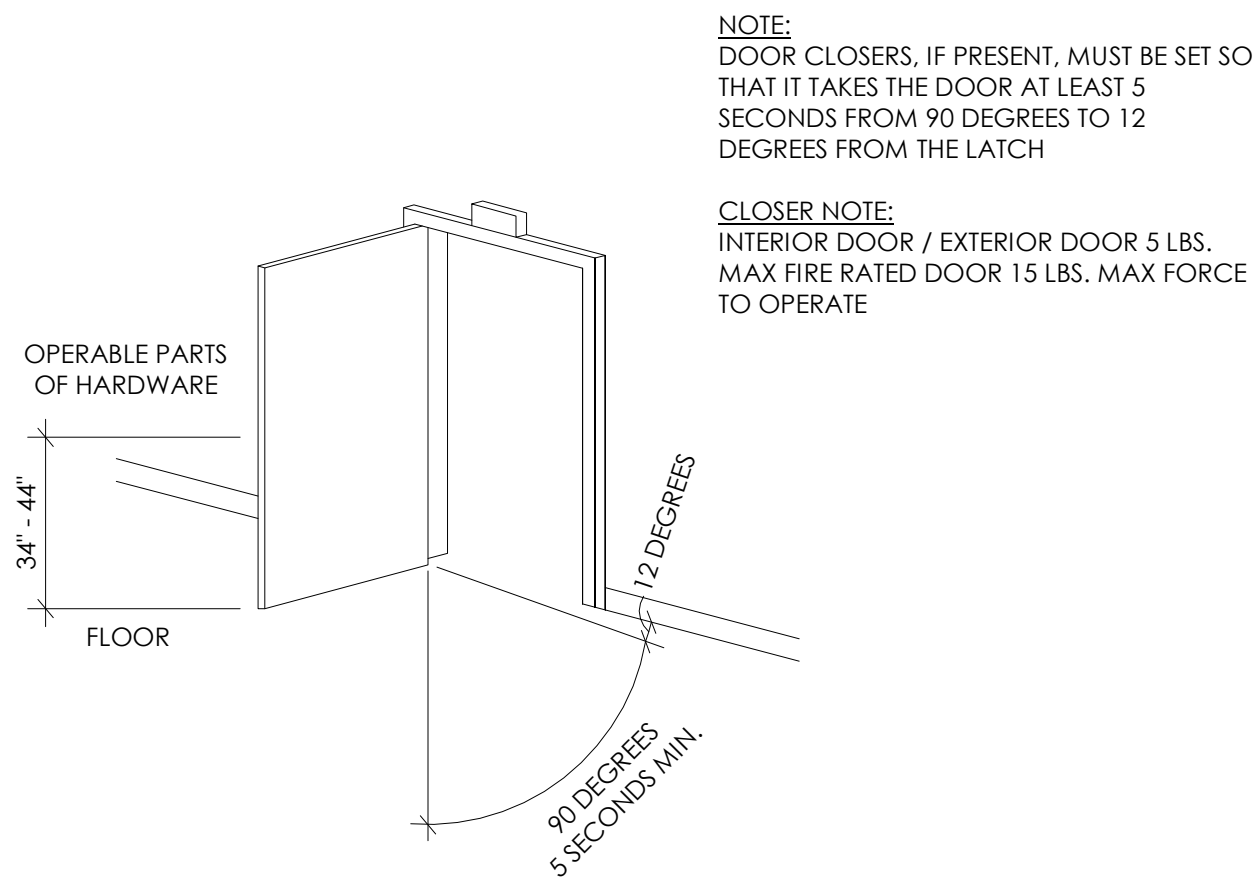
90° MIN. FOR FLOOR MOUNTED TOILETS, WHEN DIAGONAL

90° MIN. FOR WALL MOUNTED TOILETS, WHEN DIAGONAL

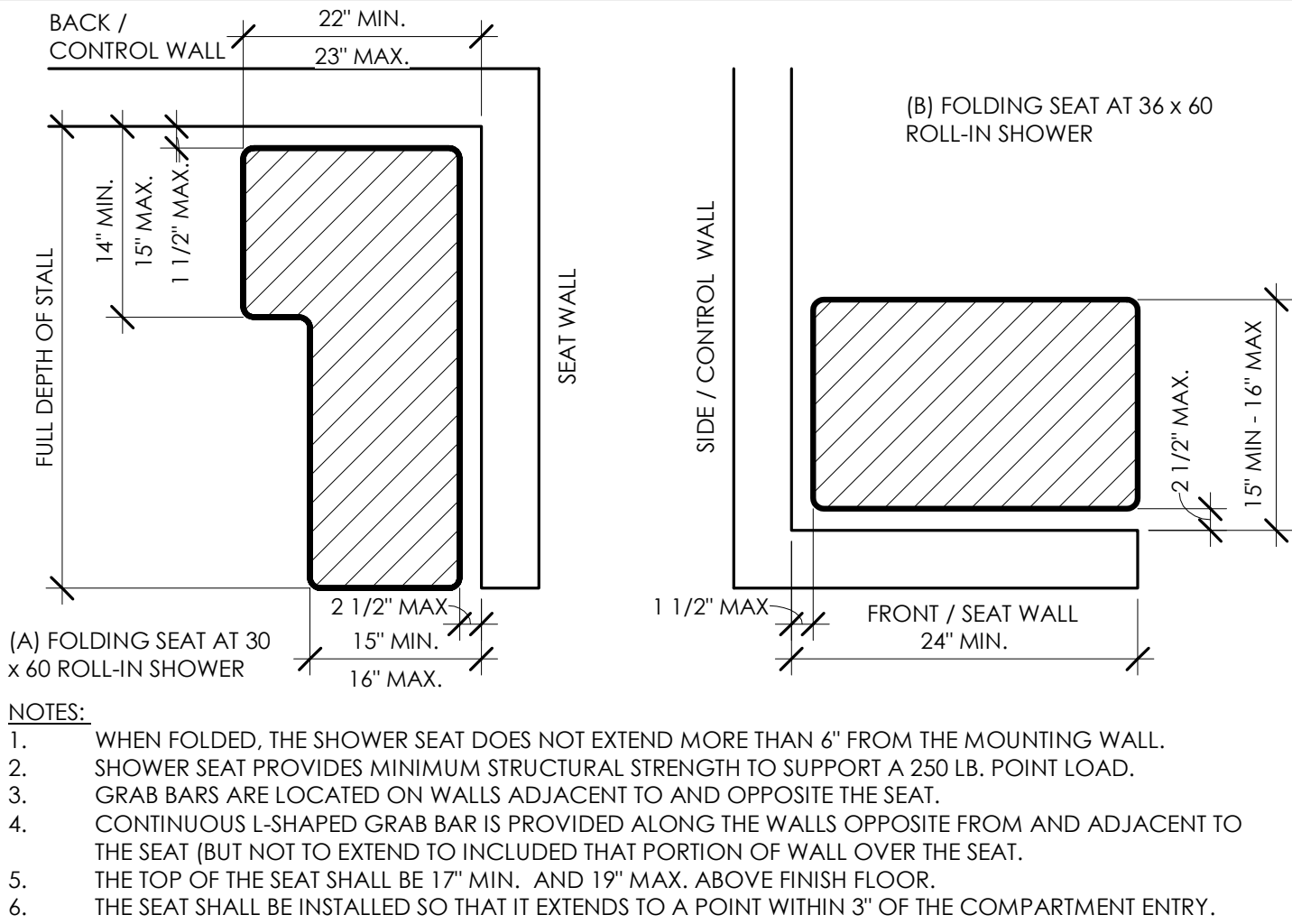
Project Number: 2016-001
Approved By: M
Checked By: JE
Drawn by: SC
Sheet Title:
ACCESSIBILITY DETAILS

SHEET NUMBER:

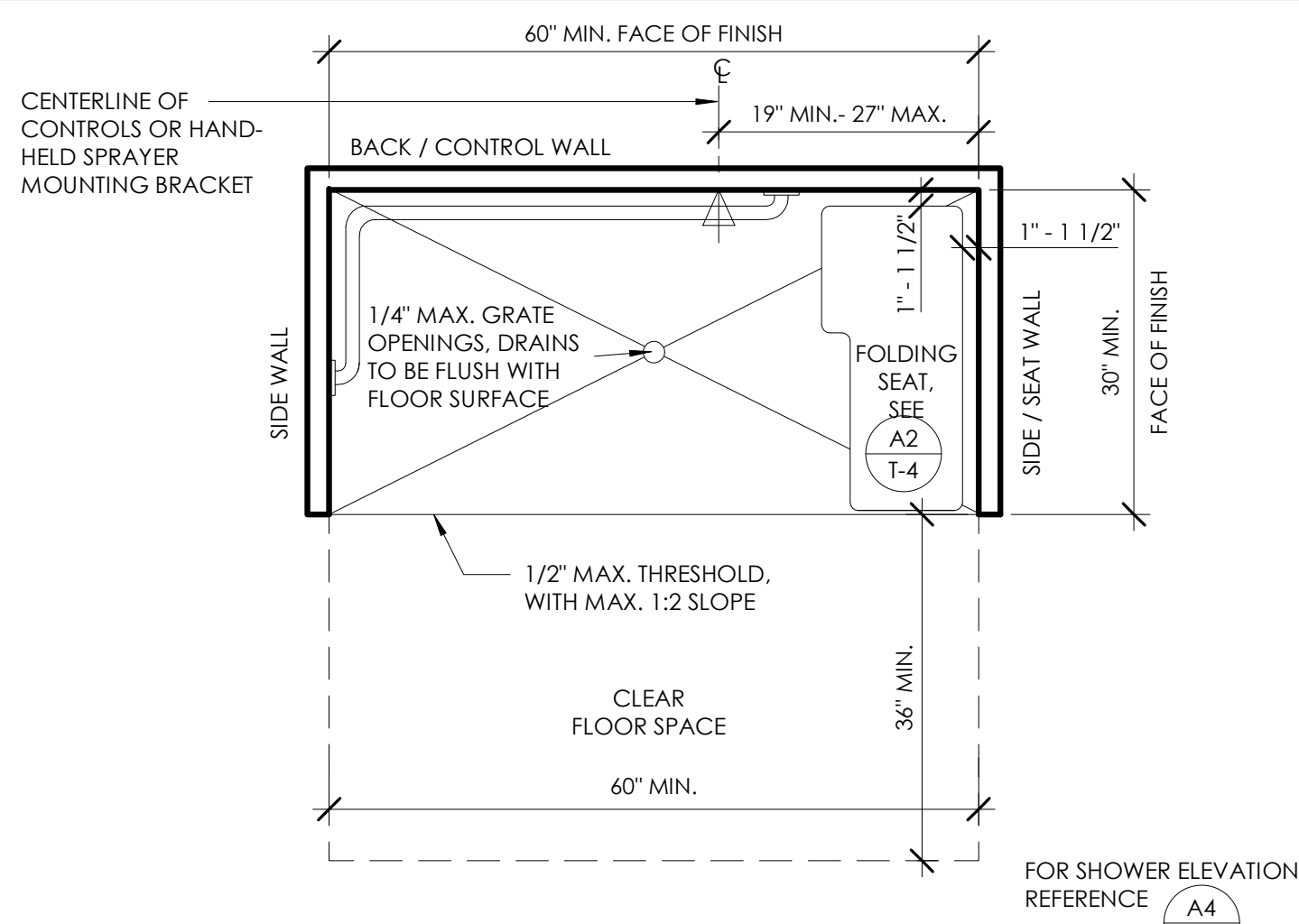
T-3



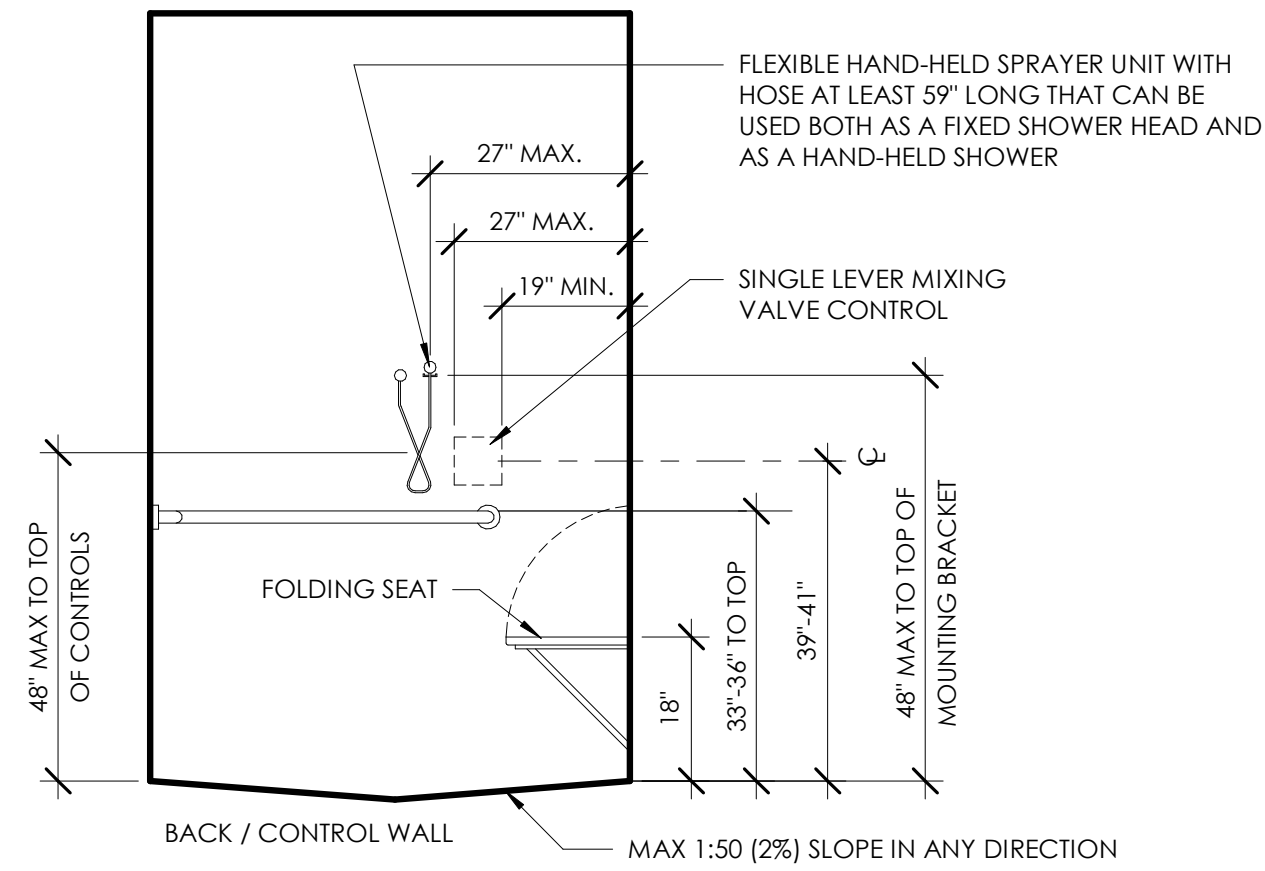
A1 ACCESSIBLE HARDWARE REQUIREMENTS
T-4 SCALE: 1/4" = 1'-0"



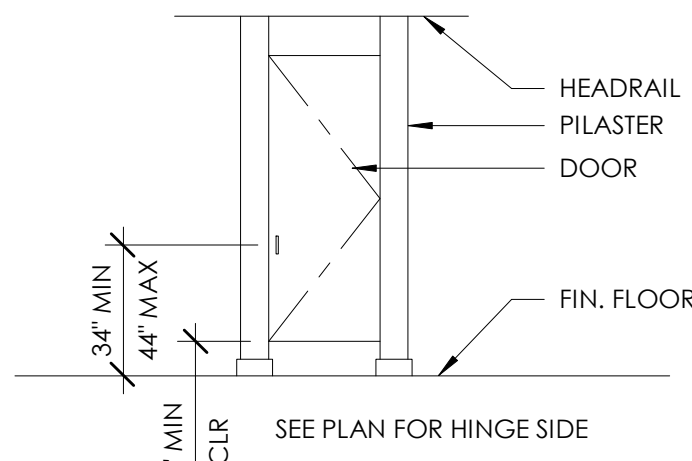
A2 SHOWER SEAT
T-4 SCALE: 1" = 1'-0"



A3 ACCESSIBLE 30 X 60 ROLL-IN SHOWER
T-4 SCALE: 3/4" = 1'-0"

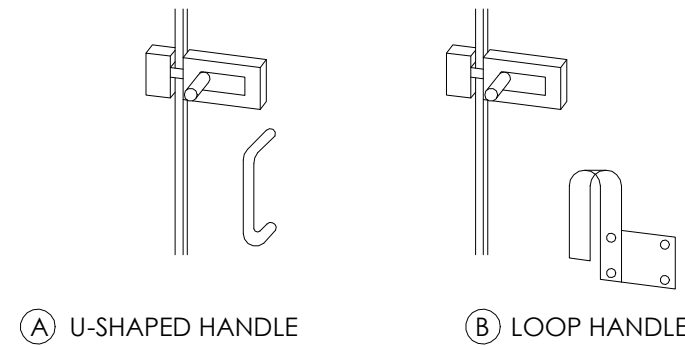


A4 ACCESSIBLE 30 X 60 ROLL-IN SHOWER - ELEVATION
T-4 SCALE: 1/2" = 1'-0"



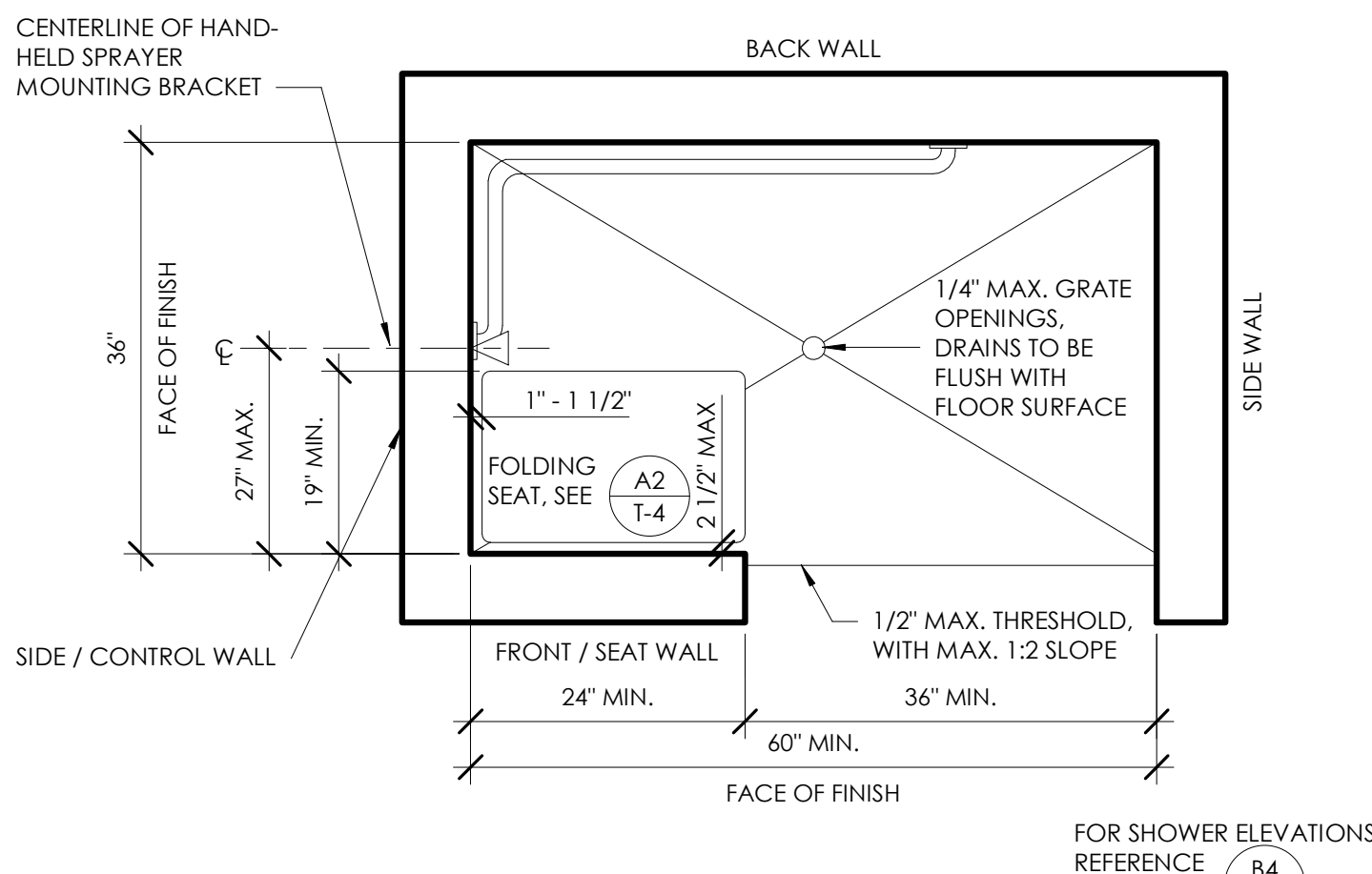
- NOTES:
- DOORS TO THE ACCESSIBLE WATER, CLOSET COMPARTMENTS SHALL BE EQUIPPED WITH A SELF CLOSING DEVICE.
 - IF STANDARD COMPARTMENTS ARE USED, PROVIDE SELF CLOSING DEVICES. IF NON-STANDARD COMPARTMENT DOORS ARE USED, PROVIDE CLEARANCE AT THE STRIKE EDGE.
 - REQUIRED CLEAR OPENINGS FOR ACCESSIBLE STALL DOORS ARE AS FOLLOWS - SIDE ENTRY 34" CLEAR MIN - END ENTRY 32" CLEAR MIN.
 - PROVIDE 18x60 DOOR MANEUVERING CLEARANCE ON OUTSWINGING STALL DOORS.
 - U-SHAPED HARDWARE TO BE PROVIDED ON BOTH SIDES OF THE DOOR NEAR THE LATCH.
 - STALL DOOR CANNOT SWING INTO THE REQUIRED CLEAR FLOOR SPACE AT THE WATER CLOSET.

B1 TOILET STALL DOOR
T-4 SCALE: 1/4" = 1'-0"

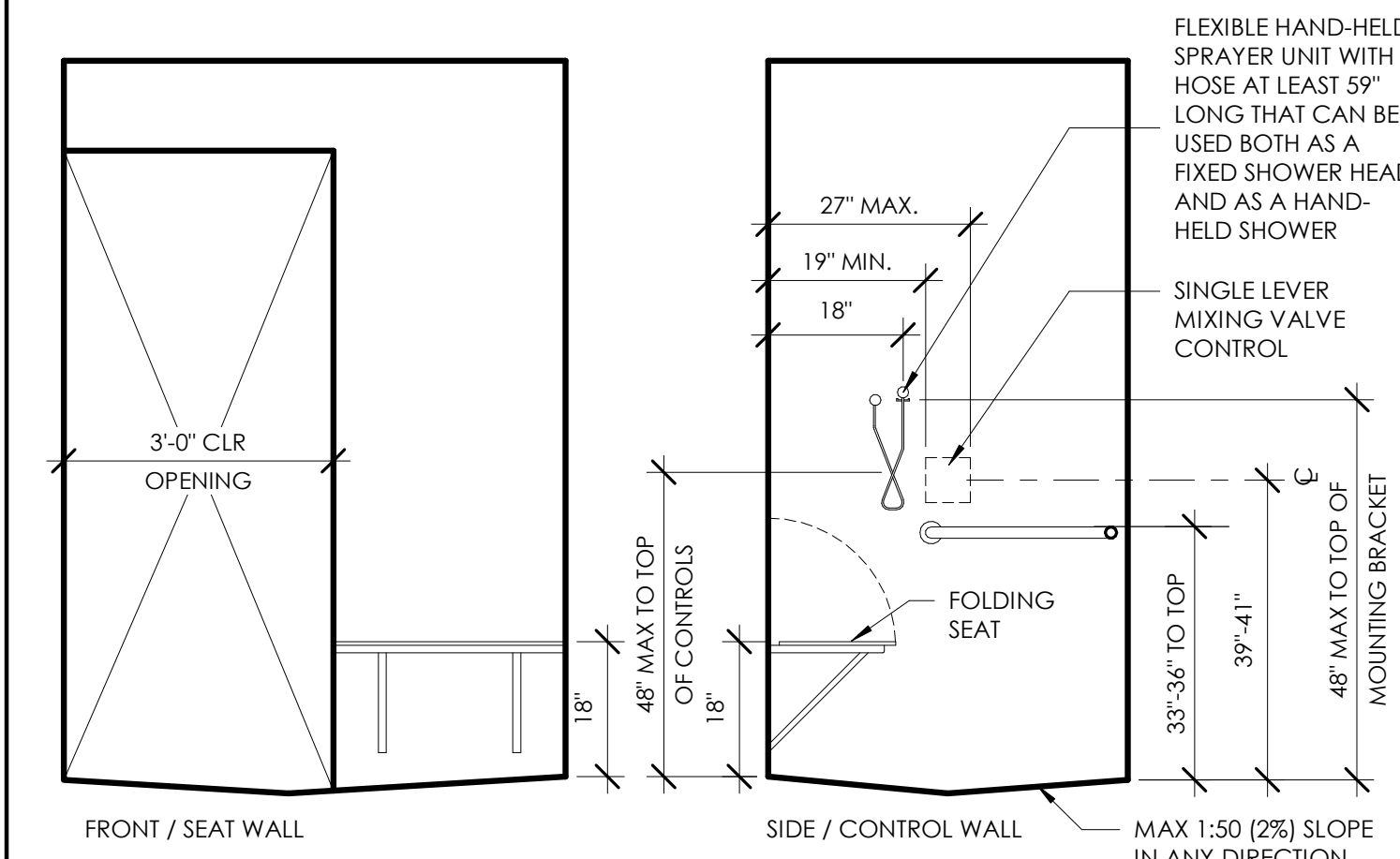


NOTE:
THE INSIDE AND OUTSIDE OF THE COMPARTMENT DOORS TO ACCESSIBLE STALLS MUST BE EQUIPPED WITH A LOOP OR U-SHAPED HANDLE NEAR THE LATCH. THE LATCH MUST BE FLIP-OVER STYLE, SLIDING, OR OTHER HARDWARE OPERABLE W/ONE HAND AND NOT REQUIRING TIGHT GRASPING, PINCHING, OR TWISTING TO OPERATE

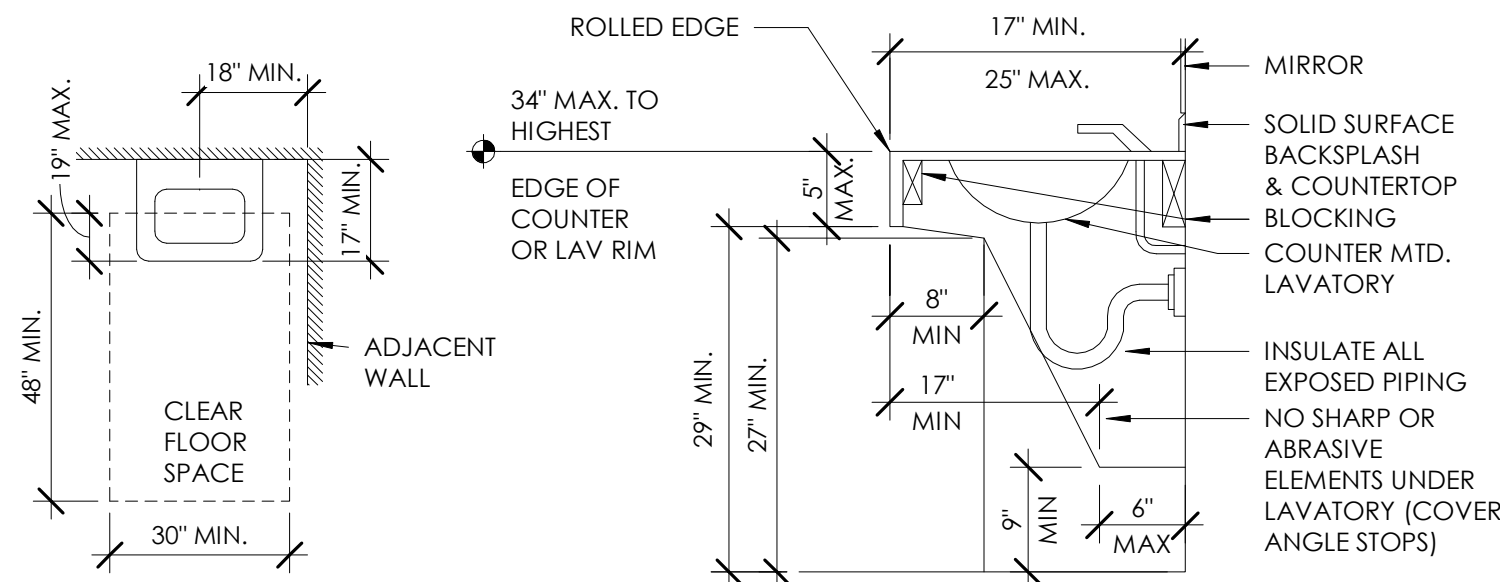
B2 TOILET DOOR STALL HARDWARE
T-4 SCALE: 1/4" = 1'-0"



B3 ACCESSIBLE 36 X 60 ROLL-IN SHOWER
T-4 SCALE: 3/4" = 1'-0"

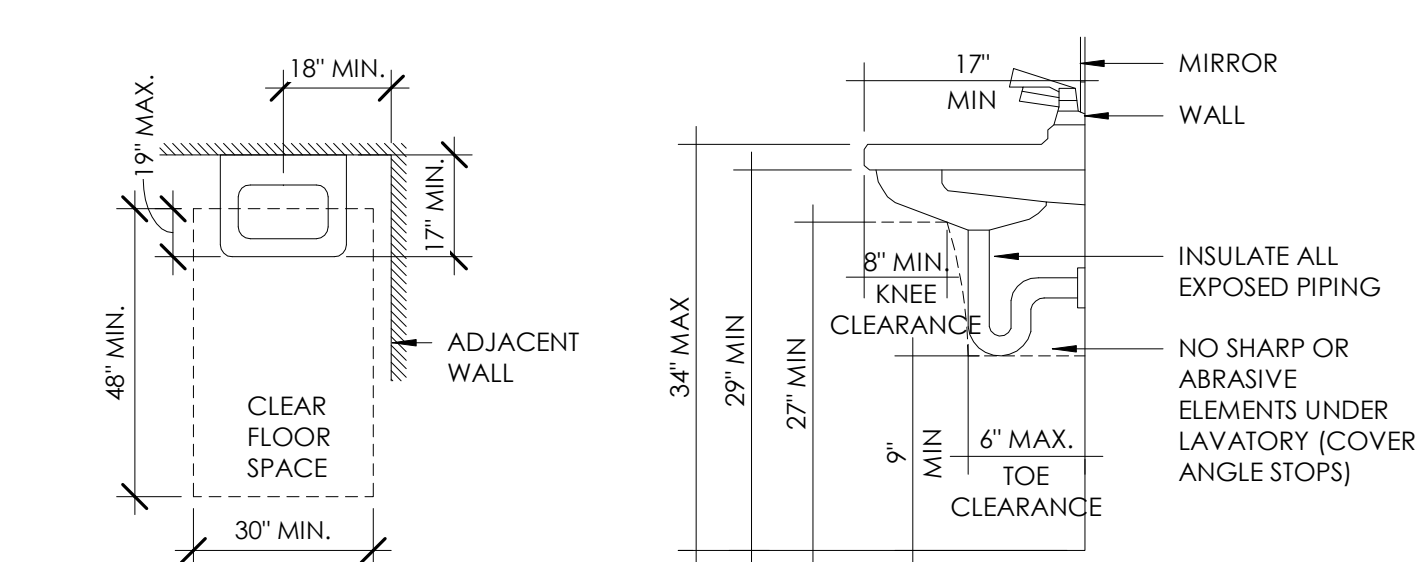


B4 ACCESSIBLE 36 X 60 ROLL-IN SHOWER - ELEVATIONS
T-4 SCALE: 1/2" = 1'-0"



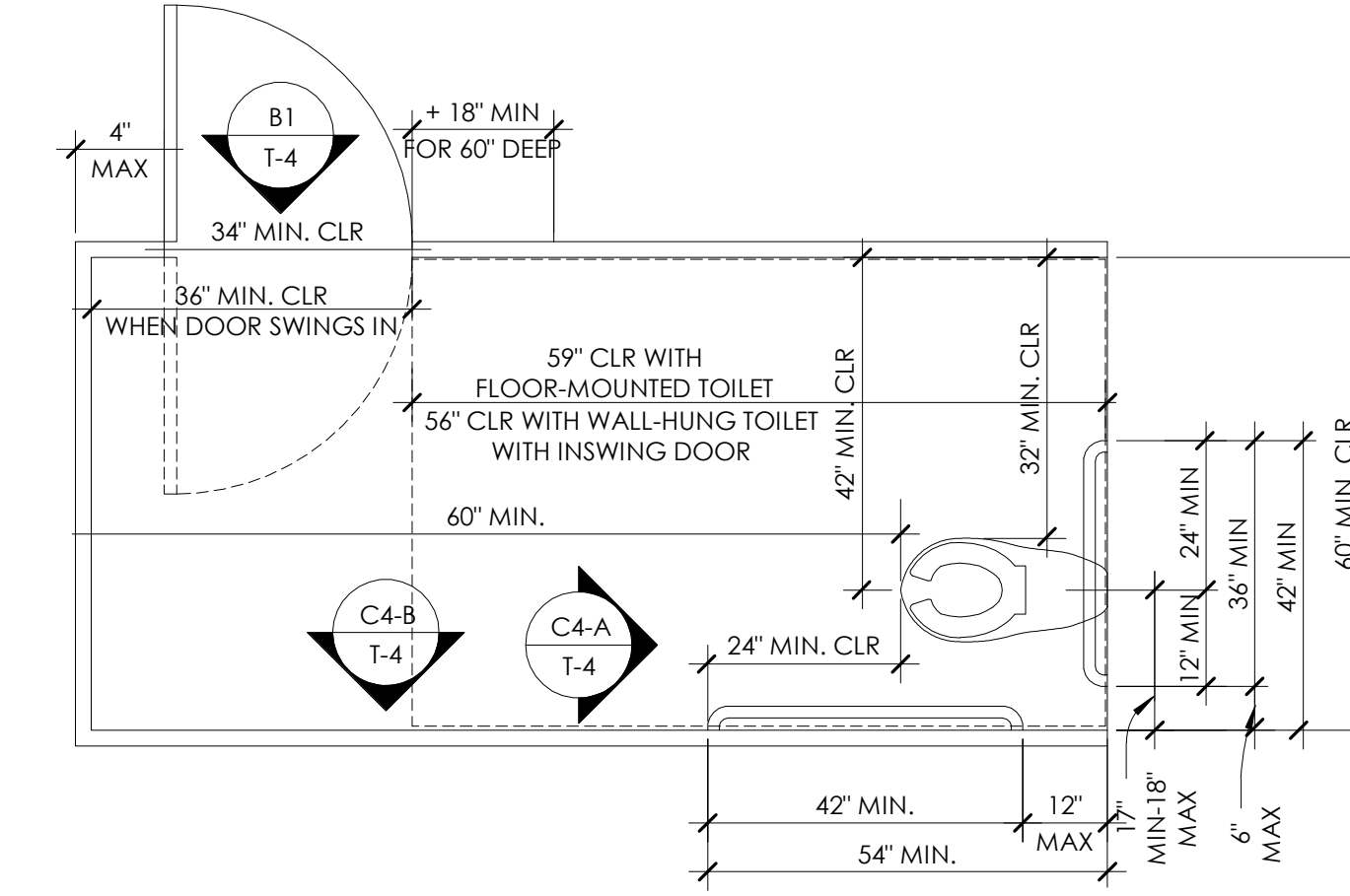
- NOTE:
- THE ACCESSIBLE LAVATORIES SHALL COMPLY WITH THE FOLLOWING:
 - THE FAUCETS CONTROLS, AND OPERATING MECHANISM ARE:
 - THE TYPE WHICH DOES NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST & BE OPERABLE W/ONE HAND.
 - HAS AN OPERATING FORCE OF LESS THAN OR EQUAL TO 5 LBS.
 - IF SELF-CLOSING VALVES ARE USED, THEY SHALL REMAIN OPEN FOR GREATER THAN 10 SECONDS.
 - CLEAR FLOOR SPACE NOT TO EXTEND MORE THAN 19" UNDER LAVATORY.

C1 COUNTER MOUNTED LAVATORY
T-4 SCALE: 1/2" = 1'-0"

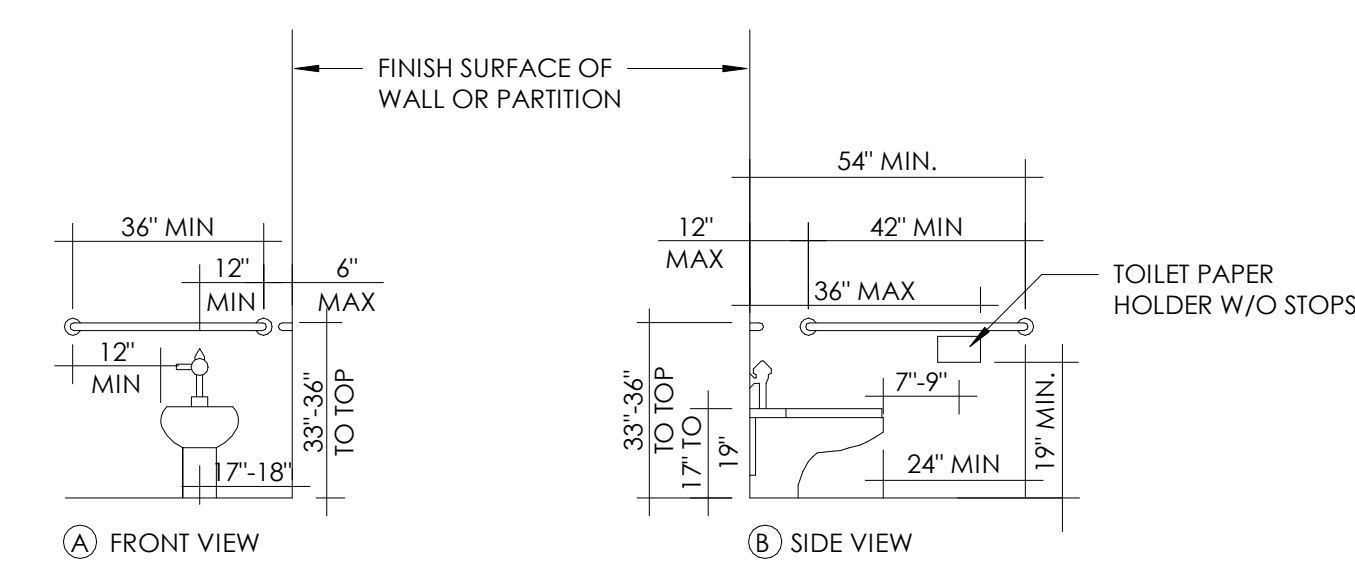


- NOTE:
- THE ACCESSIBLE LAVATORIES SHALL COMPLY WITH THE FOLLOWING:
 - THE FAUCETS CONTROLS, AND OPERATING MECHANISM ARE:
 - THE TYPE WHICH DOES NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST.
 - HAS AN OPERATING FORCE OF LESS THAN OR EQUAL TO 5 LBS.
 - BE OPERABLE WITH ONE HAND
 - IF SELF-CLOSING VALVES ARE USED, THEY SHALL REMAIN OPEN FOR GREATER THAN 10 SECONDS

C2 WALL MOUNTED LAVATORY
T-4 SCALE: 1/2" = 1'-0"

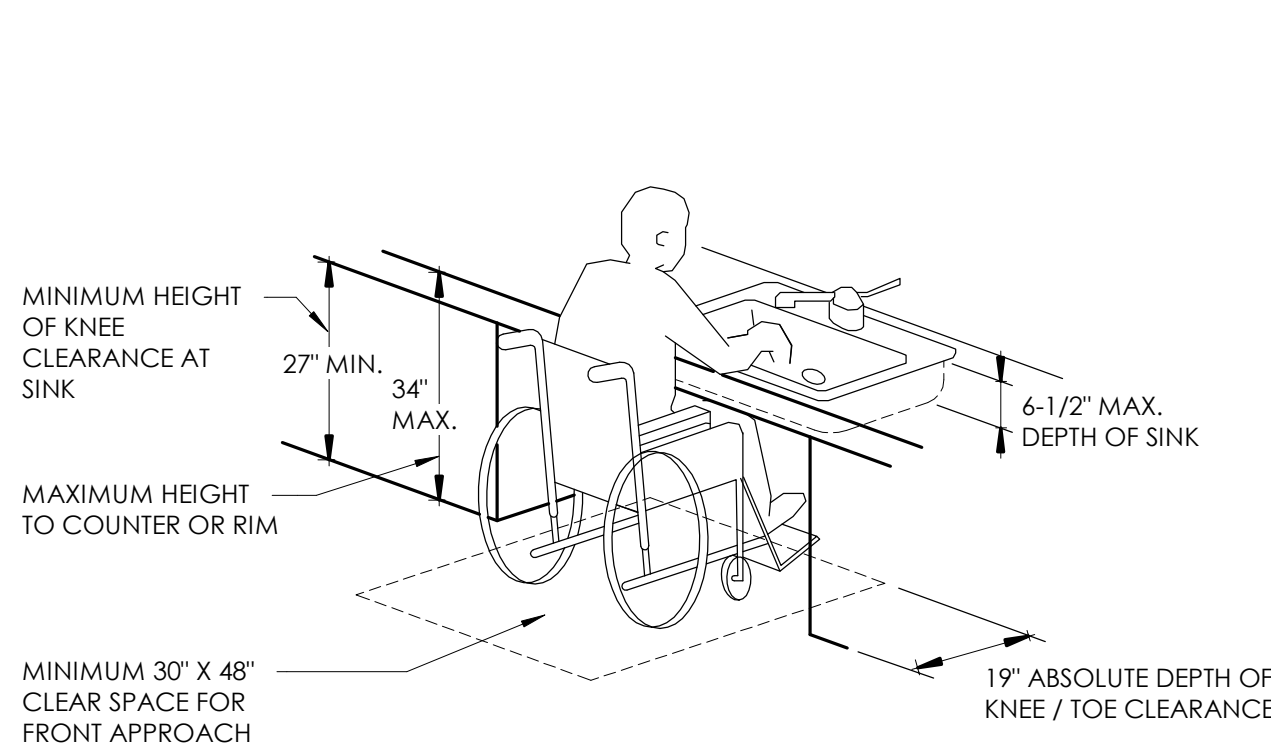


C3 TOILET STALL - SIDE OPENING
T-4 SCALE: 1/2" = 1'-0"

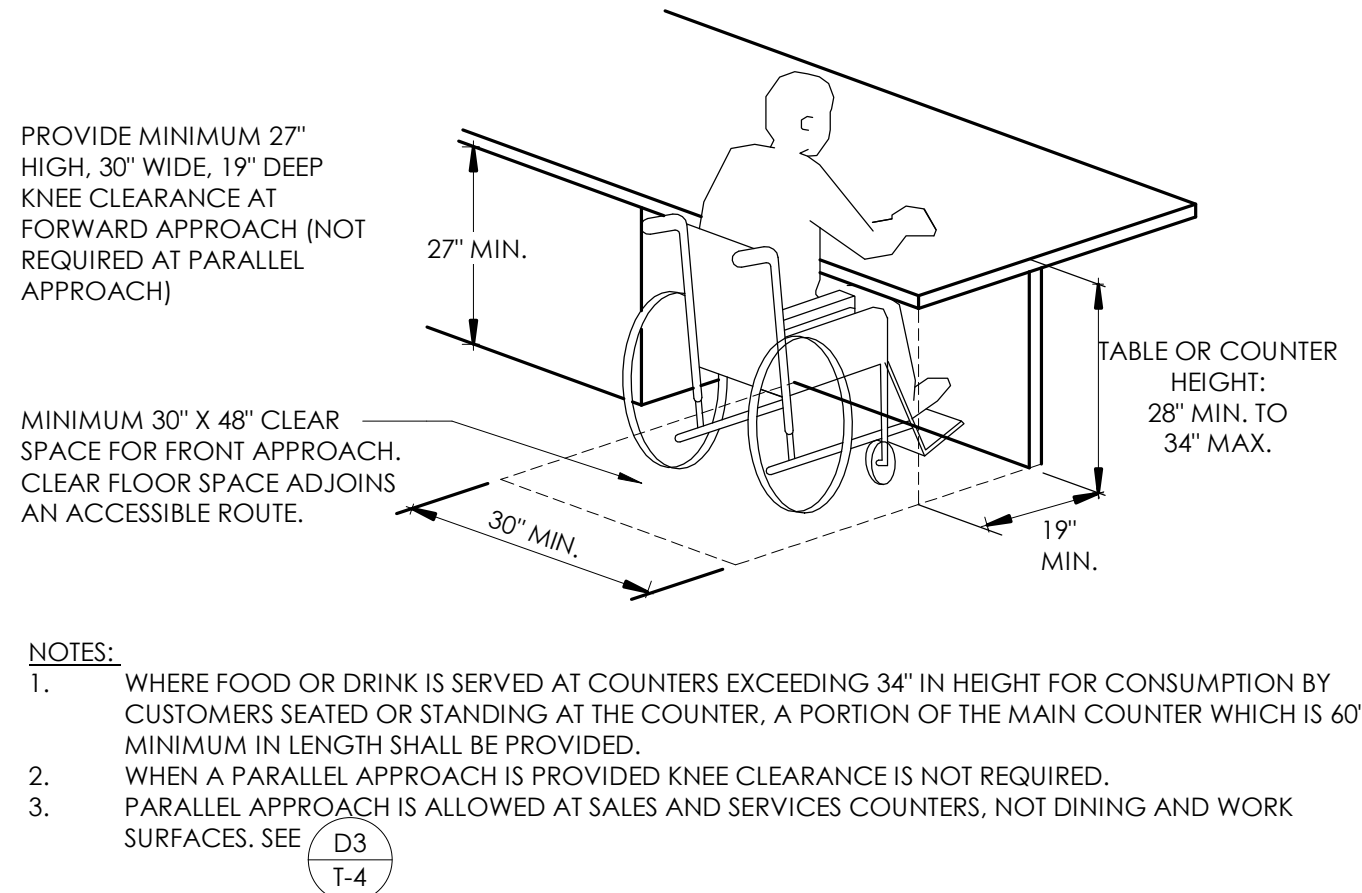


- NOTES:
- THE CONTROLS FOR THE FLUSH VALVE SHALL BE:
 - OPERABLE WITH ONE HAND.
 - NOT REQUIRE TIGHT GRASPING, PINCHING OR TWIST OF THE WRIST.
 - BE MOUNTED ON THE WIDE SIDE OF THE TOILET.
 - BE MOUNTED AT 44" A.F.F. MAXIMUM
 - ACTIVATED WITH A FORCE OF LESS THAN OR EQUAL TO 5 LBS.
 - ALLOW 1 1/2" CLEAR BELOW THE GRAB BAR TOPPING AND 12" CLEAR ABOVE GRAB BAR.

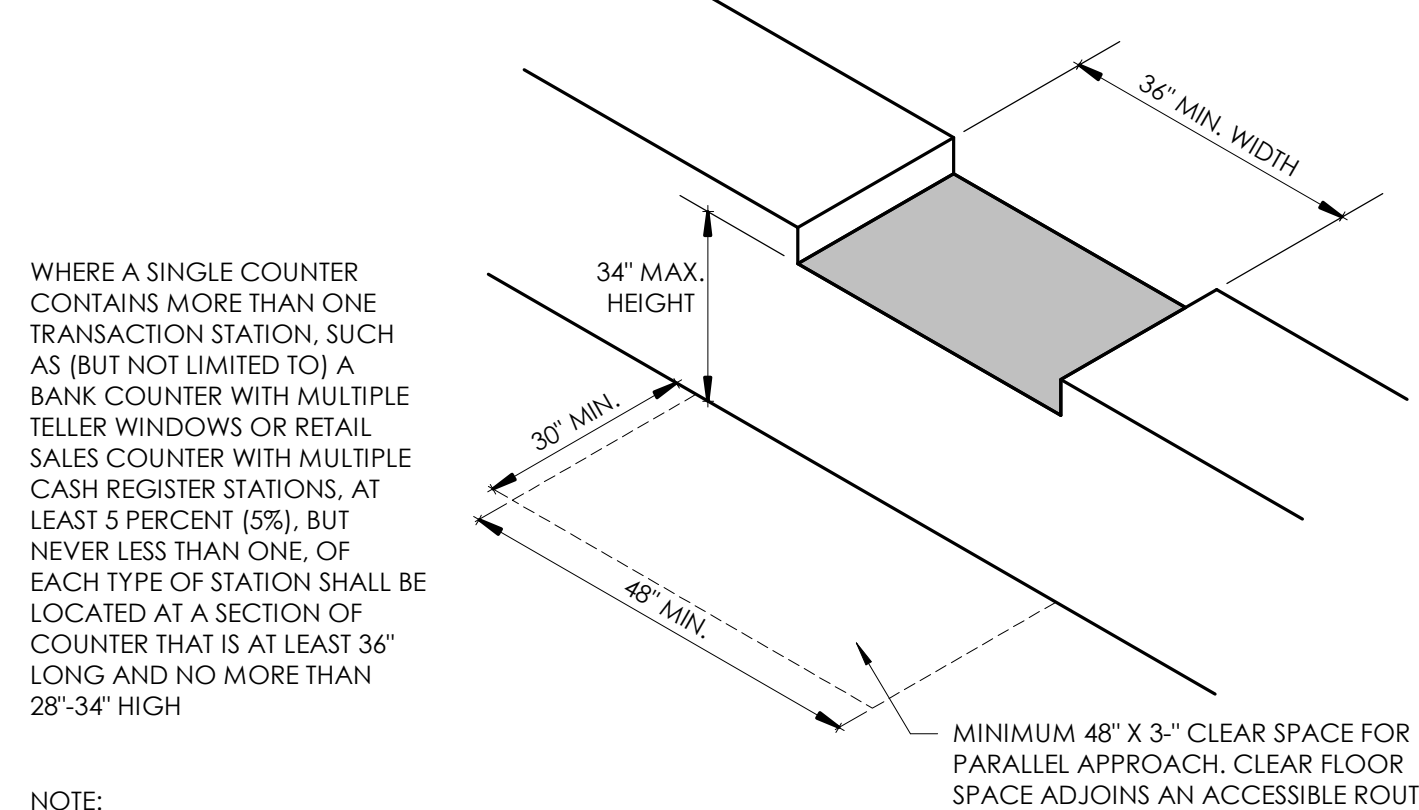
C4 WATER CLOSET REQUIREMENTS
T-4 SCALE: 1/4" = 1'-0"



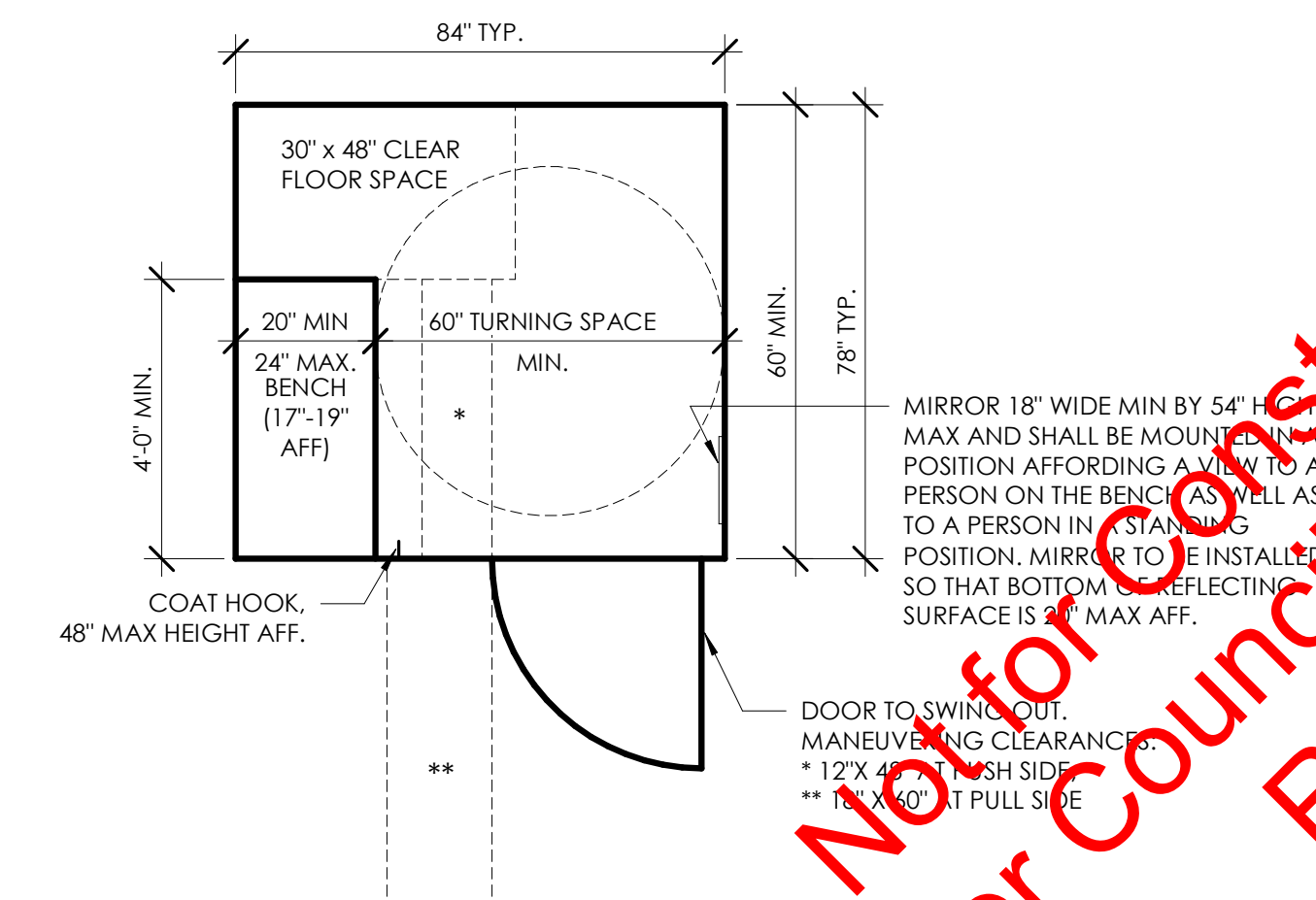
D1 ACCESSIBLE SINK
T-4 SCALE: N.T.S.



D2 ACCESSIBLE TABLE OR COUNTER WITH FORWARD APPROACH
T-4 SCALE: N.T.S.



D3 ACCESSIBLE SALES COUNTER WITH PARALLEL APPROACH
T-4 SCALE: N.T.S.



D4 DRESSING ROOM DETAIL
T-4 SCALE: 3/8" = 1'-0"



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PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



Description: Date:
REVISED SCOPE 12/14/22
SUBMITTAL

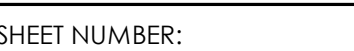
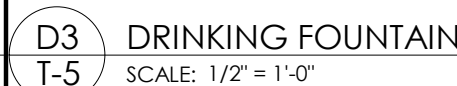
Project Number: 200702
Approved By: MK
Checked By: JB
Drawn By: SC

Sheet Title:
ACCESSIBILITY
DETAILS

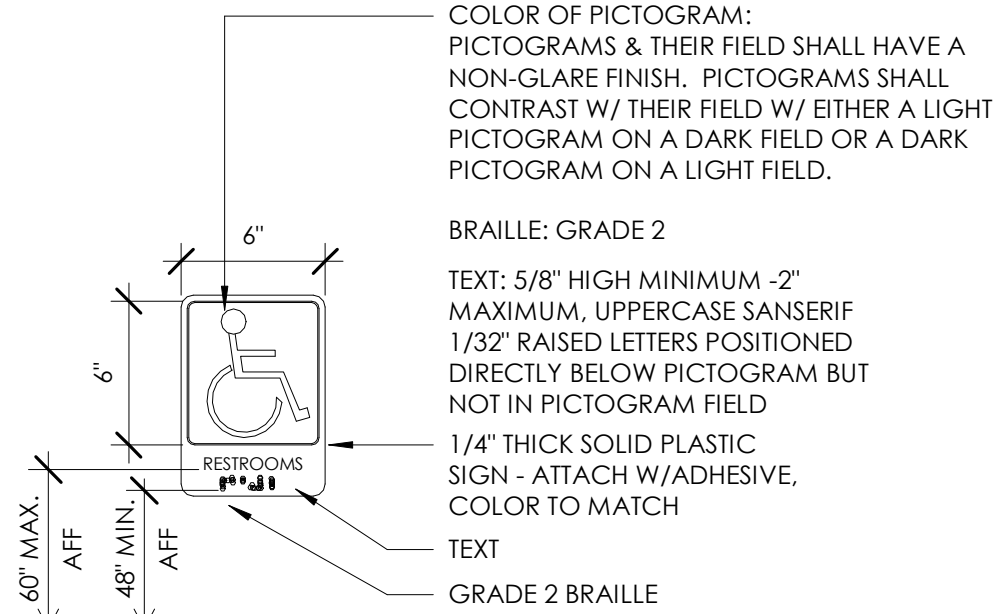
SHEET NUMBER:

T-4





T-5



INSTALLATION: SIGNS TO BE INSTALLED SO THAT TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48\"/>

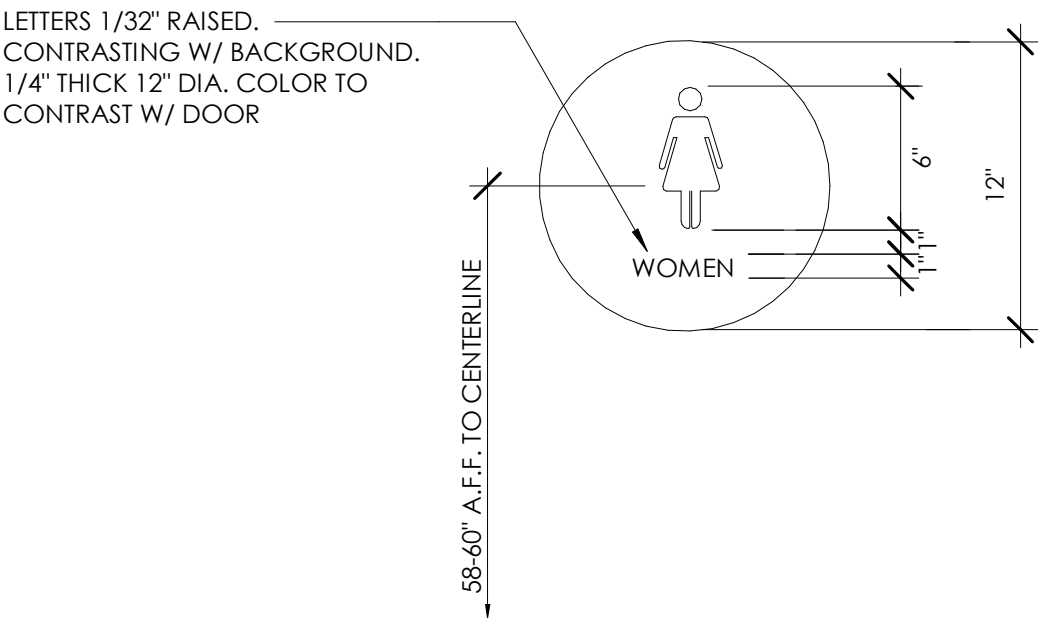
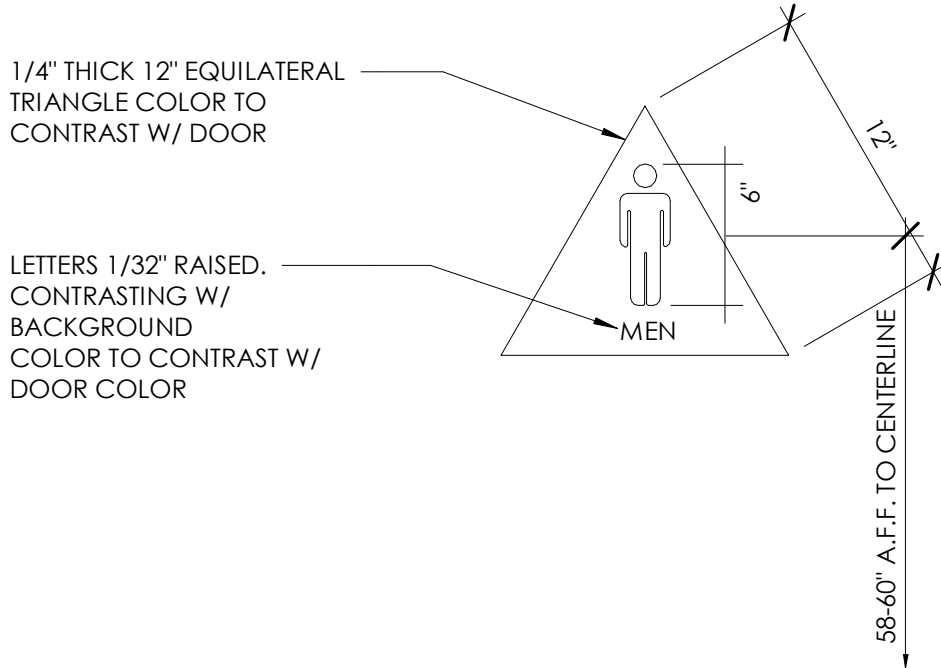
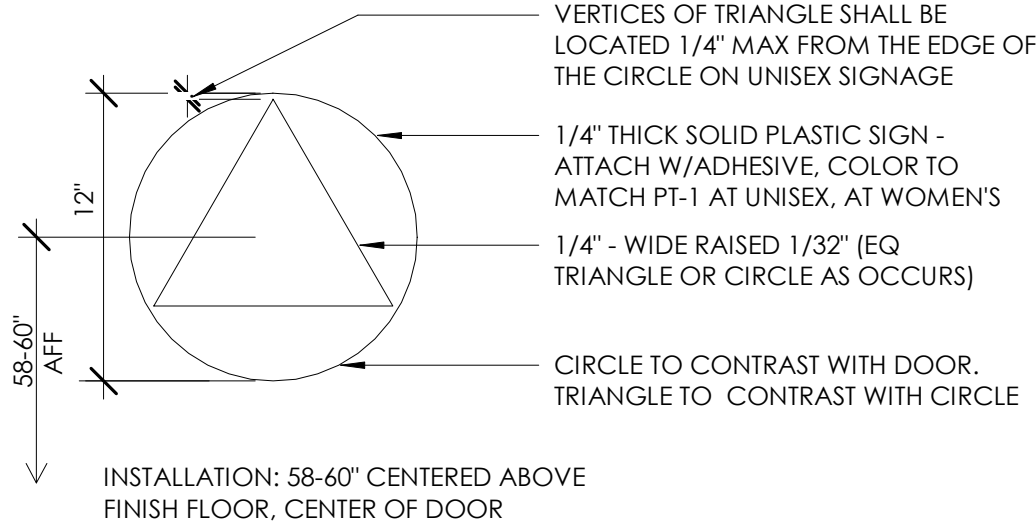
COLOR OF PICTOGRAM: PICTOGRAMS & THEIR FIELD SHALL HAVE A NON-GLARE FINISH. PICTOGRAMS SHALL CONTRAST W/ THEIR FIELD W/ EITHER A LIGHT PICTOGRAM ON A DARK FIELD OR A DARK PICTOGRAM ON A LIGHT FIELD.

BRAILLE: GRADE 2

TEXT: 5/8\"/>

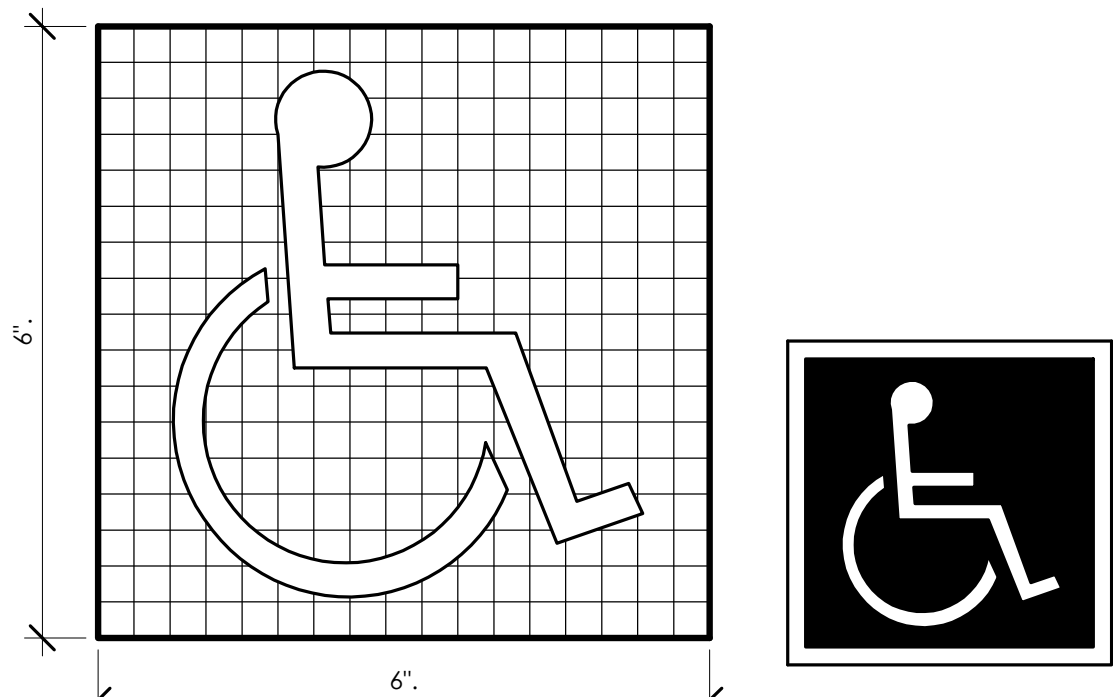
NOTES:

1. PICTOGRAM AND TEXT SHOWN IS FOR UNISEX RESTROOM. AT MEN'S AND WOMEN'S RESTROOM ADJUST PICTOGRAM AND TEXT TO MATCH, SEE A3/T-6
2. EDGES OF SIGNS SHALL BE ROUNDED, CHAMFERED OR EASED. CORNERS OF SIGNS SHALL HAVE A MINIMUM RADIUS OF 1/8 INCH.



A1
T-6 RESTROOM SIGNAGE
SCALE: 1 1/2" = 1'-0"

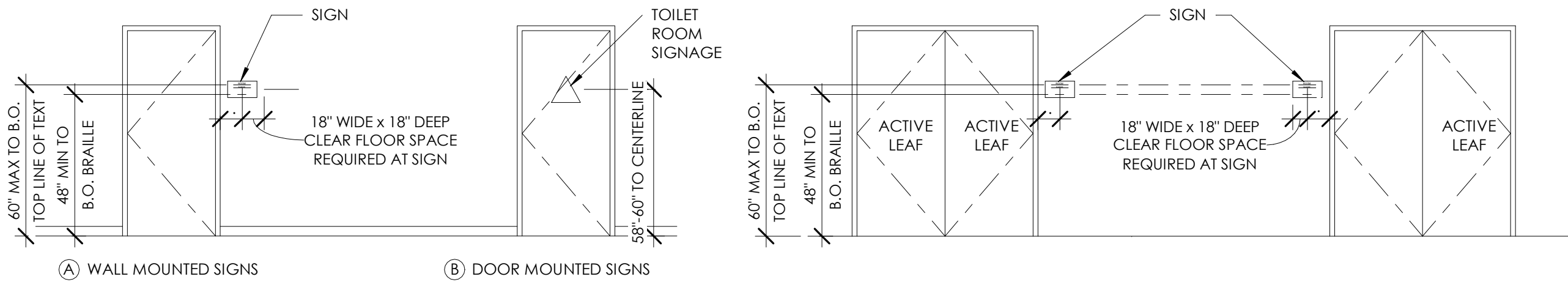
A3
T-6 DOOR MOUNTED TOILET ROOM SIGNAGE
SCALE: 1 1/2" = 1'-0"



THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUND. THE BLUE SHALL BE COLOR NO.15090 IN FEDERAL STANDARD 595C.

NOTE: PROVIDE ACCESSIBILITY SIGN AT ALL ACCESSIBLE ENTRANCE DOORS

B2
T-6 INTERNATIONAL SYMBOL OF ACCESSIBILITY SIGNAGE
SCALE: NTS



NOTES:

1. ALL SIGNAGE SHALL CONFORM TO CBC & ADAAG
2. SEE DOOR SCHEDULE FOR LOCATIONS AND TEXT
3. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE. WHERE A TACTILE IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAF, THE SIGN SHALL BE LOCATED TO THE RIGHT OF THE RIGHT HAND DOOR. WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF A SINGLE DOOR OR AT THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE LOCATED ON THE NEAREST ADJACENT WALL. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18\"/>

B3
T-6 SIGNAGE DETAIL
SCALE: 1/4" = 1'-0"

WHEN SIGNS IDENTIFY PERMANENT ROOMS AND SPACES OF A BUILDING, THEY SHALL COMPLY WITH THE FOLLOWING:

1. **FINISH AND CONTRAST.** CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND.
2. **PROPORTIONS.** CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I".
3. **RAISED CHARACTERS AND PICTOGRAM SYMBOL SIGNS.** WHEN RAISED CHARACTERS ARE REQUIRED OR WHEN PICTORIAL SYMBOLS (PICTOGRAMS) ARE USED ON SUCH SIGNS, THEY SHALL CONFORM TO THE FOLLOWING:
 - A. **CHARACTER STYLE.** CHARACTERS SHALL BE SANS SERIF. CHARACTERS SHALL NOT BE ITALIC, OBLIQUE, SCRIPT, HIGHLY DECORATIVE, OR OF OTHER UNUSUAL FORMS.
 - B. **CHARACTER HEIGHT.** CHARACTER HEIGHT MEASURED VERTICALLY FROM THE BASELINE OF THE CHARACTER SHALL BE 5/8\"/>
 - C. **PICTORIAL SYMBOLS.** PICTOGRAMS SHALL HAVE A FIELD HEIGHT OF 6\"/>
 - D. **CHARACTER PLACEMENT.** BRAILLE SHALL BE POSITIONED BELOW CORRESPONDING TEXT IN A HORIZONTAL FORMAT, FLUSH LEFT OR CENTERED. IF TEXT IS MULTI-LINED, BRAILLE SHALL BE PLACED BELOW ENTIRE TEXT, AND SEPARATED 3/8\"/>
4. **BRAILLE.** CONTRACTED GRADE 2 BRAILLE SHALL BE PLACED A MIN. OF 3/8\"/>
5. **MOUNTING LOCATION AND HEIGHT.** SIGNS TO BE MOUNTED ON WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. MOUNTING HEIGHT TO BE 48\"/>

C1
T-6 IDENTIFICATION SIGNS
SCALE: NTS

WHEN SIGNS DIRECT TO OR GIVE INFORMATION ABOUT PERMANENT ROOMS AND FUNCTIONAL SPACES OF A BUILDING OR SITE, THEY SHALL COMPLY WITH THE FOLLOWING:

1. **FINISH AND CONTRAST.** CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND.
2. **PROPORTIONS.** CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60 PERCENT MINIMUM TO 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I".
3. **CHARACTER HEIGHT.** MINIMUM CHARACTER HEIGHT SHALL COMPLY WITH TABLE 11B-703.5.5. VIEWING DISTANCE SHALL BE MEASURED AS THE HORIZONTAL DISTANCE BETWEEN THE CHARACTER AND AN OBSTRUCTION PREVENTING FURTHER APPROACH TOWARDS THE SIGN. CHARACTER HEIGHT SHALL BE BASED ON THE UPPERCASE LETTER "I". SEE C4/T-6

C2
T-6 DIRECTIONAL AND INFORMATIONAL SIGNS
SCALE: NTS

WHEN SIGNS IDENTIFY, DIRECT TO, OR GIVE INFORMATION ABOUT ACCESSIBLE ELEMENTS AND FEATURES OF A BUILDING OR SITE, THEY SHALL INCLUDE THE APPROPRIATE SYMBOL OF ACCESSIBILITY AND SHALL COMPLY WITH THE FOLLOWING:

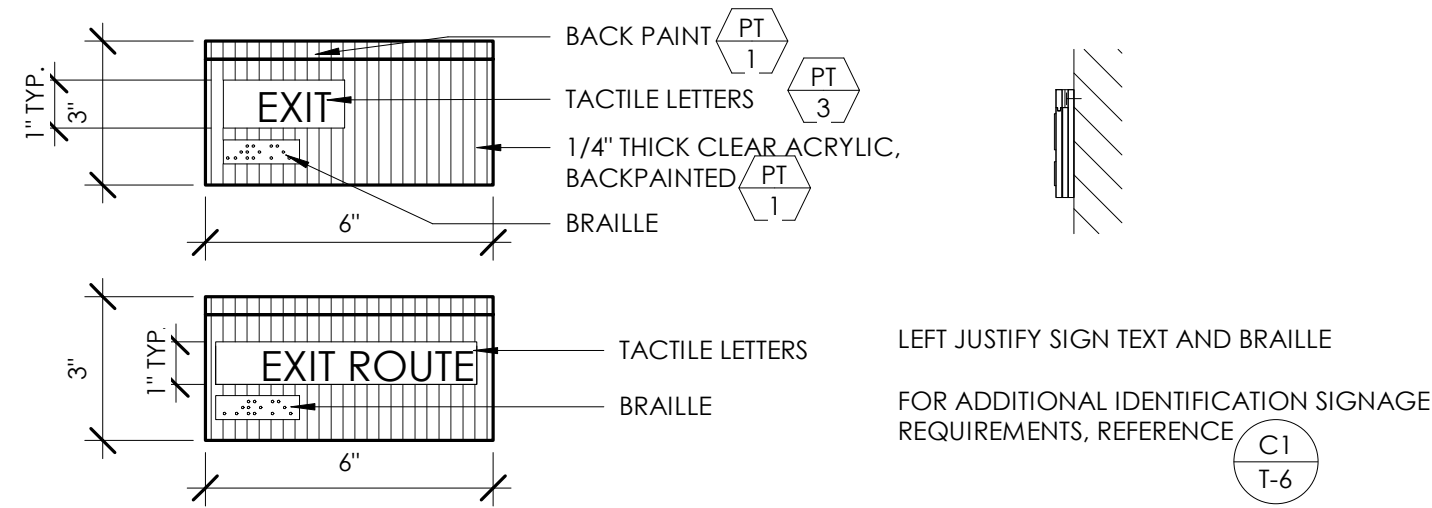
1. **FINISH AND CONTRAST.** CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND.
2. **SYMBOLS OF ACCESSIBILITY.** THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE THE STANDARD USED TO IDENTIFY FACILITIES THAT ARE ACCESSIBLE TO AND USABLE BY PHYSICALLY DISABLED PERSONS. (2016 CBC SEC. 11B-703.7.2.1). SEE SYMBOL ON B2/T-6

C3
T-6 ACCESSIBILITY SIGNS
SCALE: NTS

HEIGHT TO FINISH FLOOR OR GROUND FROM BASELINE OF CHARACTER	HORIZONTAL VIEWING DISTANCE	MINIMUM CHARACTER HEIGHT
40 INCHES TO LESS THAN OR EQUAL TO 70 INCHES	LESS THAN 72 INCHES	5/8 INCH
	72 INCHES AND GREATER	5/8 INCH PLUS 1/8 INCH PER FOOT OF VIEWING DISTANCE ABOVE 72 INCHES
GREATER THAN 70 INCHES TO LESS THAN OR EQUAL TO 120 INCHES	LESS THAN 180 INCHES	2 INCHES
	180 INCHES AND GREATER	2 INCHES PLUS 1/8 INCH PER FOOT OF VIEWING DISTANCE ABOVE 180 INCHES
GREATER THAN 120 INCHES	LESS THAN 21 FEET	3 INCHES
	21 FEET AND GREATER	3 INCHES PLUS 1/8 INCH PER FOOT OF VIEWING DISTANCE ABOVE 21 FEET

NOTE: THE MINIMUM HEIGHT IS MEASURED USING AN UPPERCASE LETTER "I". LOWER CASE CHARACTERS ARE PERMITTED. VIEWING DISTANCE SHALL BE MEASURED AS THE HORIZONTAL DISTANCE BETWEEN THE CHARACTER AND AN OBSTRUCTION PREVENTING FURTHER APPROACH TOWARDS THE SIGN.

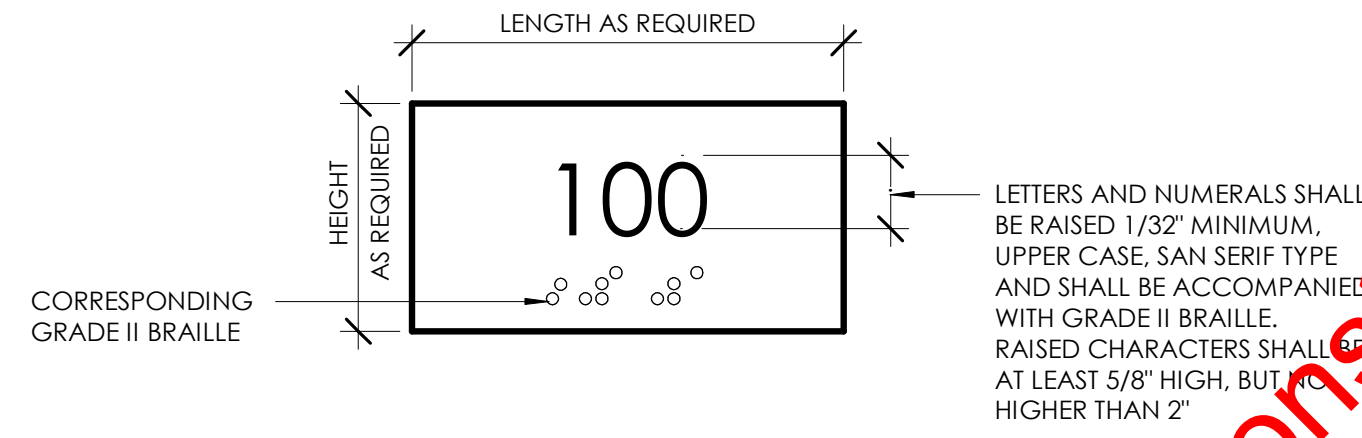
C4
T-6 VISUAL CHARACTER HEIGHT TABLE
SCALE: NTS



TACTILE EXIT SIGNS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:

1. EACH GRADE-LEVEL EXTERIOR EXIT DOOR SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORD, "EXIT".
2. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIT BY MEANS OF A STAIRWAY OR RAMP SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE FOLLOWING WORDS AS APPROPRIATE:
 - A. "EXIT STAIR DOWN"
 - B. "EXIT RAMP DOWN"
 - C. "EXIT STAIR UP"
 - D. "EXIT RAMP UP"
3. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIT BY MEANS OF AN EXIT ENCLOSURE OR AN EXIT PASSAGEWAY SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS, "EXIT ROUTE".
4. EACH EXIT ACCESS DOOR FROM AND INTERIOR ROOM OR AREA TO A CORRIDOR OR HALLWAY THAT IS REQUIRED TO HAVE A VISUAL EXIT SIGN, SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORDS, "EXIT ROUTE".
5. EACH EXIT DOOR THROUGH A HORIZONTAL EXIT SHALL BE IDENTIFIED BY A SIGN WITH THE WORDS, "TO EXIT".
6. BRAILLE SHALL BE POSITIONED BELOW THE CORRESPONDING TEXT IN A HORIZONTAL FORMAT, FLUSH LEFT OR CENTERED. IF TEXT IS MULTI-LINED, BRAILLE SHALL BE PLACED BELOW THE ENTIRE TEXT. BRAILLE SHALL BE SEPARATED 3/8 INCH (9.5 MM) MINIMUM AND 1/2 INCH (12.7 MM) MAXIMUM FROM ANY OTHER TACTILE CHARACTERS AND 3/8 INCH (9.5 MM) MINIMUM FROM RAISED BORDERS AND DECORATIVE ELEMENTS.

D3
T-6 TACTILE EXIT SIGNS
SCALE: 3" = 1'-0"



NOTES:

1. REFER TO DOOR SCHEDULE FOR SIGN LOCATION AND VERBIAGE. VERIFY ALL TEXT WITH OWNER PRIOR TO FABRICATION.
2. REFER TO SIGNAGE DETAIL ON ARCHITECTURAL SHEETS FOR SPECIFIC SIGN DESIGN, COLORS AND FINISHES.

D4
T-6 ROOM IDENTIFICATION SIGNAGE
SCALE: 1 1/2" = 1'-0"



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PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



Description: Date:
REVISED SCOPE 12/14/22
SUBMITTAL

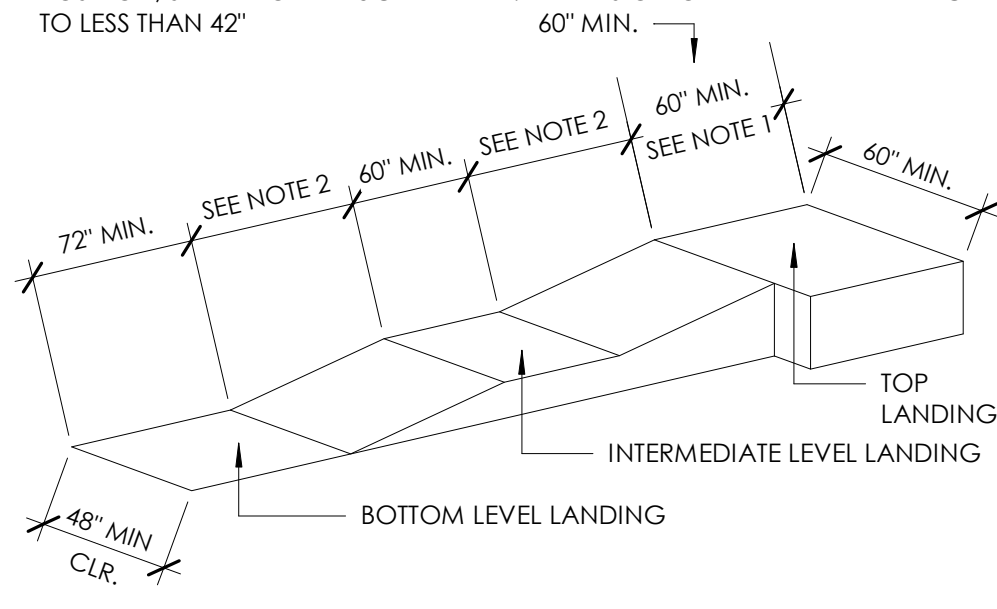
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Checked By: JB
Drawn By: SC
Sheet Title:

SIGNAGE
ACCESSIBILITY
DETAILS

SHEET NUMBER:

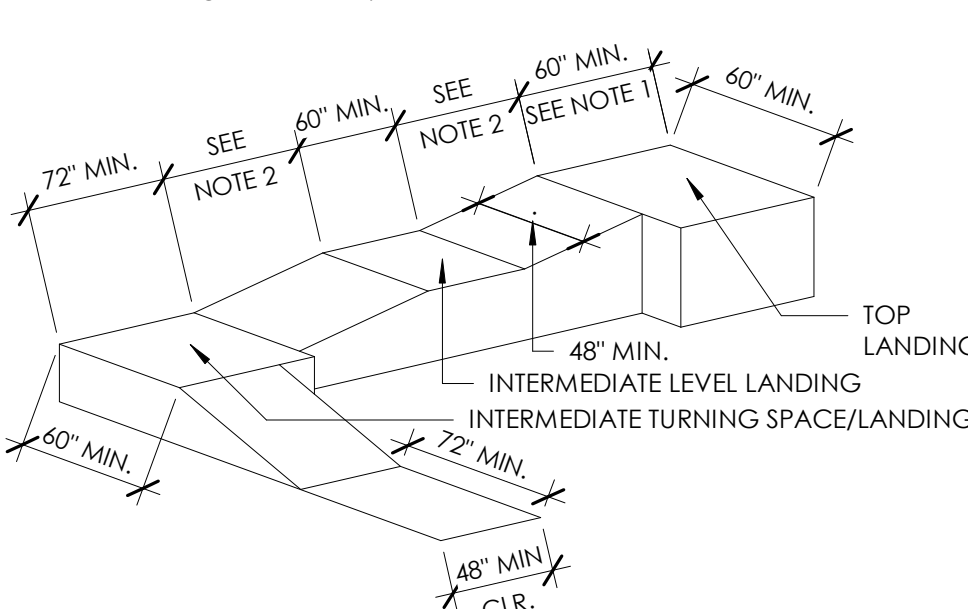
T-6

NOTE 1: WHERE DOORS ARE LOCATED ADJACENT TO A RAMP LANDING, MANEUVERING CLEARANCES REQUIRED SHALL BE PERMITTED TO OVERLAP THE REQUIRED LANDING AREA. DOORS WHEN FULLY OPEN SHALL NOT REDUCE THE REQUIRED RAMP LANDING WIDTH BY MORE THAN 3". DOORS IN ANY POSITION, SHALL NOT REDUCE THE MIN. DIMENSION OF THE RAMP LANDING TO LESS THAN 42"



STRAIGHT RAMP RUN

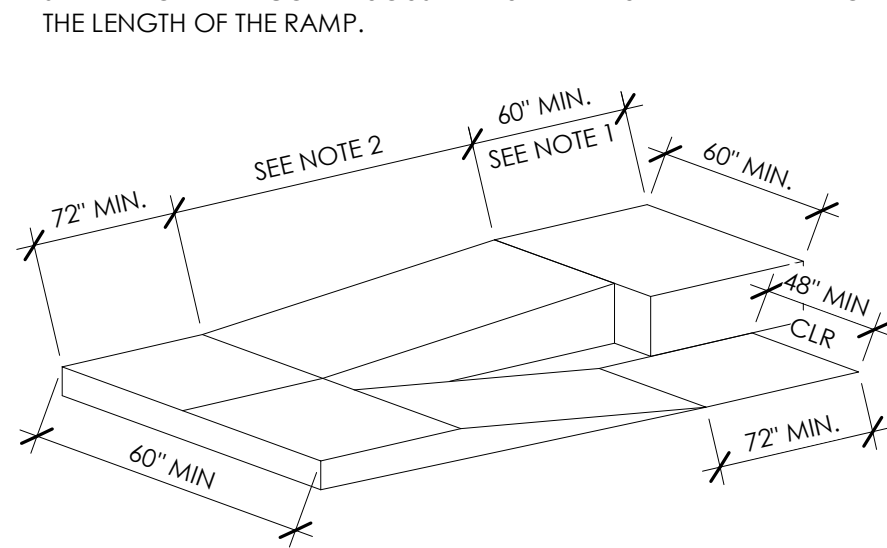
NOTE 2: MAXIMUM HORIZONTAL DISTANCE OF EACH RAMP AND RUN VARY
NOTE 3: RAMP RUNS SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN 1:12
NOTE 4: CROSS SLOPE OF RAMPS SHALL NOT BE STEEPER THAN 1:48
NOTE 5: LANDINGS SHALL COMPLY W/ SECTION 11B-405.7 & 11B-302. CHANGES IN LEVEL ARE NOT PERMITTED.



NOTE 7: RAMPS THAT CHANGE DIRECTION BETWEEN RUNS AT LANDINGS SHALL HAVE A CLEAR LANDING 72" MINIMUM BY 72" MINIMUM.

**RAMP WITH TURNING PLATFORM
(WHEN DIRECTION OF RAMP CHANGES 30 DEGREES OR MORE)**

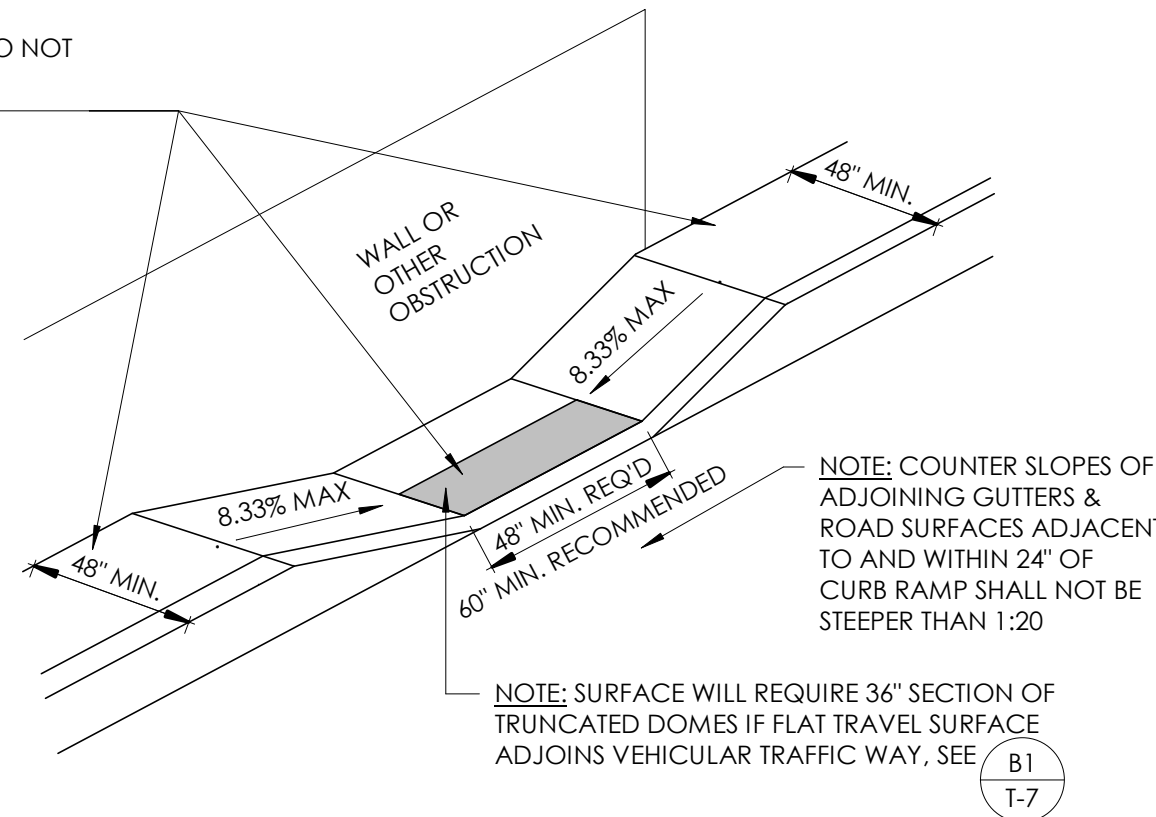
NOTE 6: A CURB, 2" HIGH MINIMUM, OR A BARRIER SHALL BE PROVIDED THAT PREVENTS PASSAGE OF A 4" DIAMETER SPHERE, WHERE ANY PORTION OF THE SPHERE IS WITHIN 4" OF THE FINISH FLOOR OR GROUND SURFACE. TO PREVENT WHEEL ENTRAPMENT, THE CURB OR BARRIER SHALL PROVIDE A CONTINUOUS AND UNINTERRUPTED BARRIER ALONG THE LENGTH OF THE RAMP.



SEE B4/T-7 FOR RAMP HANDRAIL

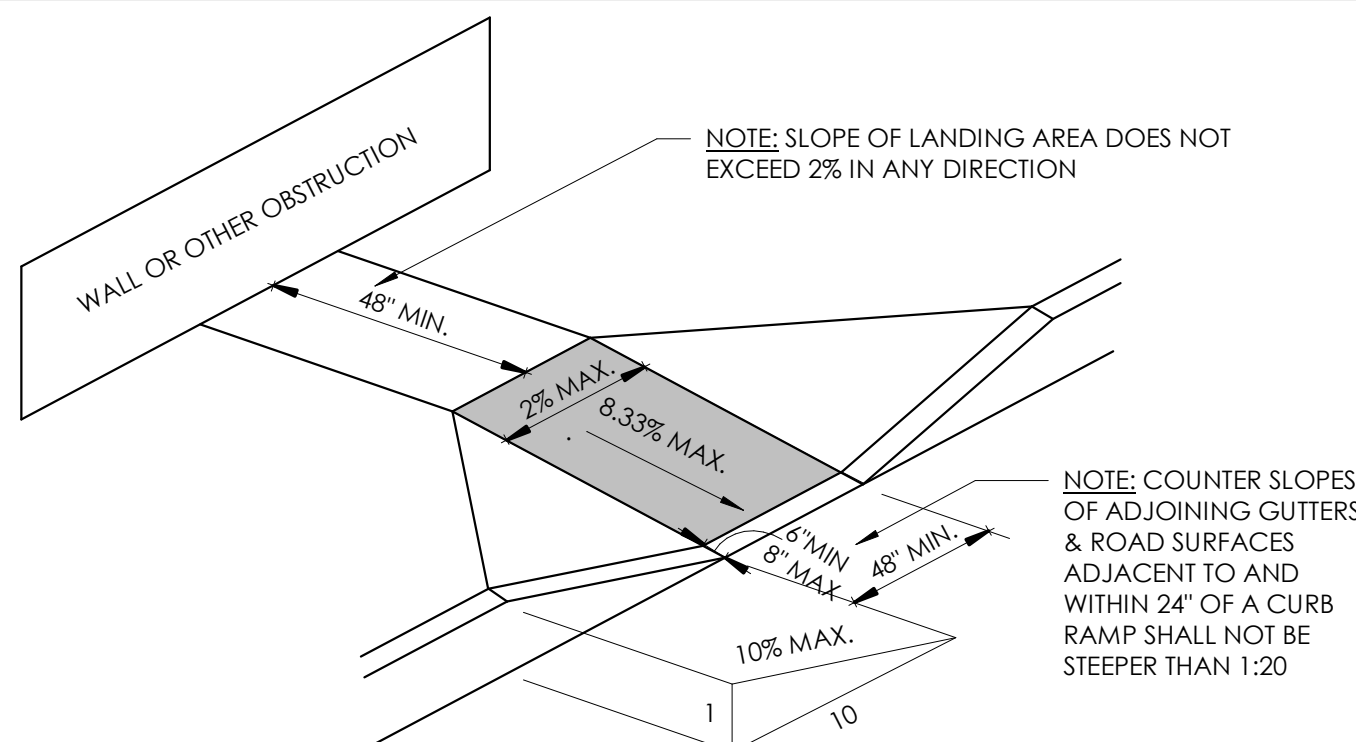
RAMP WITH INTERMEDIATE SWITCH-BACK PLATFORM

NOTE: SLOPE OF LANDING AREAS DO NOT EXCEED 2% IN ANY DIRECTION



NOTES:
1. THE CROSS SLOPE OF CURB RAMPS AND BLENDED TRANSITIONS SHALL BE 1:48 MAXIMUM.
2. FINISHED SURFACE OF RAMP IS STABLE, FIRM, AND SLIP RESISTANT.
3. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. COUNTER SLOPES SHALL NOT BE STEEPER THAN 1:20 WITHIN 24" OF CURB RAMP.

**A3
T-7** STANDARD IN-LINE CURB RAMP
SCALE: N.T.S.



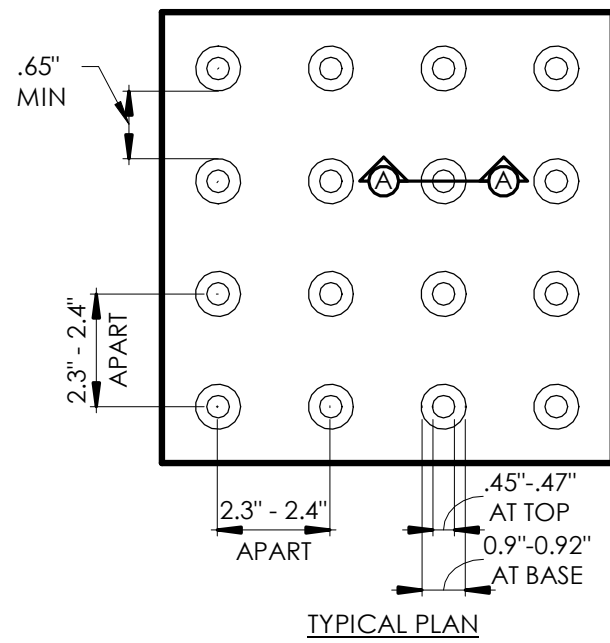
NOTES:
1. THE CROSS SLOPE OF CURB RAMPS AND BLENDED TRANSITIONS SHALL BE 1:48 MAXIMUM.
2. FINISHED SURFACE OF RAMP IS STABLE, FIRM, AND SLIP RESISTANT.
3. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. COUNTER SLOPES SHALL NOT BE STEEPER THAN 1:20 WITHIN 24" OF CURB RAMP.
4. DETECTABLE WARNING SURFACE IS REQUIRED ON SHADED PORTION OF THE RAMP. DETECTABLE WARNINGS SHALL EXTEND 36" IN THE DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING FLARED SIDES) SEE B1

**A4
T-7** STANDARD CURB-CUT RAMP
SCALE: N.T.S.

**A1
T-7** RAMP DETAILS
SCALE: N.T.S.

NOTE 1: DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A BASE DIAMETER OF: 0.9" MIN-0.92" MAX, TAPERING TO 0.45" MIN-0.47" MAX AT THE TOP, A HEIGHT OF 0.2" AND A CENTER TO CENTER SPACING OF 2.3" MIN-2.4" MAX AND A BASE TO BASE SPACING OF 0.65" MIN MEASURED BETWEEN THE MOST ADJACENT DOMES ON A SQUARE GRID. CENTER TO CENTER SPACING OF 1.6" MIN AND 2.4" MAX ACCEPTABLE FOR DOMES IN RADIAL PATTERN.

NOTE 2: THE DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, WHETHER LIGHT ON DARK OR DARK ON LIGHT AND 70% MINIMUM WITH ADJACENT WALKING SURFACES. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. CONTRAST SHALL BE DETERMINED BY: CONTRAST=[(B1-B2)/B1] X 100 PERCENT WHERE B1= LIGHT REFLECTANCE VALUE OF THE LIGHTER AREA, AND B2= LIGHT REFLECTANCE VALUE OF THE DARKER AREA.

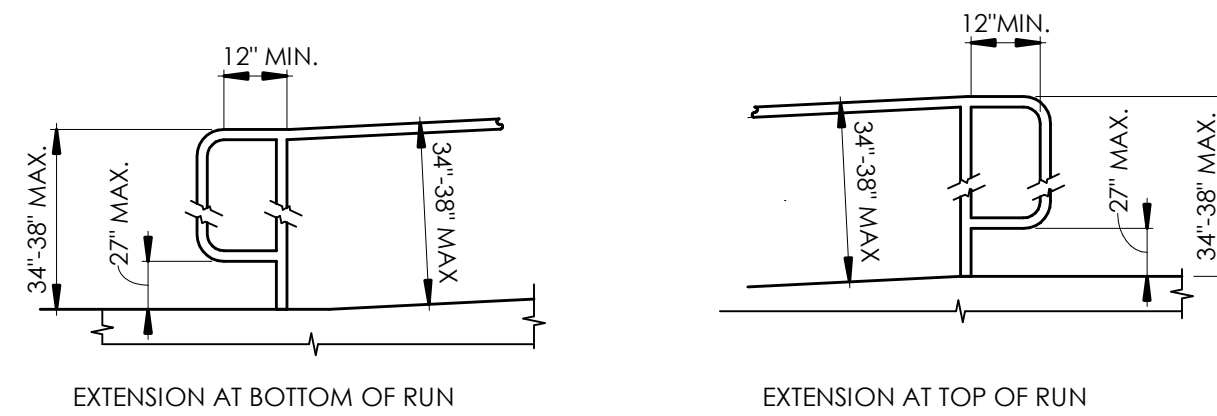


NOTE 3: IF A WALK CROSSES OR ADJOINS A VEHICULAR WAY, AND THE WALKING SURFACES ARE NOT SEPARATED BY CURBS, RAILINGS OR OTHER ELEMENTS BETWEEN THE PEDESTRIAN AREAS AND THE VEHICULAR AREAS, THE BOUNDARY BETWEEN THE AREAS SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING WHICH IS 36" WIDE.

NOTE 4: DETECTABLE WARNING SURFACES SHALL BE YELLOW CONFORMING TO F533538 OF FEDERAL STANDARD 595C.

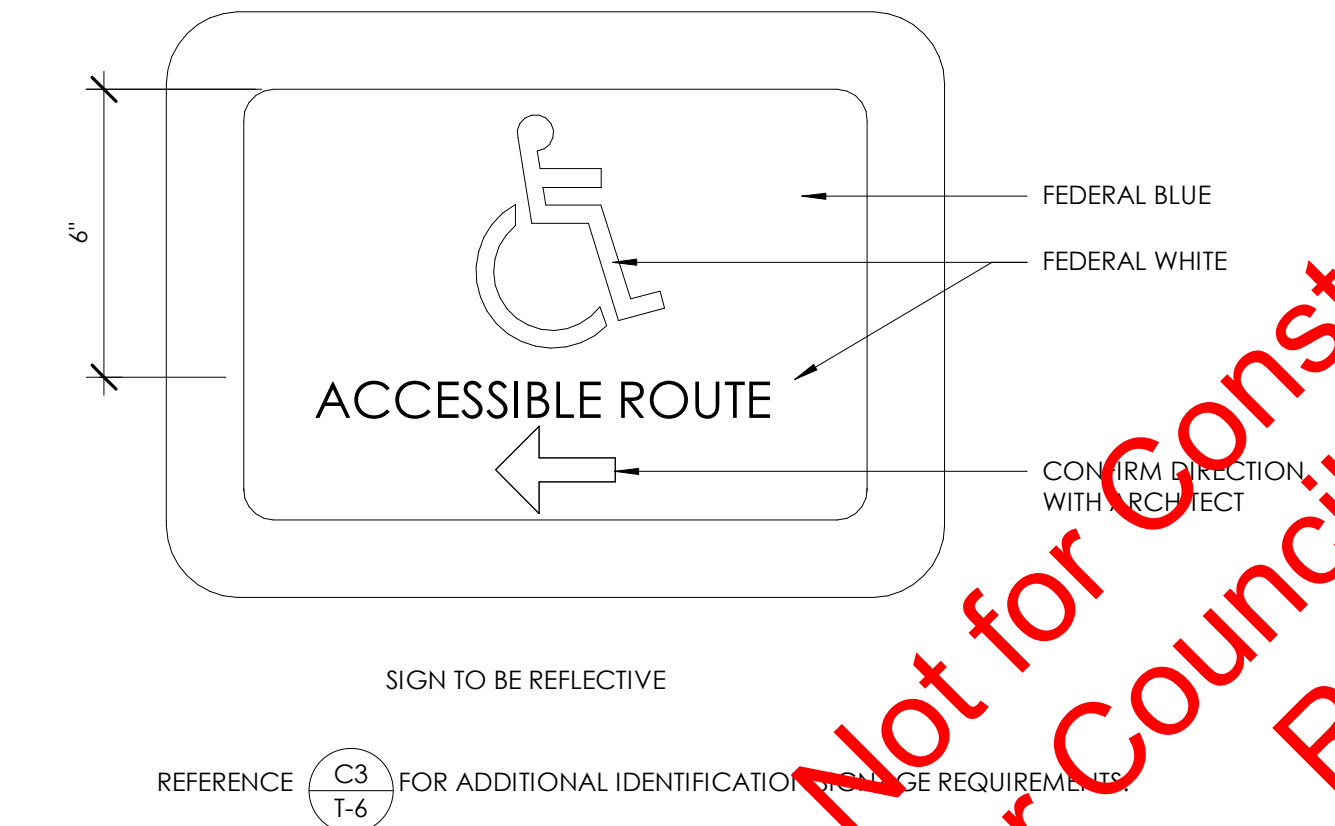
NOTE 5: DETECTABLE WARNINGS AT CURB RAMPS SHALL EXTEND 36 INCHES (914 MM) IN THE DIRECTION OF TRAVEL. DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN LESS 2 INCHES (51 MM) MAXIMUM ON EACH SIDE, EXCLUDING ANY FLARED SIDES. DETECTABLE WARNINGS SHALL BE LOCATED SO THE EDGE NEAREST THE CURB IS 6 INCHES (152 MM) MINIMUM AND 8 INCHES (203 MM) MAXIMUM FROM THE LINE AT THE FACE OF THE CURB MARKING THE TRANSITION BETWEEN THE CURB AND THE GUTTER, STREET OR HIGHWAY.

**B1
T-7** DETECTABLE WARNING DETAIL
SCALE: NONE

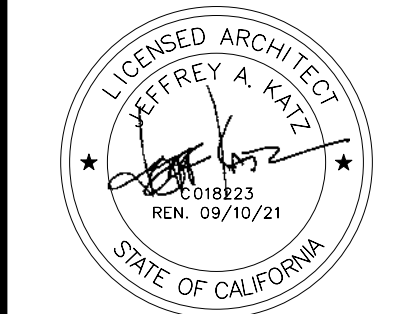


NOTES:
HANDRAILS TO BE PROVIDED AT EACH RAMP RUN. HANDRAILS SHALL RETURN SMOOTHLY TO GUARD, WALL OR LANDING SURFACE, OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT RAMP RUN. ALL SURFACES SHALL BE SLIP-RESISTANT.

**B4
T-7** RAMP HANDRAILS AND HANDRAIL EXTENSIONS
SCALE: N.T.S.



**D4
T-7** ACCESSIBLE ROUTE SIGN
SCALE: 3" = 1'-0"



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PROJECT:

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REMODEL

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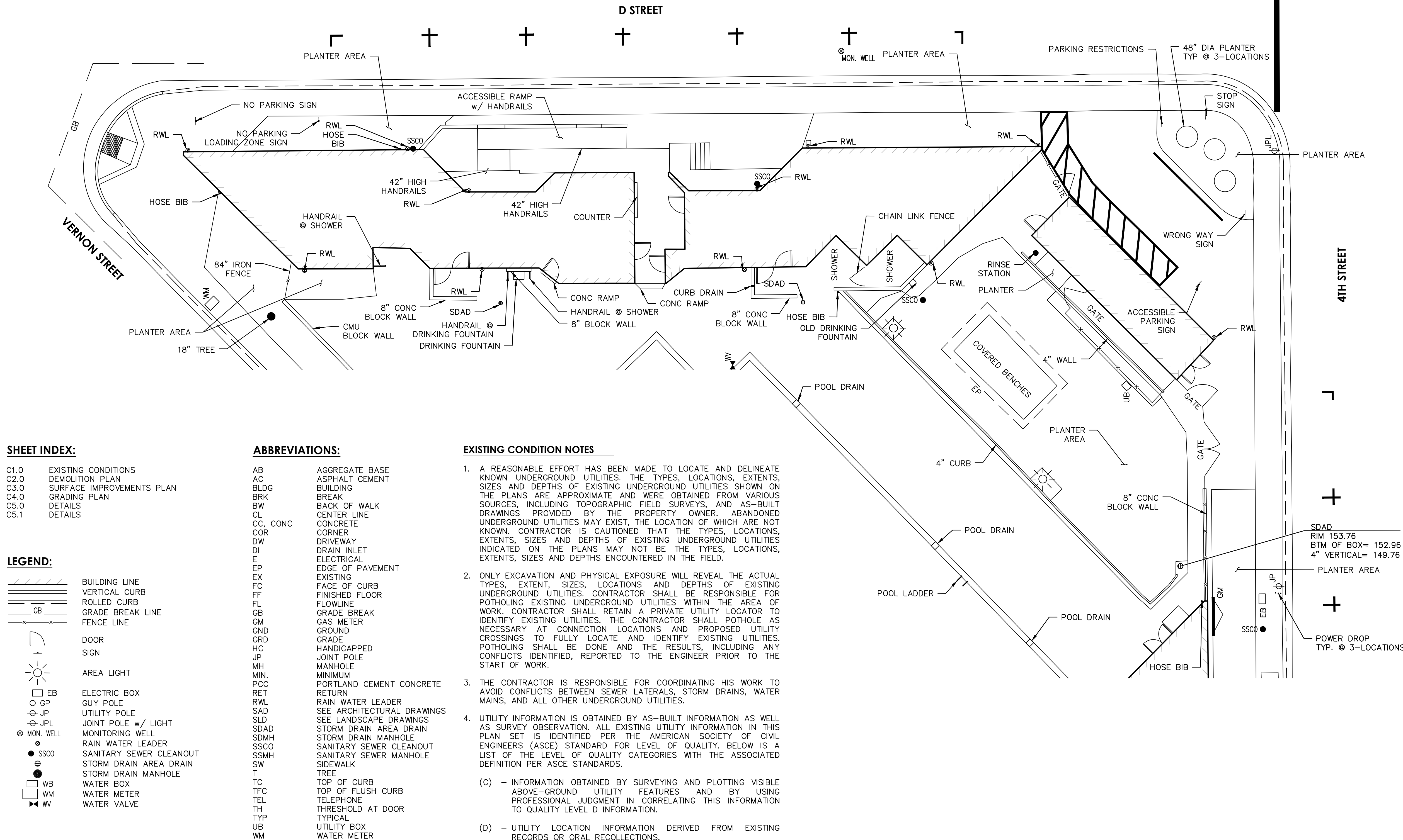
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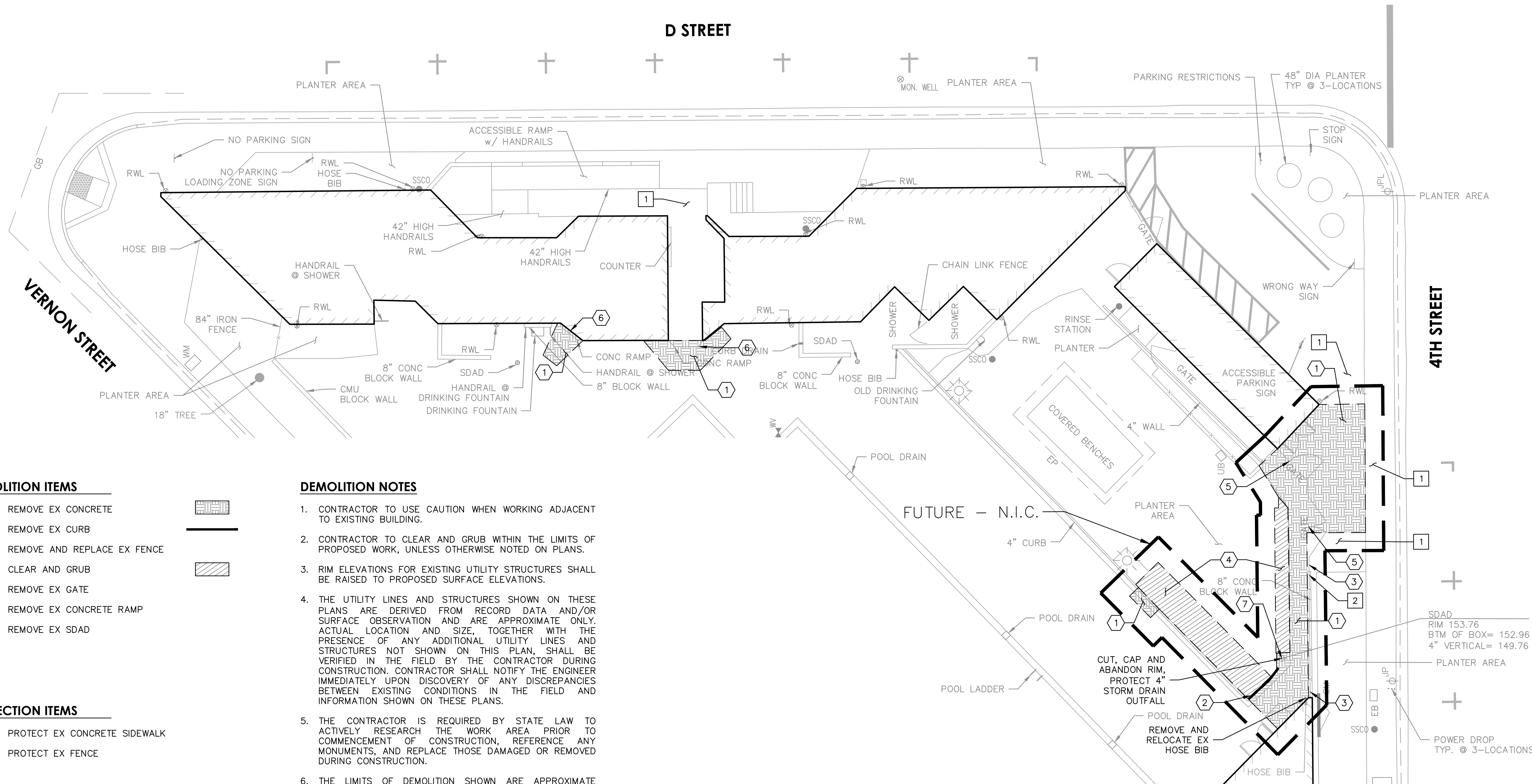
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Approved By: MK
Checked By: JB
Drawn By: SC

Sheet Title:
**SITE
ACCESSIBILITY
DETAILS**

SHEET NUMBER:

T-7





DEMOLITION ITEMS

- 1 REMOVE EX CONCRETE
- 2 REMOVE EX CURB
- 3 REMOVE AND REPLACE EX FENCE
- 4 CLEAR AND GRUB
- 5 REMOVE EX GATE
- 6 REMOVE EX CONCRETE RAMP
- 7 REMOVE EX SDAD

PROTECTION ITEMS

- 1 PROTECT EX CONCRETE SIDEWALK
- 2 PROTECT EX FENCE

DEMOLITION NOTES

1. CONTRACTOR TO USE CAUTION WHEN WORKING ADJACENT TO EXISTING BUILDING.
2. CONTRACTOR TO CLEAR AND GRUB WITHIN THE LIMITS OF PROPOSED WORK, UNLESS OTHERWISE NOTED ON PLANS.
3. RIM ELEVATIONS FOR EXISTING UTILITY STRUCTURES SHALL BE RAISED TO PROPOSED SURFACE ELEVATIONS.
4. THE UTILITY LINES AND STRUCTURES SHOWN ON THESE PLANS ARE DERIVED FROM RECORD DATA AND/OR SURFACE OBSERVATION AND ARE APPROXIMATE ONLY. ACTUAL LOCATION AND SIZE, TOGETHER WITH THE PRESENCE OF ANY ADDITIONAL UTILITY LINES AND STRUCTURES NOT SHOWN ON THIS PLAN, SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS IN THE FIELD AND INFORMATION SHOWN ON THESE PLANS.
5. THE CONTRACTOR IS REQUIRED BY STATE LAW TO ACTIVELY RESEARCH THE WORK AREA PRIOR TO COMMENCEMENT OF CONSTRUCTION, REFERENCE ANY MONUMENTS, AND REPLACE THOSE DAMAGED OR REMOVED DURING CONSTRUCTION.
6. THE LIMITS OF DEMOLITION SHOWN ARE APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE FOR MATCHING EXISTING SURROUNDINGS, LANDSCAPE AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURBS, GUTTERS, AND SIDEWALKS AND AVOIDING ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES OR HAZARDOUS CONDITIONS.
7. EXISTING CURB AND SIDEWALK AND LANDSCAPE/IRRIGATION WITHIN THE PROJECT LIMITS THAT ARE DAMAGED OR DISPLACED, EVEN THOUGH THEY WERE NOT TO BE REMOVED, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
8. PROTECT ALL EXISTING UTILITIES AND SITE FEATURES FROM BEING DAMAGED, UNLESS OTHERWISE NOTED. ALL UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED AT NO ADDITIONAL COST TO THE OWNER AND TO THE SATISFACTION OF THE ENGINEER.

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: Date:

BUILDING
DEPARTMENT
SUBMITTAL 08/05/22

BUILDING
DEPARTMENT
RESUBMITTAL #1 09/16/22

REVISED
SCOPE
SUBMITTAL 12/14/22



Project Number: 200577

Approved By: CM

Checked By: CM

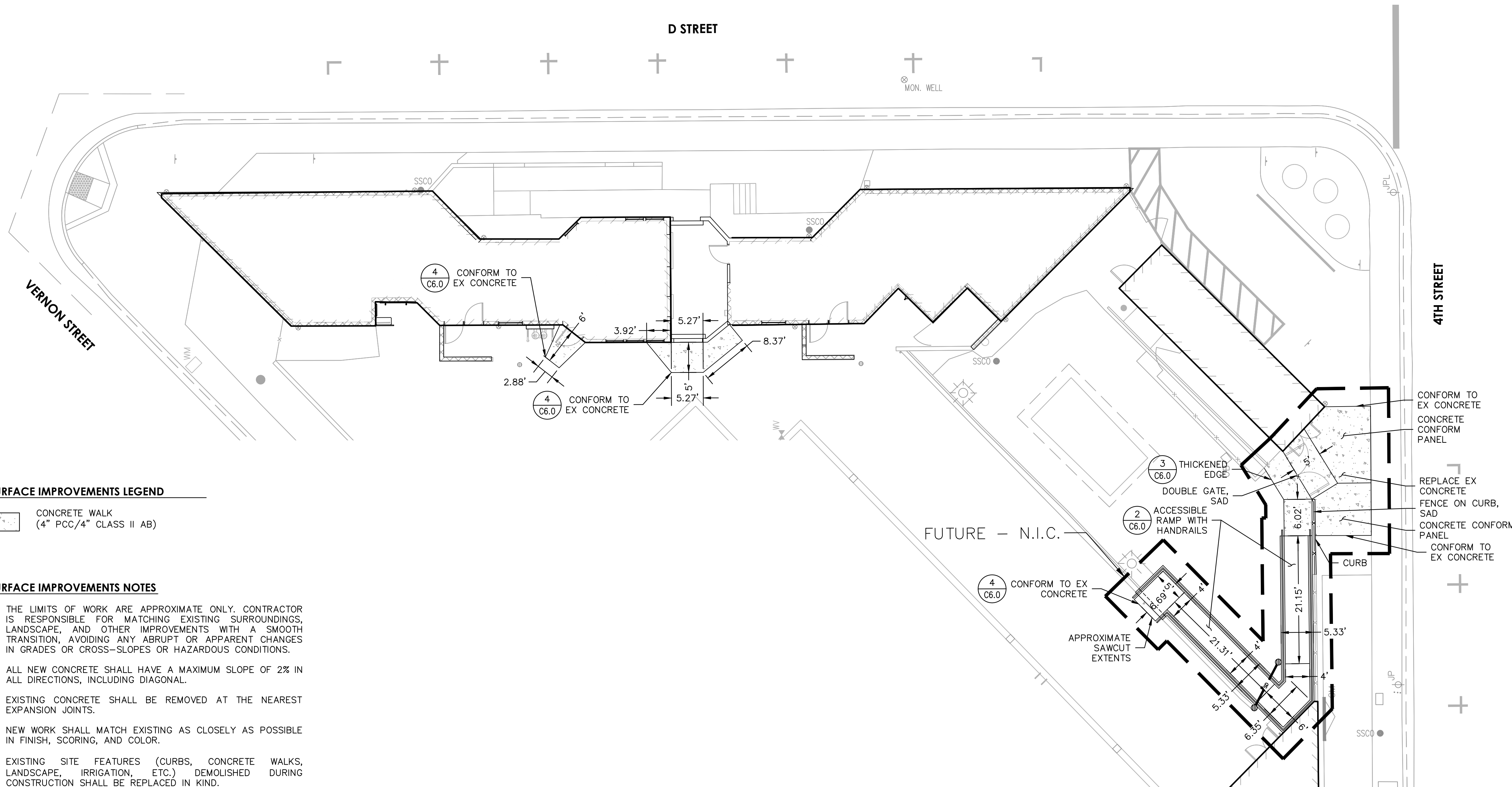
Drawn By: MM

Issue Date:

SURFACE
IMPROVEMENTS
PLAN

SHEET NUMBER:

C3.0



SURFACE IMPROVEMENTS LEGEND

CONCRETE WALK
(4" PCC/4" CLASS II AB)

SURFACE IMPROVEMENTS NOTES

1. THE LIMITS OF WORK ARE APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE FOR MATCHING EXISTING SURROUNDINGS, LANDSCAPE, AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION, AVOIDING ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS-SLOPES OR HAZARDOUS CONDITIONS.
2. ALL NEW CONCRETE SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS, INCLUDING DIAGONAL.
3. EXISTING CONCRETE SHALL BE REMOVED AT THE NEAREST EXPANSION JOINTS.
4. NEW WORK SHALL MATCH EXISTING AS CLOSELY AS POSSIBLE IN FINISH, SCORING, AND COLOR.
5. EXISTING SITE FEATURES (CURBS, CONCRETE WALKS, LANDSCAPE, IRRIGATION, ETC.) DEMOLISHED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.



PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

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Description:	Date:
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BUILDING DEPARTMENT RESUBMITTAL #1	09/16/22
REVISED SCOPE SUBMITTAL	12/14/22



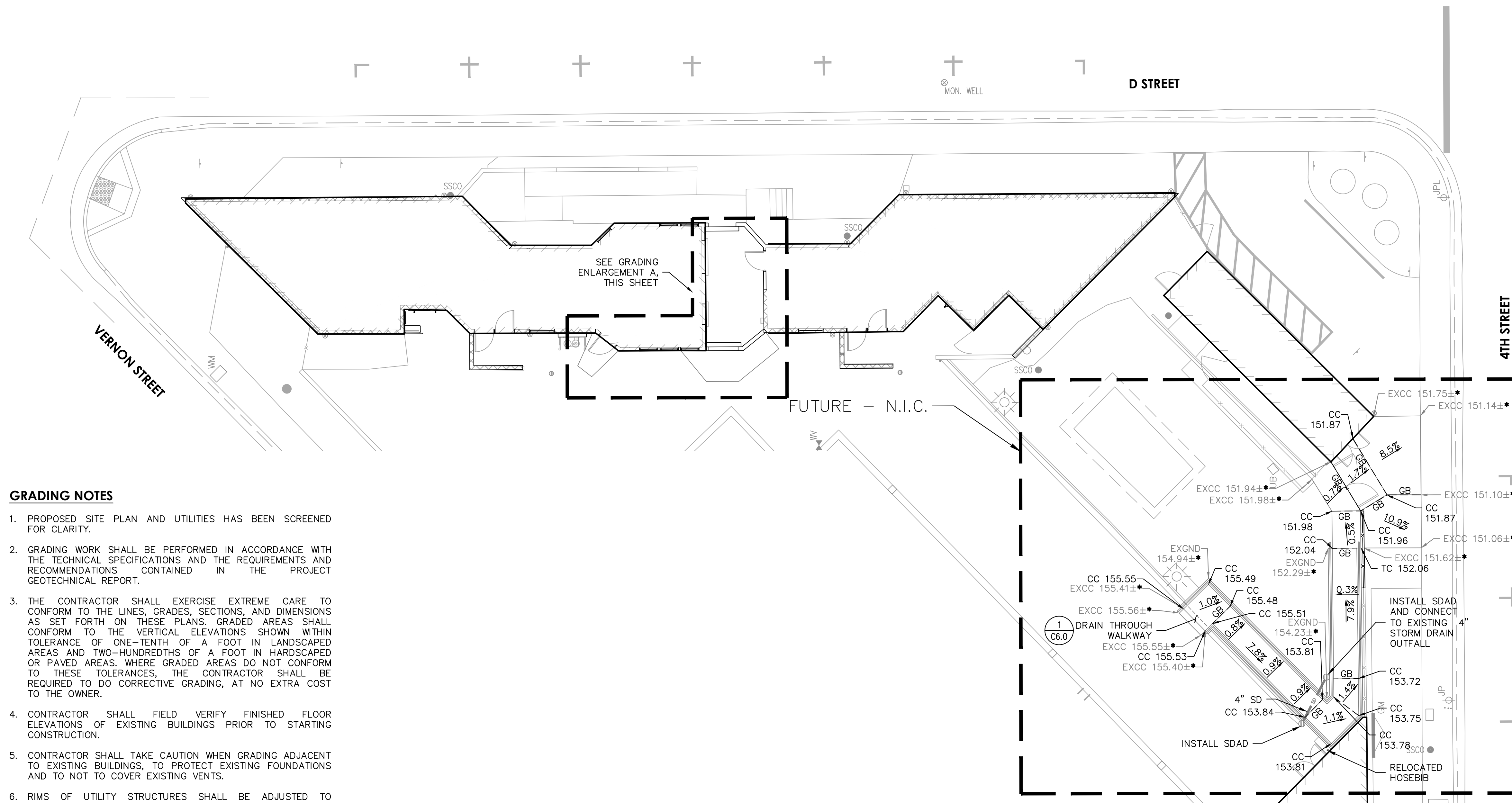
Project Number: 200577
Approved By: CM
Checked By: CM
Drawn By: MM

Sheet Title:

GRADING PLAN
AND DRAINAGE

SHEET NUMBER:

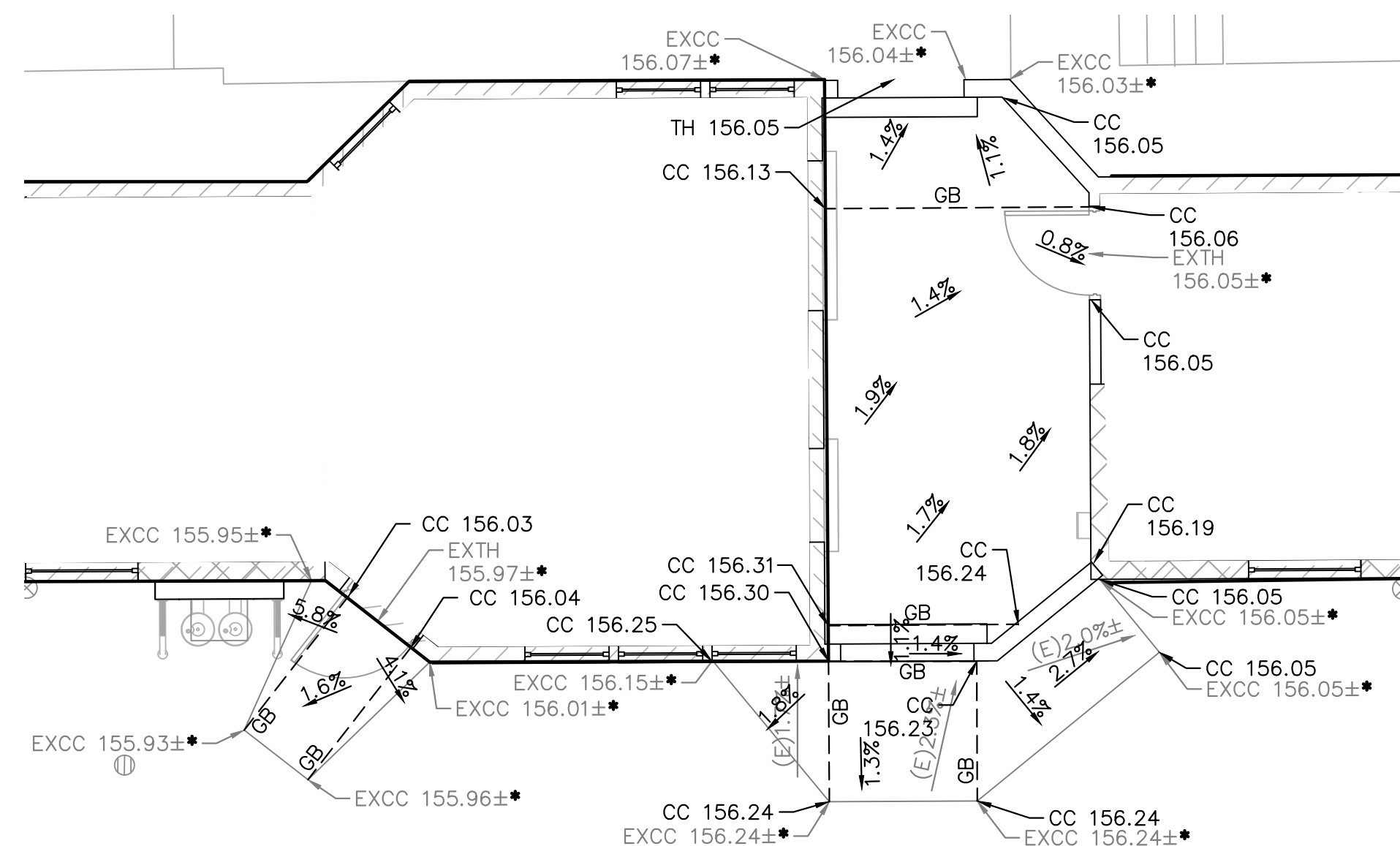
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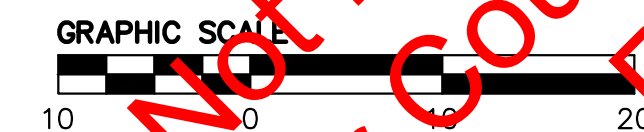
GRADING NOTES

1. PROPOSED SITE PLAN AND UTILITIES HAS BEEN SCREENED FOR CLARITY.
2. GRADING WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND THE REQUIREMENTS AND RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL REPORT.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITHIN TOLERANCE OF ONE-TENTH OF A FOOT IN LANDSCAPED AREAS AND TWO-HUNDREDTHS OF A FOOT IN HARDSCAPED OR PAVED AREAS. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTOR SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE OWNER.
4. CONTRACTOR SHALL FIELD VERIFY FINISHED FLOOR ELEVATIONS OF EXISTING BUILDINGS PRIOR TO STARTING CONSTRUCTION.
5. CONTRACTOR SHALL TAKE CAUTION WHEN GRADING ADJACENT TO EXISTING BUILDINGS, TO PROTECT EXISTING FOUNDATIONS AND TO NOT TO COVER EXISTING VENTS.
6. RIMS OF UTILITY STRUCTURES SHALL BE ADJUSTED TO FINISHED GRADE IN AREAS OF RE-GRADING. IN PAVED AREAS, ELEVATION DIFFERENCE SHALL NOT BE MORE THAN 1/4 INCH BETWEEN RIMS AND ADJACENT SURFACE.
7. WHERE IMPROVEMENTS INVOLVE ADA ACCESSIBILITY, CONTRACTOR'S ATTENTION IS DIRECTED TO THE FOLLOWING PARAMETERS THAT NEED TO BE MET WITH THE FINISHED CONSTRUCTION:
 - a. WALKWAYS SHALL HAVE A MAXIMUM LONGITUDINAL SLOPE OF 4.9% AND A MAXIMUM CROSS SLOPE OF 2%.
 - b. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS, INCLUDING DIAGONAL.
 - c. ADA PARKING STALLS AND STRIPED AISLE SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS, INCLUDING DIAGONAL.
 - d. TRANSITIONS BETWEEN PROPOSED IMPROVEMENTS AND EXISTING CONDITIONS SHALL BE SMOOTH AND FREE OF ABRUPT CHANGES.

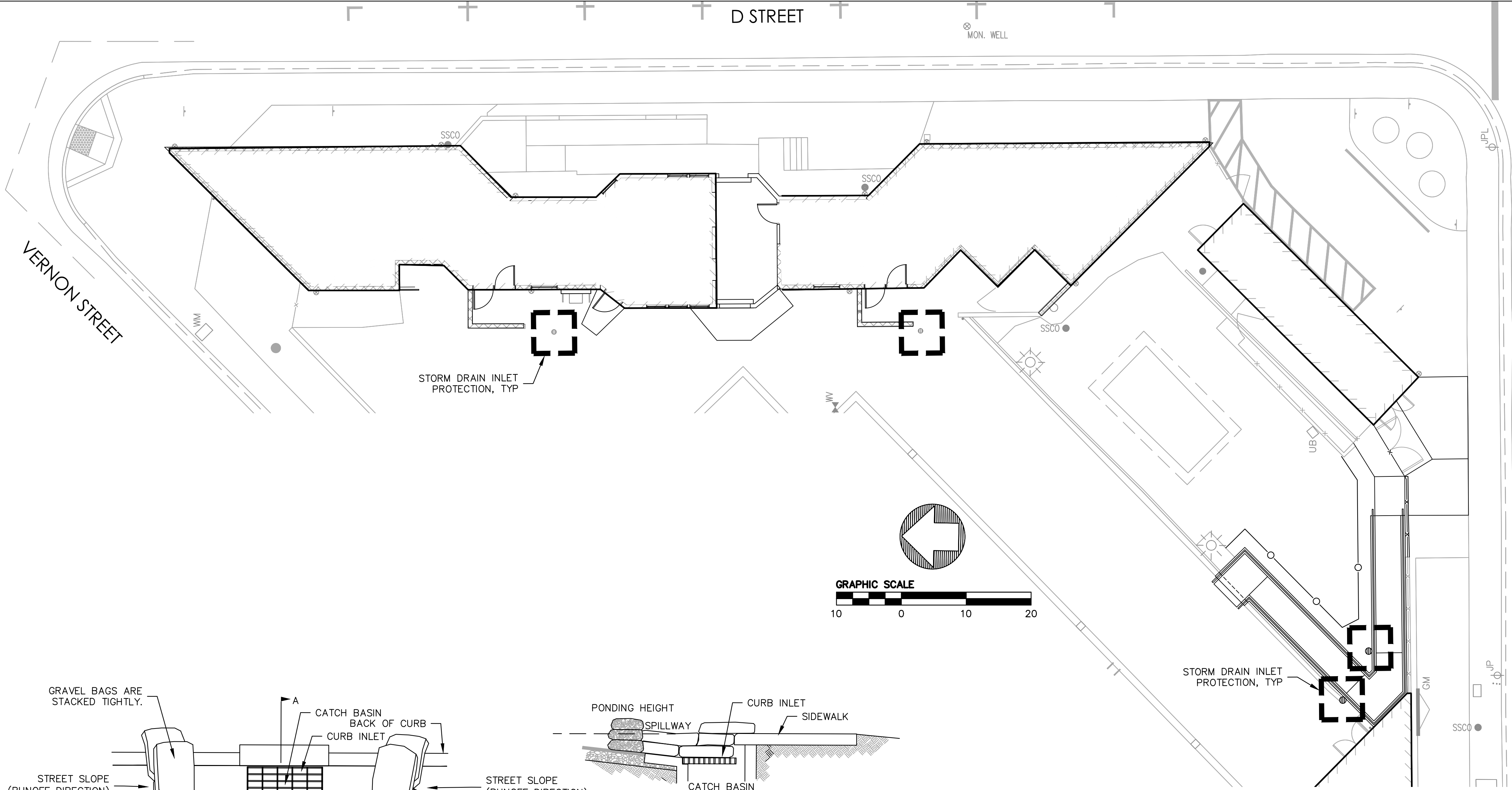
* CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES AT CONFORMS PRIOR TO FORMING/AC WORK.



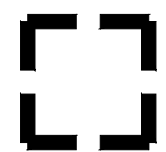
GRADING ENLARGEMENT A
SCALE: 1" = 5'



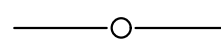
Not for Construction
For Council Approval
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LEGEND



STORM DRAIN INLET PROTECTION

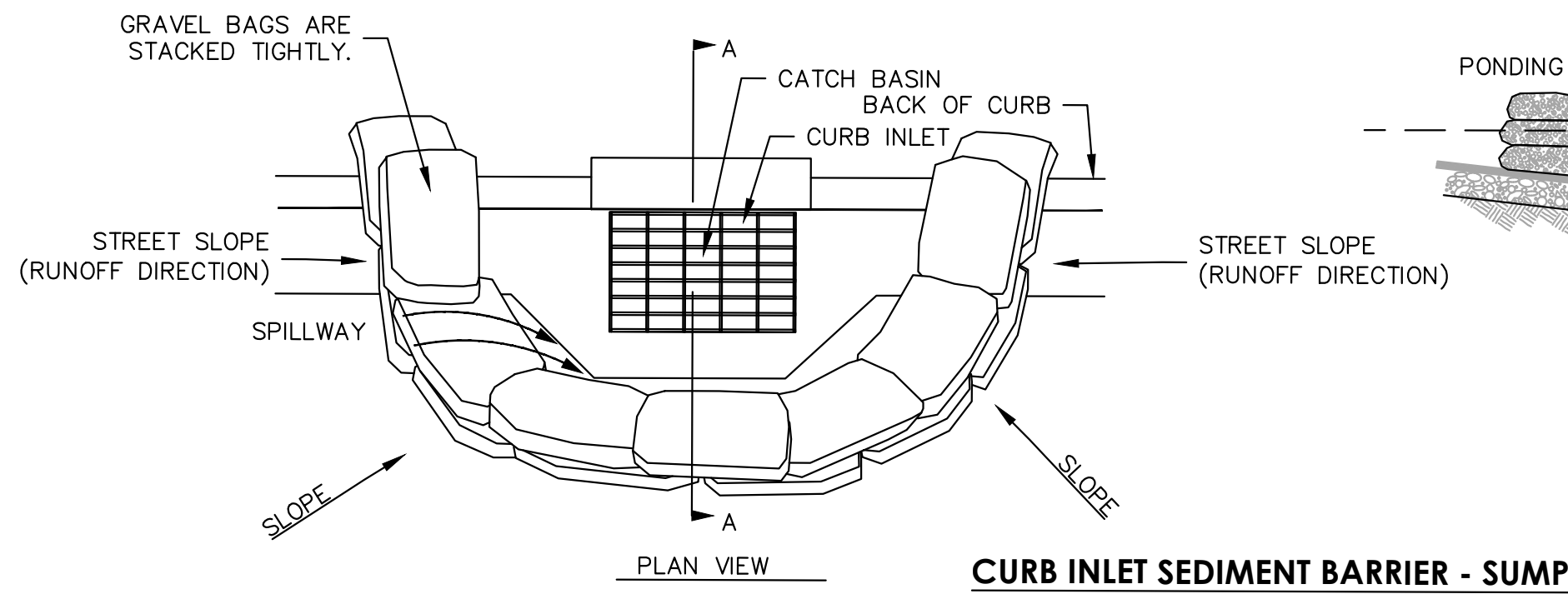


FIBER ROLL

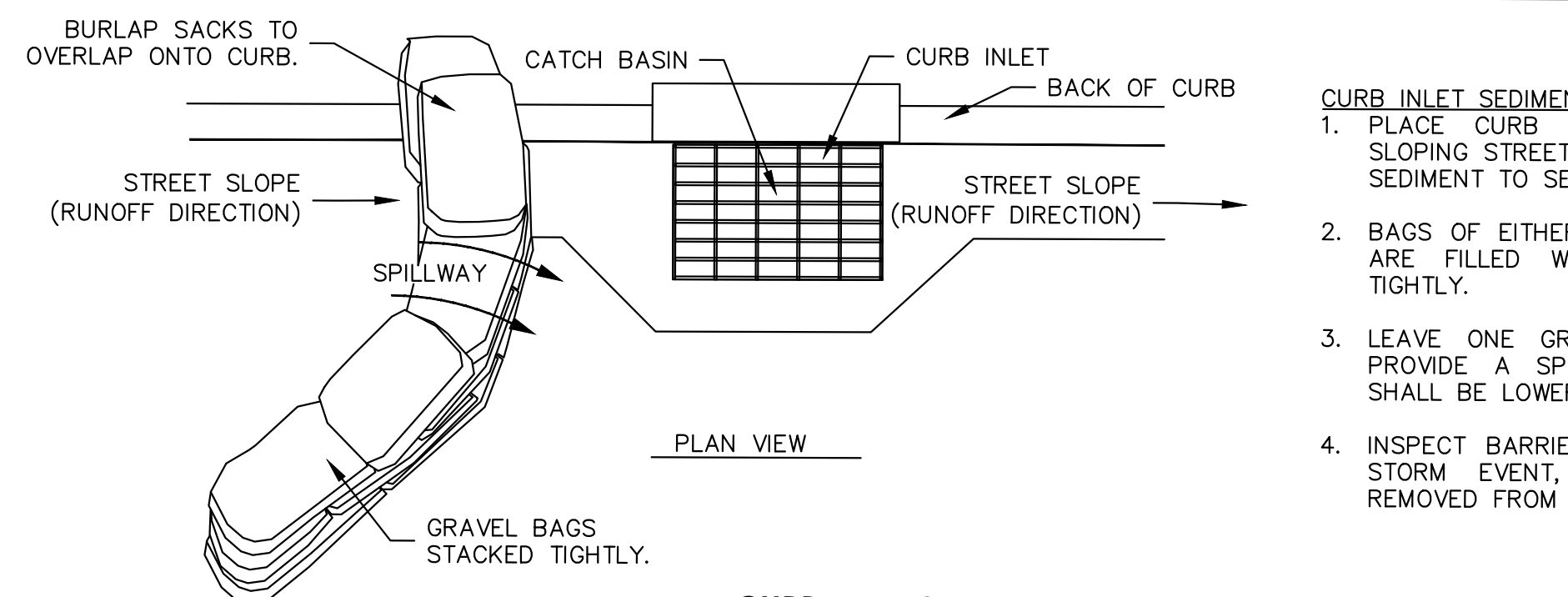
EROSION CONTROL NOTES:

1. REFERENCE: "CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE (BMP) HANDBOOK", LATEST EDITION.
2. CONSTRUCTION AREAS SHOWN ARE CONCEPTUAL. ACTUAL PLACEMENT TO BE DETERMINED BY CONTRACTOR BASED ON CURRENT BEST MANAGEMENT PRACTICES. CONTRACTOR SHALL SUBMIT A CONSTRUCTION STAGING PLAN.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN EFFECT AND MAINTAINED BY THE CONTRACTOR ON A YEAR-ROUND BASIS UNTIL ALL DISTURBED AREAS ARE STABILIZED UNLESS OTHERWISE PERMITTED BY THE CITY INSPECTOR.
4. AS PART OF THE GRADING OPERATIONS, THE CONTRACTOR SHALL ENSURE THAT THE SITE IS WATERED PRIOR TO THE COMMENCEMENT OF GRADING.
5. ALL INLETS RECEIVING STORM WATER RUNOFF FROM THE PROJECT AREA MUST BE EQUIPPED WITH REQUIRED INLET PROTECTION.
6. ALL PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIALS AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF ENTERING THE STORM DRAIN SYSTEM.
7. ALL CONCRETE SLURRY SHALL BE CONTAINED IN CONCRETE WASH-OUT AREAS DESIGNATED ON-SITE.
8. STOCKPILED EARTHEN MATERIAL SHALL BE EITHER COVERED WITH A TARP OR WATERED SUFFICIENTLY TO ELIMINATE DUST.
9. TEMPORARY EROSION CONTROLS TO STABILIZE ALL DENUDED AREAS UNTIL PERMANENT EROSION CONTROLS ARE ESTABLISHED.
10. DELINEATE WITH FIELD MARKERS CLEARING LIMITS, EASEMENTS, SETBACKS, SENSITIVE OR CRITICAL AREAS, BUFFER ZONES, TREES, AND DRAINAGE COURSES.
11. PERFORM CLEARING AND EARTH MOVING ACTIVITIES ONLY DURING DRY WEATHER.
12. USE SEDIMENT CONTROLS OR FILTRATION TO REMOVE SEDIMENT WHEN DEWATERING AND OBTAIN ALL NECESSARY PERMITS.
13. PROTECT ALL STORM DRAIN INLETS IN VICINITY OF SITE USING SEDIMENT CONTROLS SUCH AS BERMS, FIBER ROLLS, OR FILTERS.
14. TRAP SEDIMENT ON-SITE, USING BMPS SUCH AS SEDIMENT BASINS OR TRAPS, EARTHEN DIKES OR BERMS, SILT FENCES, CHECK DAMS, SOIL BLANKETS OR MATS, COVERS FOR SOIL STOCK PILES, ETC.
15. DIVERT ON-SITE RUNOFF AROUND EXPOSED AREAS; DIVERT OFF-SITE RUNOFF AROUND THE SITE (E.G., SWALES AND DIKES).
16. PROTECT ADJACENT PROPERTIES AND UNDISTURBED AREAS FROM CONSTRUCTION IMPACTS USING VEGETATIVE BUFFER STRIPS, SEDIMENT BARRIERS OR FILTERS, DIKES, MULCHING, OR OTHER MEASURES AS APPROPRIATE.
17. LIMIT CONSTRUCTION ACCESS ROUTES AND STABILIZE DESIGNATED ACCESS POINTS.
18. NO CLEANING, FUELING, OR MAINTAINING VEHICLES ON-SITE, EXCEPT IN A DESIGNATED AREA WHERE WASHWATER IS CONTAINED AND TREATED.
19. STORE, HANDLE, AND DISPOSE OF CONSTRUCTION MATERIALS/WASTES PROPERLY TO PREVENT CONTACT WITH STORMWATER.
20. CONTRACTOR SHALL TRAIN AND PROVIDE INSTRUCTION TO ALL EMPLOYEES/SUBCONTRACTORS RE: CONSTRUCTION BMPS.
21. CONTROL AND PREVENT THE DISCHARGE OF ALL POTENTIAL POLLUTANTS, INCLUDING PAVEMENT CUTTING WASTES, PAINTS, CONCRETE, PETROLEUM PRODUCTS, CHEMICALS, WASHWATER OR SEDIMENTS, RINSE WATER FROM ARCHITECTURAL COPPER, AND NON-STORMWATER DISCHARGES TO STORM DRAINS AND WATERCOURSES.
22. CONTRACTOR SHALL PROVIDE INLET PROTECTION AT THE NEAREST DOWNSTREAM STORM DRAIN ALONG PROJECT SITE.

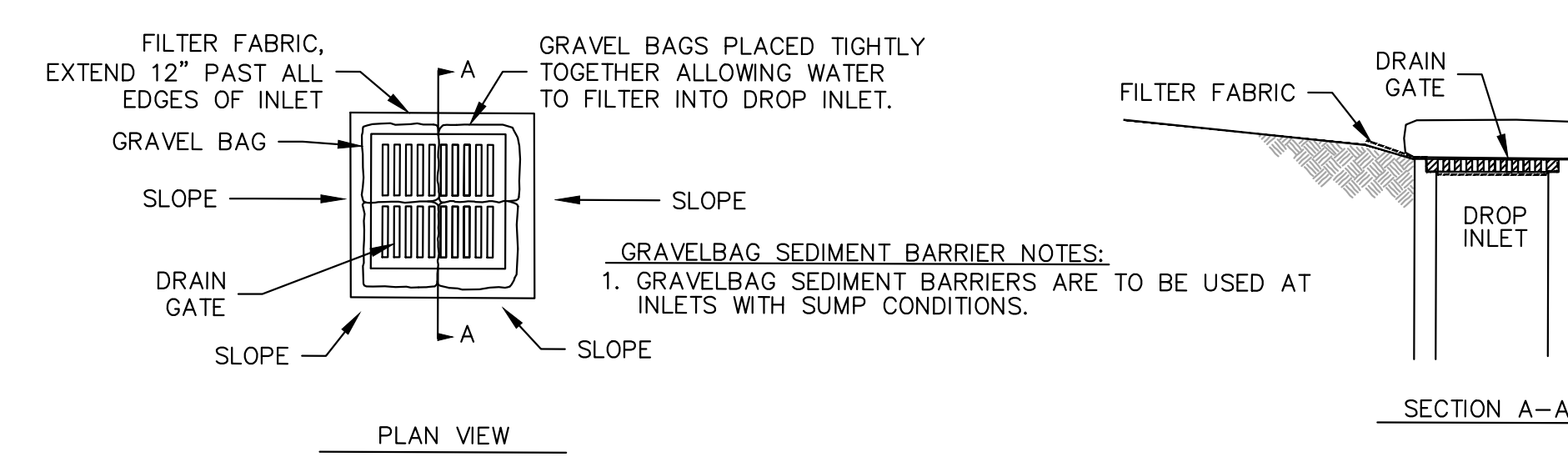
LOCATION OF CONSTRUCTION ACTIVITIES IS PRELIMINARY AND SHALL BE SUPERSEDED BY FINALIZED CONSTRUCTION ACTIVITY LOCATIONS, SHOWN/UPDATED BY CONTRACTOR.



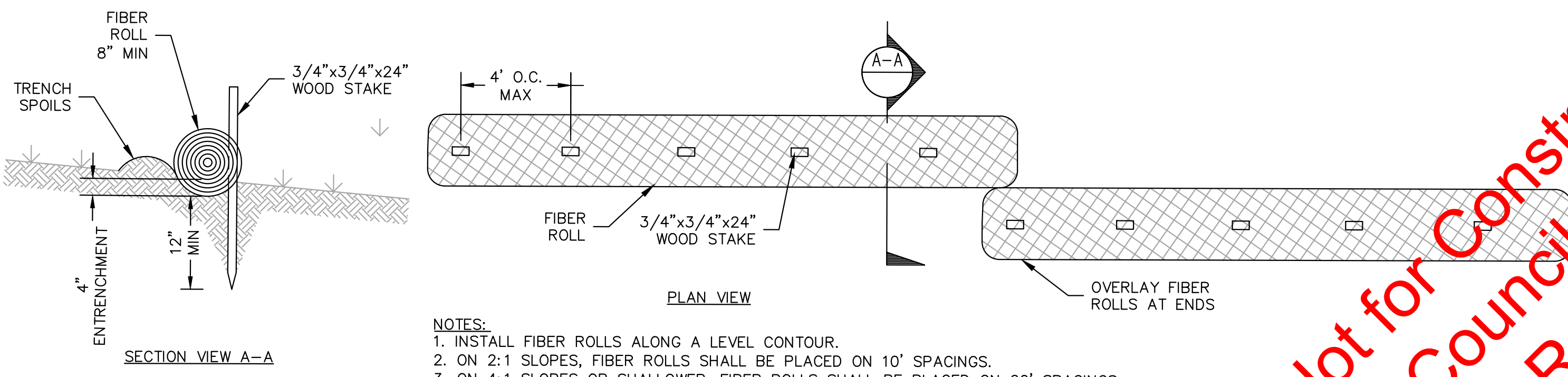
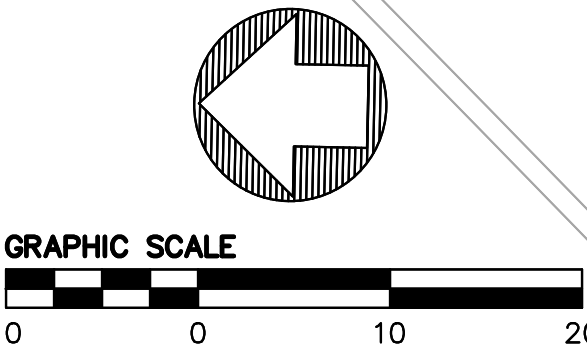
CURB INLET SEDIMENT BARRIER - SUMP



CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE

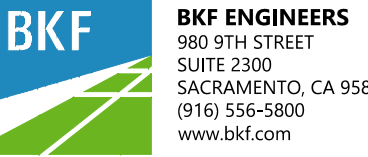


DRAINAGE INLET GRAVELBAG SEDIMENT BARRIER



- NOTES:
1. INSTALL FIBER ROLLS ALONG A LEVEL CONTOUR.
 2. ON 2:1 SLOPES, FIBER ROLLS SHALL BE PLACED ON 10' SPACINGS.
 3. ON 4:1 SLOPES OR SHALLOWER, FIBER ROLLS SHALL BE PLACED ON 20' SPACINGS.

NOT FOR CONSTRUCTION



PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
UPGRADES
100 D STREET
ROSEVILLE, CA 95678



Description:	Date:
BUILDING DEPARTMENT SUBMITTAL	08/05/22
BUILDING DEPARTMENT RESUBMITTAL #1	09/16/22
REVISED SCOPE SUBMITTAL	12/14/22



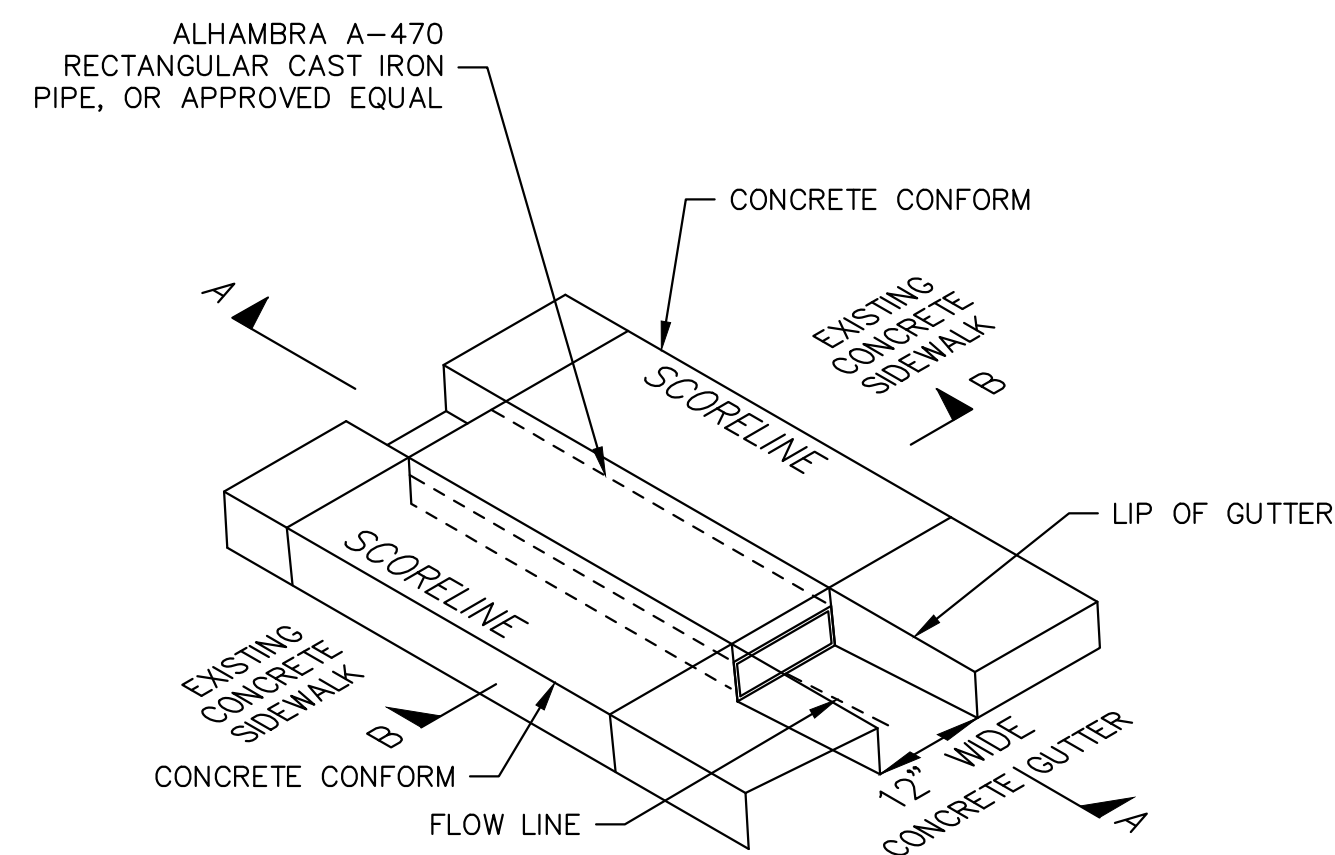
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Approved By:	CM
Checked By:	CM
Drawn By:	MM

EROSION CONTROL PLAN

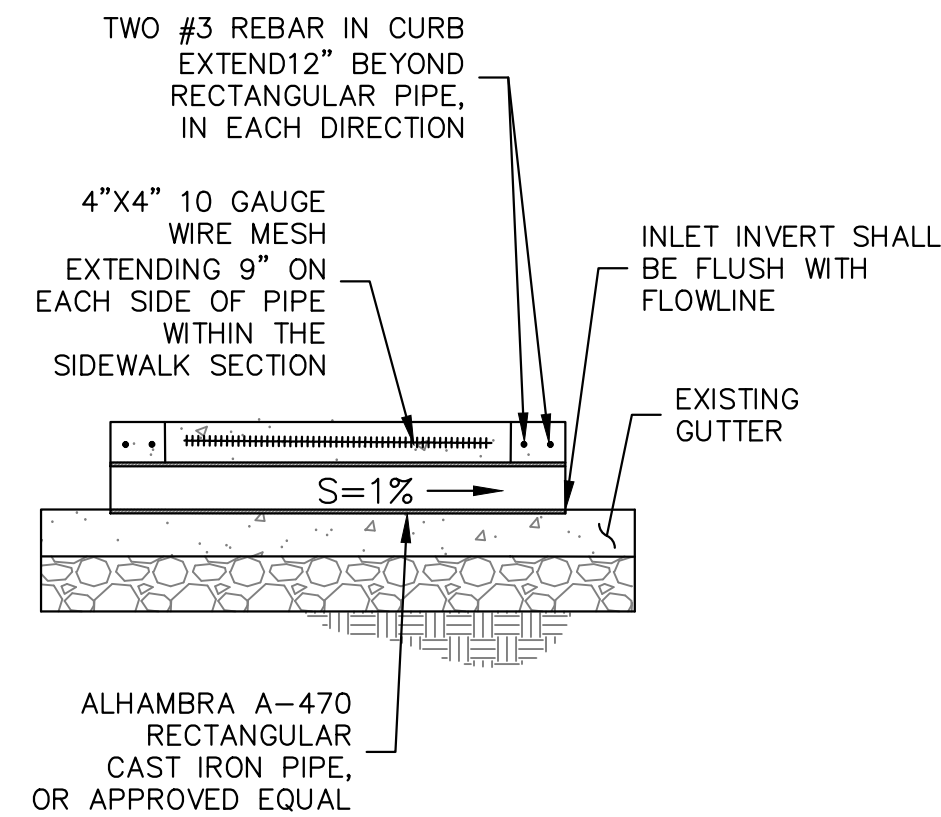
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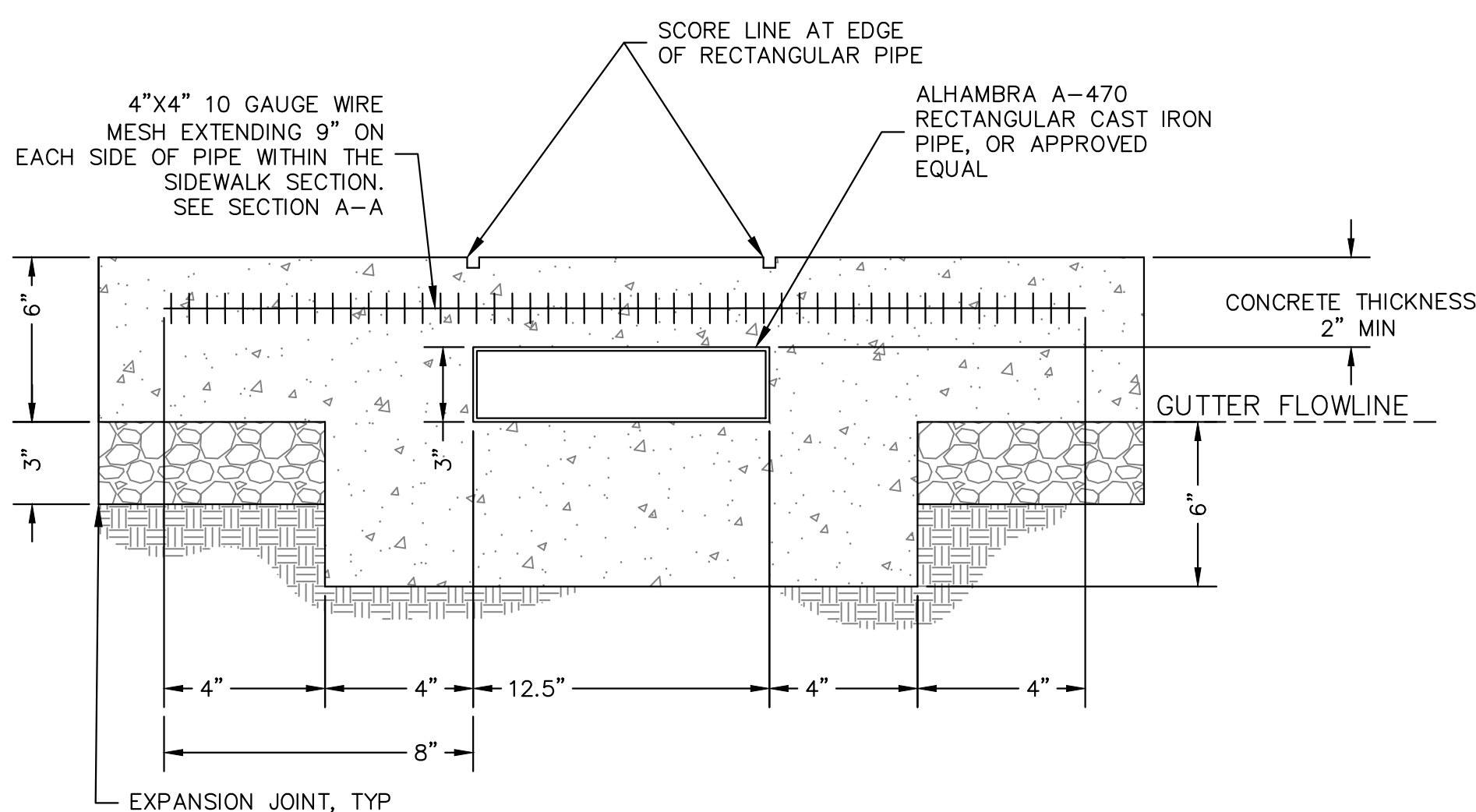
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ISOMETRIC VIEW



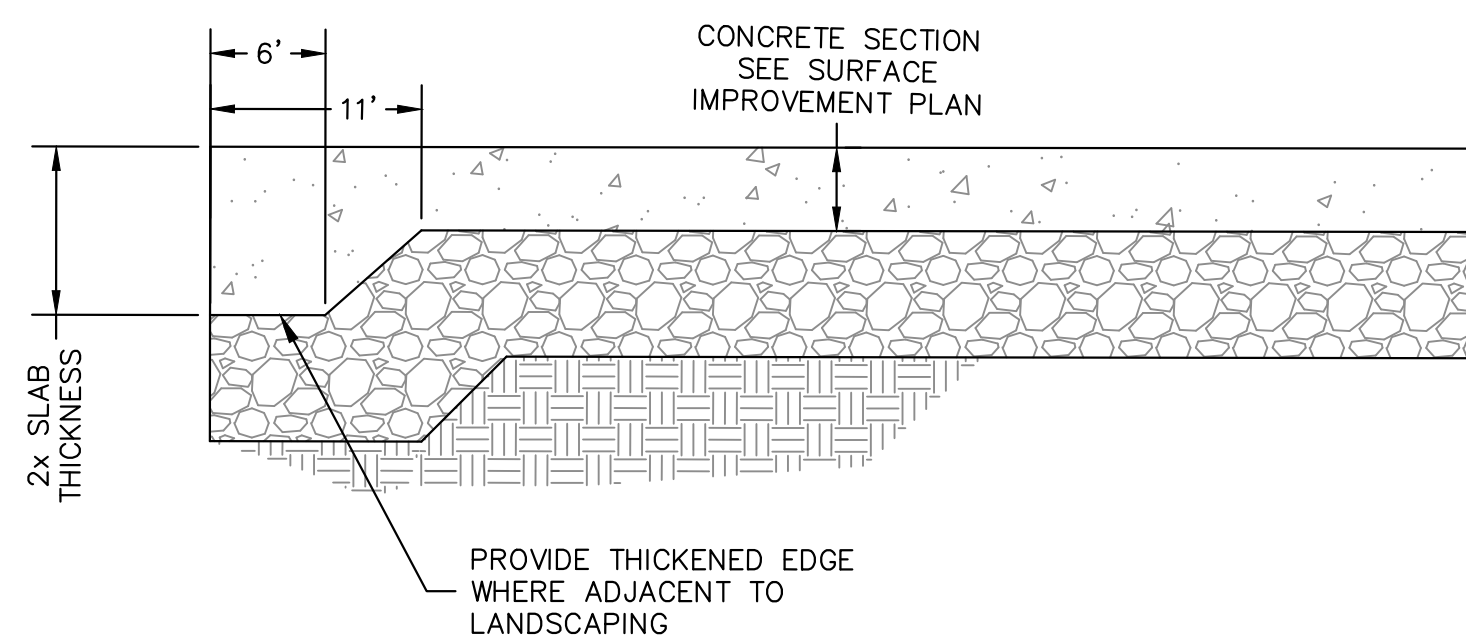
SECTION A-A



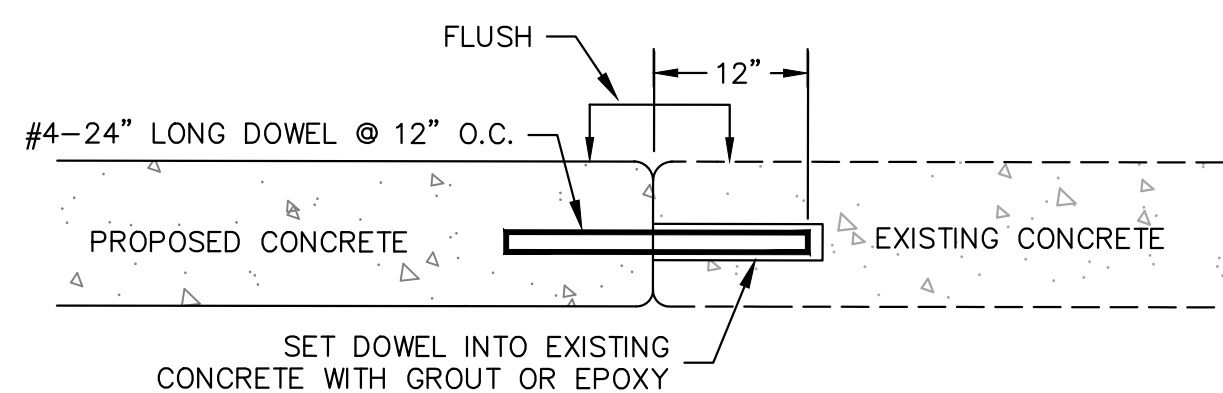
SECTION B-B

ALHAMBRA A-470 RECTANGULAR CAST IRON PIPE			
OUTSIDE PIPE	OUTSIDE HUBS	FLOW AREA	SEGMENT LENGTH
3" X 12 1/2"	4 1/4" X 14"	30.0 SQ. IN.	5'-0"

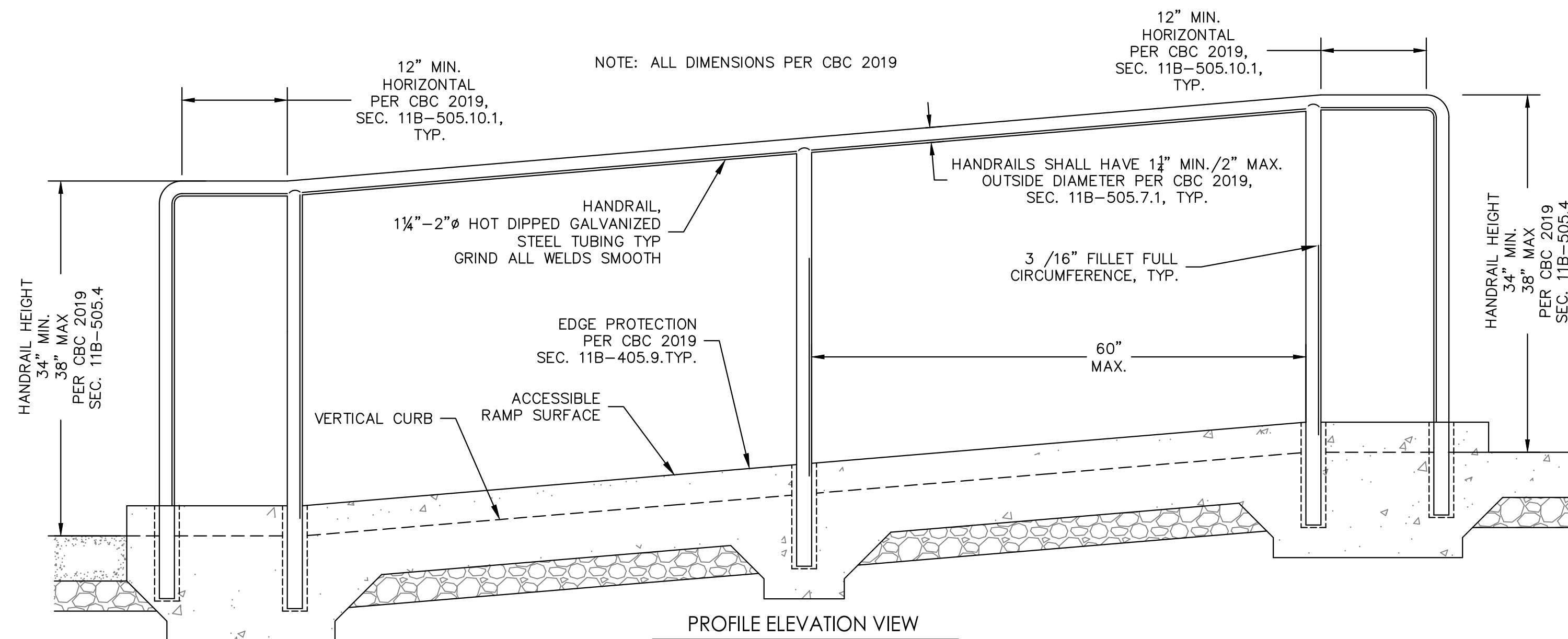
1 DRAIN THROUGH WALKWAY
NTS



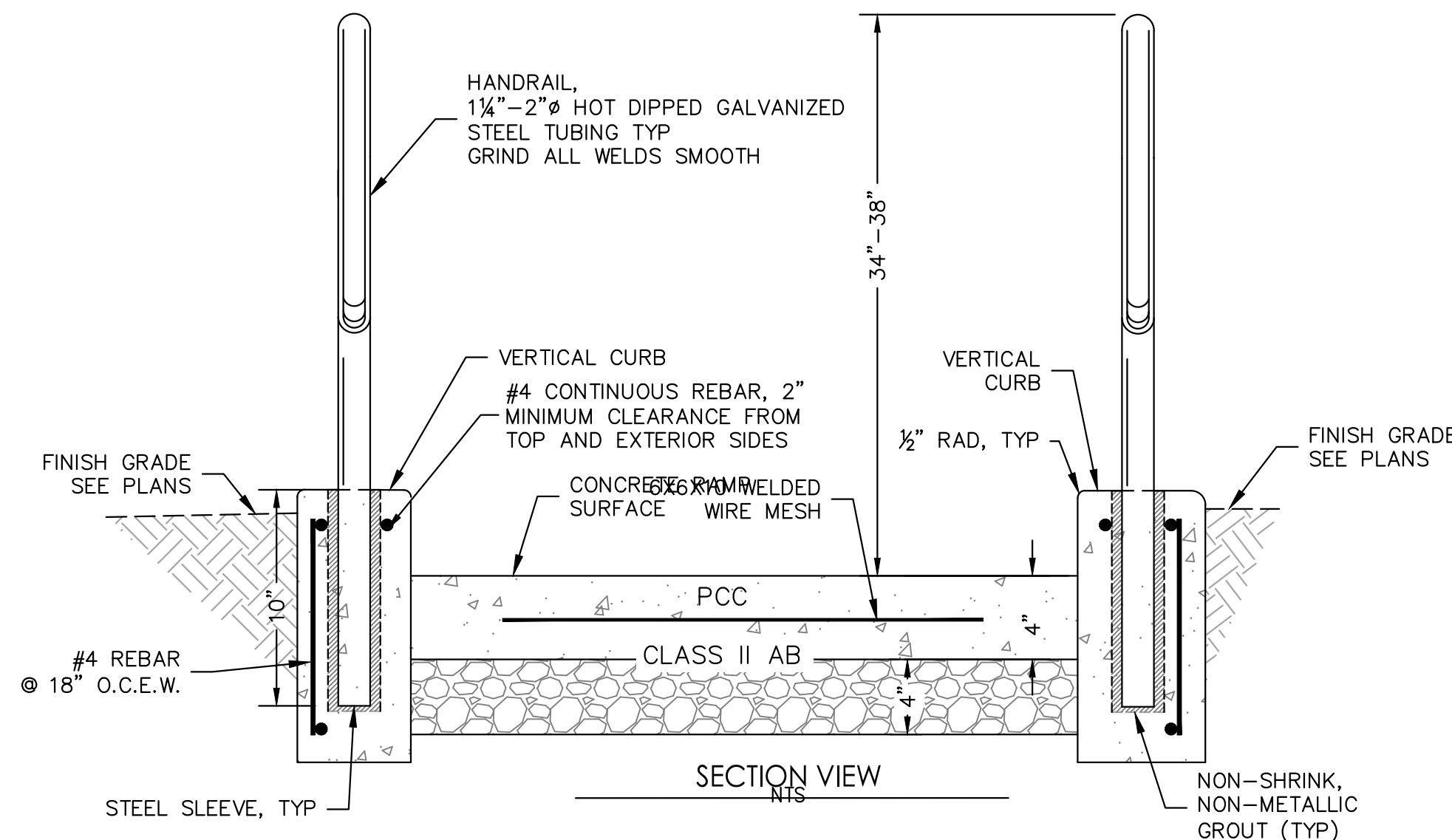
3 THICKENED EDGE
NTS



4 CONCRETE CONFORM
NTS



PROFILE ELEVATION VIEW

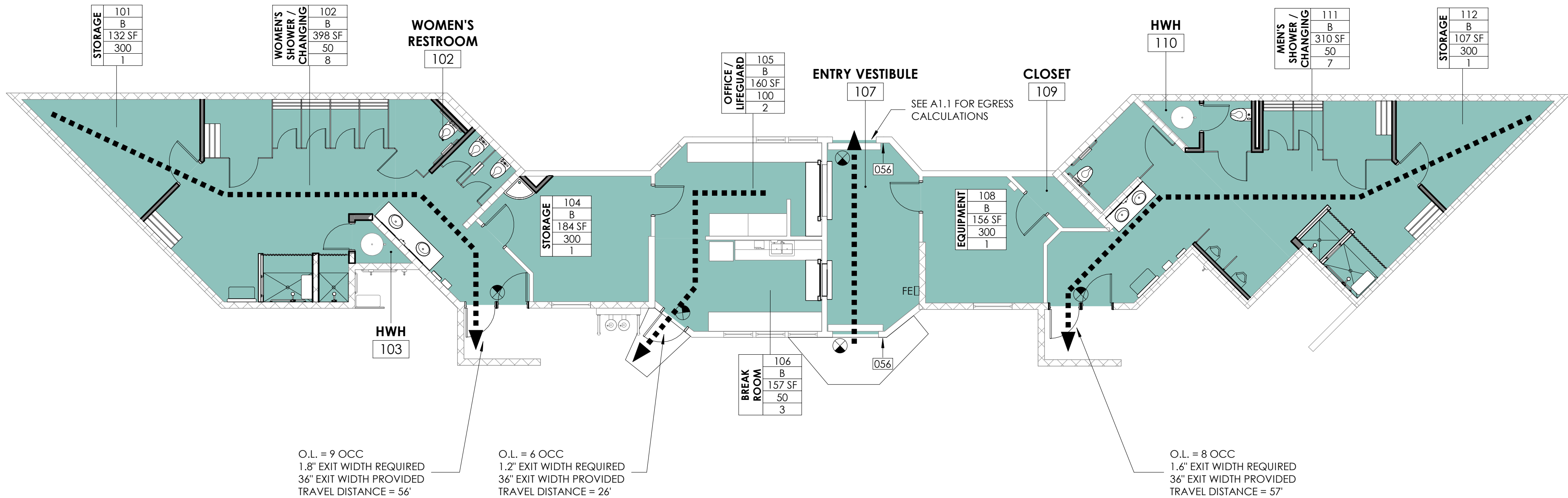


2 PEDESTRIAN RAMP WITH HANDRAILS
NTS

NOTES:

1. TOP OF GRIPPING SURFACES ON HANDRAILS SHALL BE 34 INCHES MINIMUM TO 38 INCHES MAXIMUM VERTICALLY ABOVE WALKING SURFACES AND STAIR NOSINGS. HANDRAILS SHALL BE AT A CONSISTENT HEIGHT ABOVE WALKING SURFACES AND STAIR NOSINGS.
2. HANDRAILS SHALL BE CONTINUOUS WITHIN THE FULL LENGTH.
3. HANDRAIL GRIPPING SURFACES SHALL BE CONTINUOUS ALONG THEIR LENGTH AND SHALL NOT BE OBSTRUCTED ON THEIR TOPS OR SIDES. BOTTOMS OF HANDRAIL GRIPPING SURFACES SHALL NOT BE OBSTRUCTED FOR MORE THAN 20% OF THEIR LENGTH.
4. HANDRAIL GRIPPING SURFACES AND ANY SURFACES ADJACENT TO THEM SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS, AND HAVE ROUNDED EDGES.

Not for Construction
For Council Approval
Re-Bid Approval



OCCUPANCY LOAD CALC					
ROOM NUMBER	ROOM NAME	SQ. FT.	LOAD FACTOR	OCCUP.	CLASS
101	STORAGE	132 SF	300	1	B
102	WOMEN'S SHOWER / CHANGING	398 SF	50	8	B
102	WOMEN'S RESTROOM	192 SF	*	*	B
103	HWH	17 SF	*	*	B
104	STORAGE	184 SF	300	1	B
105	OFFICE / LIFEGUARD	160 SF	100	2	B
106	BREAK ROOM	157 SF	50	4	B
107	ENTRY VESTIBULE	174 SF	*	*	B
108	EQUIPMENT	156 SF	300	1	B
109	CLOSET	23 SF	*	*	B
110	HWH	17 SF	*	*	B
111	MEN'S SHOWER / CHANGING	310 SF	50	7	B
111	MEN'S RESTROOM	268 SF	*	*	B
112	STORAGE	107 SF	300	1	B
TOTAL POOL HOUSE OCCUPANTS		2297 SF		25	
POOL OCCUPANTS		4,250 SF	15	284**	B
DECK OCCUPANTS		1,331 SF	15	89***	B
BLEACHER OCCUPANTS		1,080 LIN INCH	1 OCC / 18 INCH	60	B
TOTAL OCCUPANTS				458****	

2 EXITS REQUIRED PER 1006.3.2 OF 2019 CBC

* OCCUPANT LOAD IS ZERO BASED ON BEING AN ACCESSORY USE TO OCCUPIED ROOMS

** CALCULATED PER 31148.2 OF 2019 CBC

*** MEASURE 4'-0" FROM POOL PER 31148 OF 2019 CBC

**** TOTAL OCCUPANT LOAD USED FOR EGRESS PURPOSES ONLY

CONSTRUCTION NOTES

056 PROVIDE SIGN AT EXIT DOOR THAT IS READILY VISIBLE, DURABLE, ADJACENT TO EXIT DOOR THAT SAYS "THIS DOOR SHALL REMAIN UNLOCKED WHEN SPACE IS OCCUPIED"

EGRESS NOTES

1. GRADE LEVELS AREAS DESIGNATED AS EXIT DISCHARGE COMPONENTS FOR BUILDING SHALL BE PERMANENTLY MAINTAINED. SUCH AREAS SHALL NOT BE DEVELOPED OR OTHERWISE ALTERED IN THEIR CAPACITY TO PROVIDE CONTINUOUS, UNOBSTRUCTED AND UNDIMINISHED MEANS OF EGRESS FOR THE BUILDING OCCUPANT. IF SUCH AREAS ARE SOLD INDEPENDENT OF THE BUILDING THEY SERVE, AN EXIT DISCHARGE COMPLYING WITH THE REQUIREMENTS OF SECTION 1006 SHALL BE PROVIDED FOR THE BUILDING.

2. DOORS IN THE MEANS OF EGRESS SYSTEM TO BE OPERABLE FROM THE INSIDE WITHOUT USE OF KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

WALL LEGEND

EXISTING WOOD FRAMED WALL TO REMAIN

EXISTING 8" CMU WALL TO REMAIN

NEW 2x4 WOOD FRAMED WALL

NEW 2x6 WOOD FRAMED WALL

NEW 2x6 METAL STUD WALL

EGRESS LEGEND

PATH OF TRAVEL

EXIT SIGN, SEE ELECTRICAL DRAWING AND TACTILE EXIT SIGN

FIRE EXTINGUISHER

ROOM #

OCCUPANCY

NET SQ. FT.

OCC. LOAD FACTOR

OCCUPANTS

B



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PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE REMODEL

100 D STREET
ROSEVILLE, CA 95678



Description: 12/14/22

REVISD SCOPE SUBMITTAL

Project Number: 200702

Approved By: MK

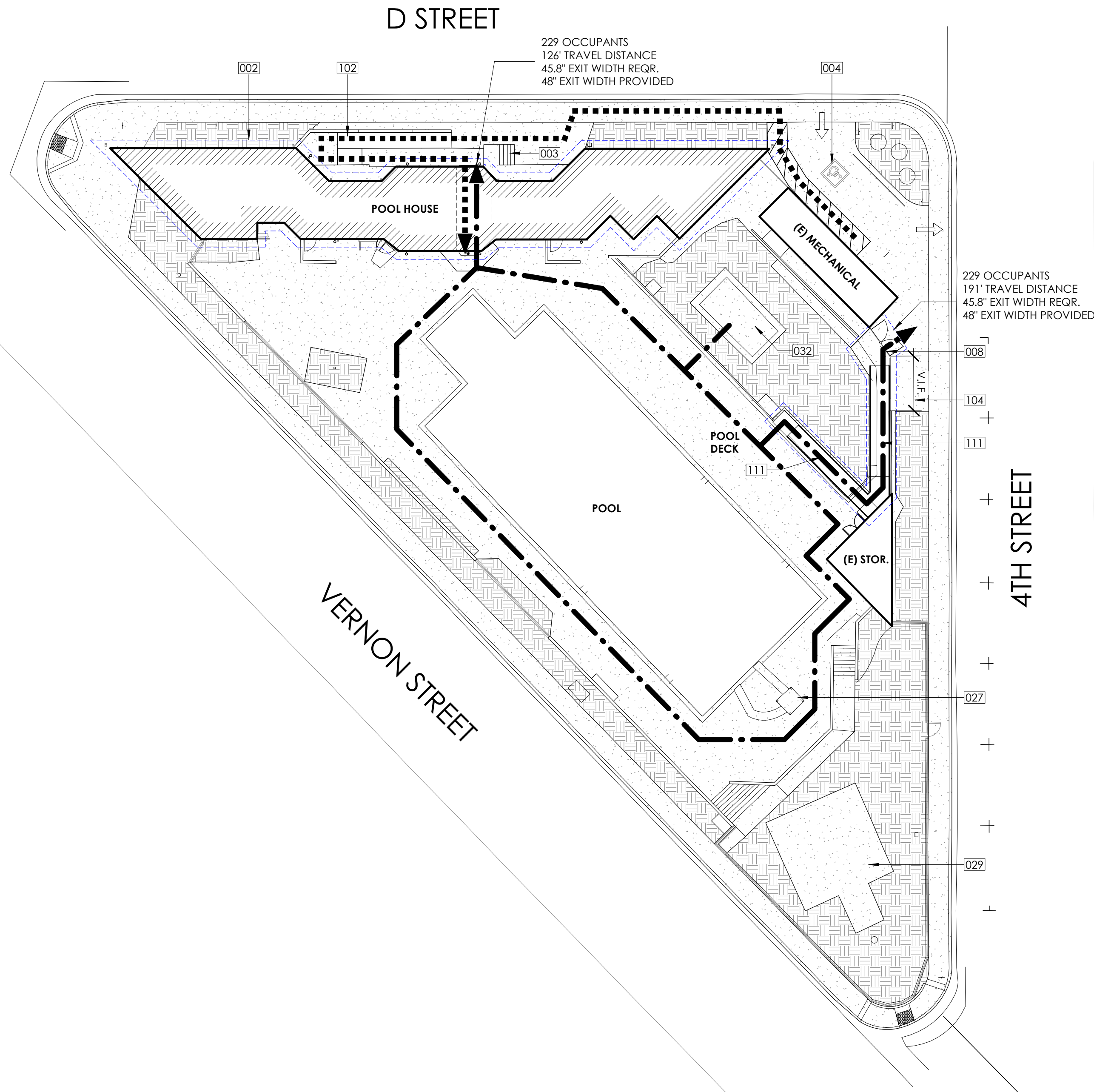
Checked By: JB

Drawn By: SC

Sheet Title: EGRESS PLAN

SHEET NUMBER:

A0.1



CONSTRUCTION NOTES

- 002 LIMIT OF WORK
- 003 EXISTING CONCRETE ENTRY STAIRS TO REMAIN
- 004 EXISTING ACCESSIBLE PARKING SPACE TO REMAIN
- 008 FUTURE GATE REPLACEMENT: REMOVE (E) GATE AND REPLACE WITH (N) 48" WIDE EXIT GATE WITH PANIC HARDWARE, SEE C1/A1.2 FOR DETAILS
- 027 EXISTING POOL SLIDE TO REMAIN
- 029 EXISTING PICNIC AREA TO REMAIN
- 032 EXISTING BLEACHERS TO REMAIN
- 102 EXISTING ACCESSIBLE CONCRETE RAMP TO REMAIN
- 104 FUTURE FENCE INFILL: REMOVE EXISTING GATES AND INFILL WITH NEW FENCING TO MATCH EXISTING, SEE C3/A1.2
- 111 FUTURE RAMP 1:12 SLOPE, SEE CIVIL DRAWINGS

NOTES

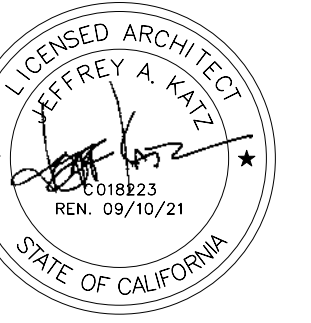
- VERIFY THAT ALL CONCRETE AT DOORWAYS SLOPE AWAY FROM THE BUILDING TO PROVIDE POSITIVE DRAINAGE.
- DIMENSIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY. REFER TO CIVIL DRAWINGS FOR LOCATION COORDINATES.
- ACCESSIBLE ROUTE FROM PARKING + PUBLIC R.O.W. AND ACCESSIBLE PATH OF TRAVEL TO PUBLIC AMENITIES SHALL NOT EXCEED 1.5% CROSS SLOPE AND SHALL HAVE MAX. SLOPE IN THE DIRECTION OF TRAVEL OF LESS THAN 4.5%.
- SEE CIVIL DRAWINGS FOR SPOT ELEVATIONS ON WALKS AND SIDEWALKS.
- SEE CIVIL DRAWINGS FOR ALL SLOPES, 2.0% MAX. SLOPE IN ANY DIRECTION FOR ACCESSIBLE PATH.

EGRESS NOTES

- GRADE LEVELS AREAS DESIGNATED AS EXIT DISCHARGE COMPONENTS FOR BUILDING SHALL BE PERMANENTLY MAINTAINED. SUCH AREAS SHALL NOT BE DEVELOPED OR OTHERWISE ALTERED IN THEIR CAPACITY TO PROVIDE CONTINUOUS UNOBSTRUCTED AND UNDIMINISHED MEANS OF EGRESS FOR THE BUILDING OCCUPANT. IF SUCH AREAS ARE SOLD INDEPENDENT OF THE BUILDING THEY SERVE, AN EXIT DISCHARGE COMPLYING WITH THE REQUIREMENTS OF SECTION 1006 SHALL BE PROVIDED FOR THE BUILDING.
- DOORS IN THE MEANS OF EGRESS SYSTEM TO BE OPERABLE FROM THE INSIDE WITHOUT USE OF KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

LEGEND

- (E) CONCRETE PAVING, SEE CIVIL
- (E) LANDSCAPING, SEE CIVIL
- ACCESSIBLE PATH OF TRAVEL
- EXIT PATH TRAVEL DISTANCE
- LIMIT OF WORK



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PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



Description: Date:
REVISED SCOPE 12/14/22
SUBMITTAL

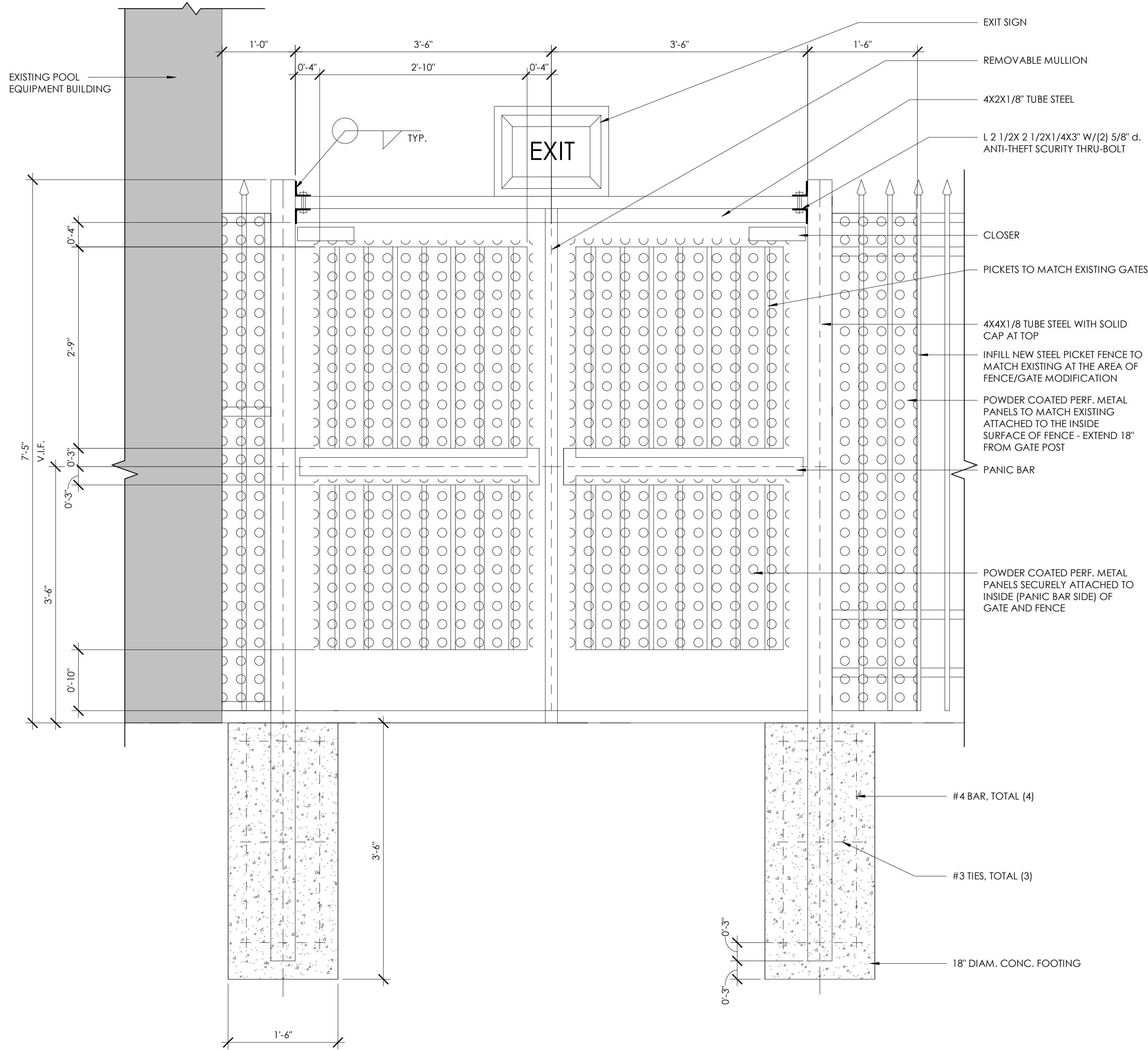
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Checked By: JB
Drawn By: SC/KG

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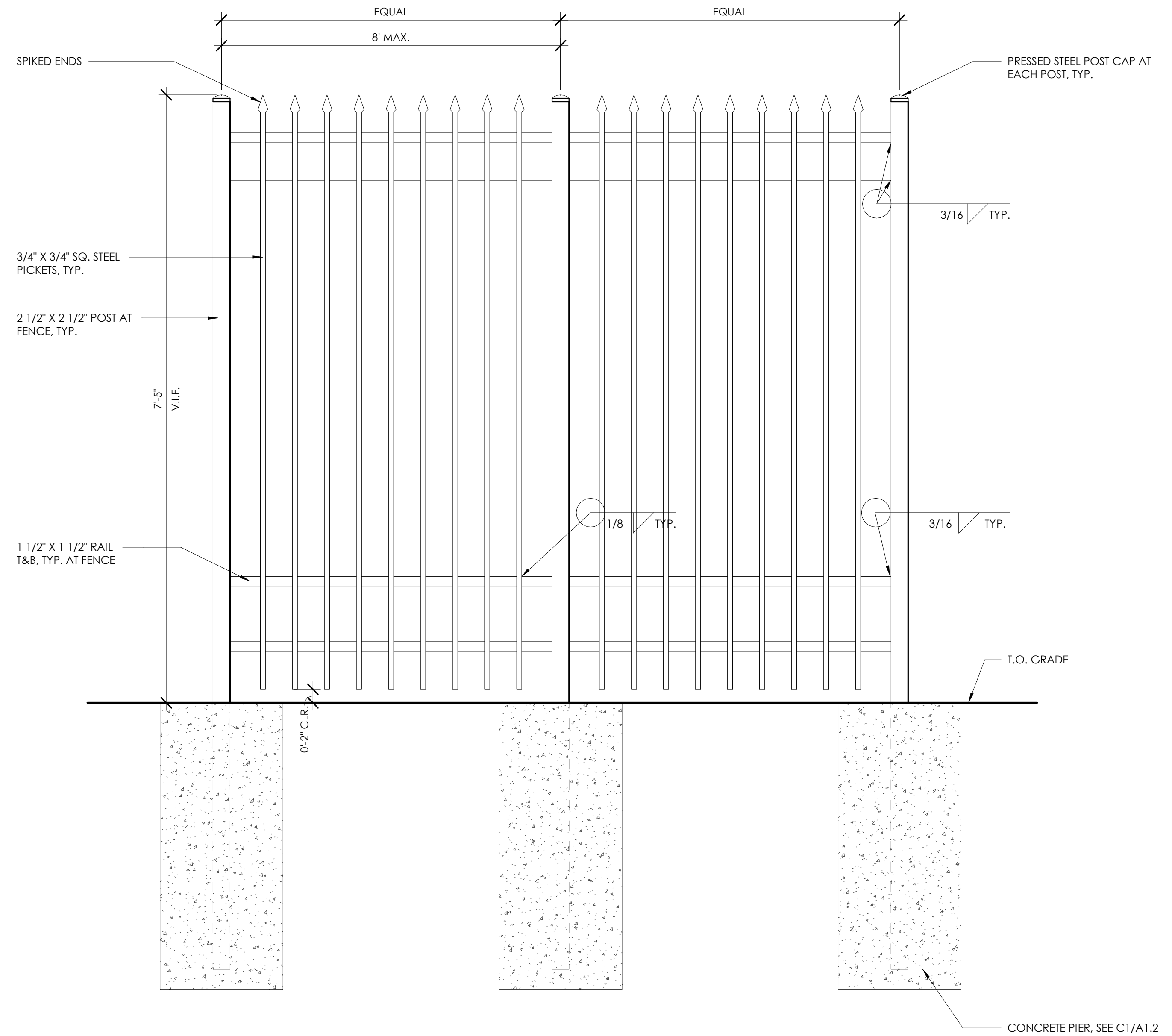
SITE PLAN

SHEET NUMBER:

A1.1



C1
A1.2 FUTURE GATE REPLACEMENT N.I.C.
SCALE: 1"=1'-0"



C3
A1.2 FUTURE FENCE INFILL N.I.C.
SCALE: 1"=1'-0"



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PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



Description: Date:
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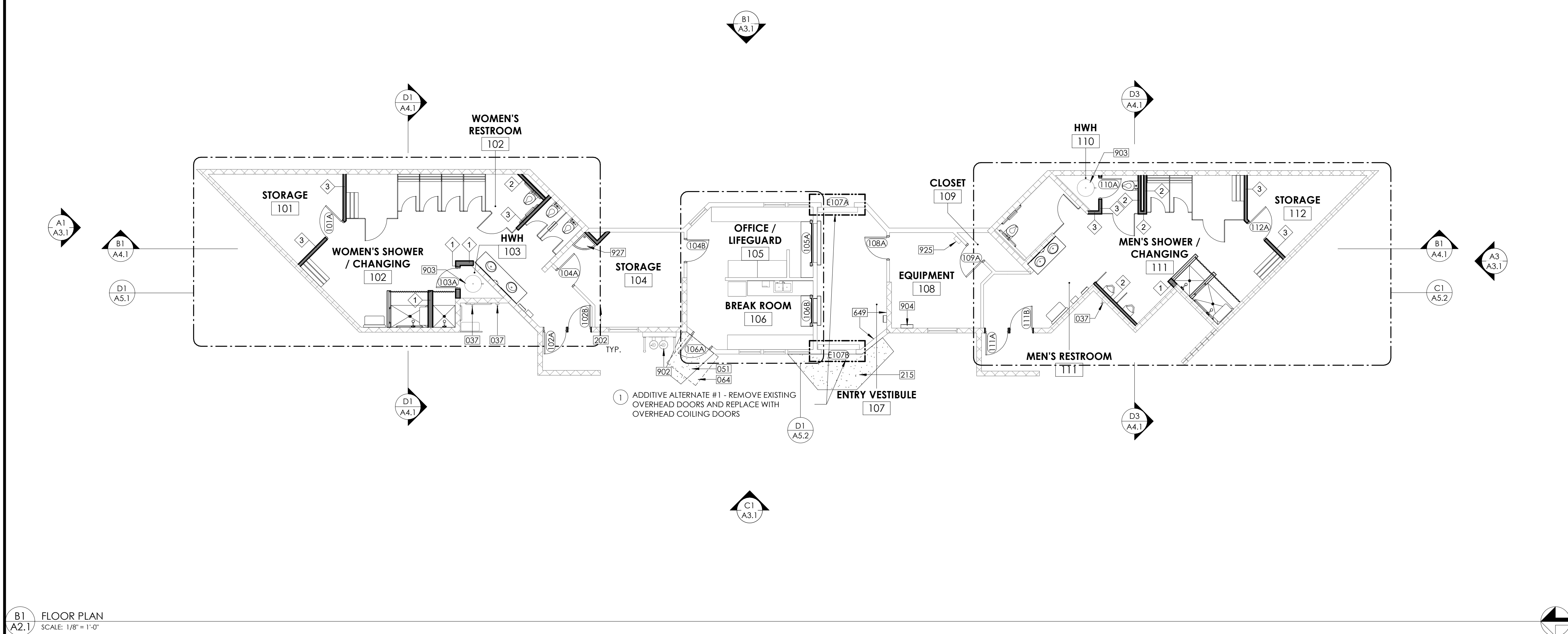
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Approved By: MK
Checked By: JB
Drawn By: SC

Sheet Title:
SITE DETAILS

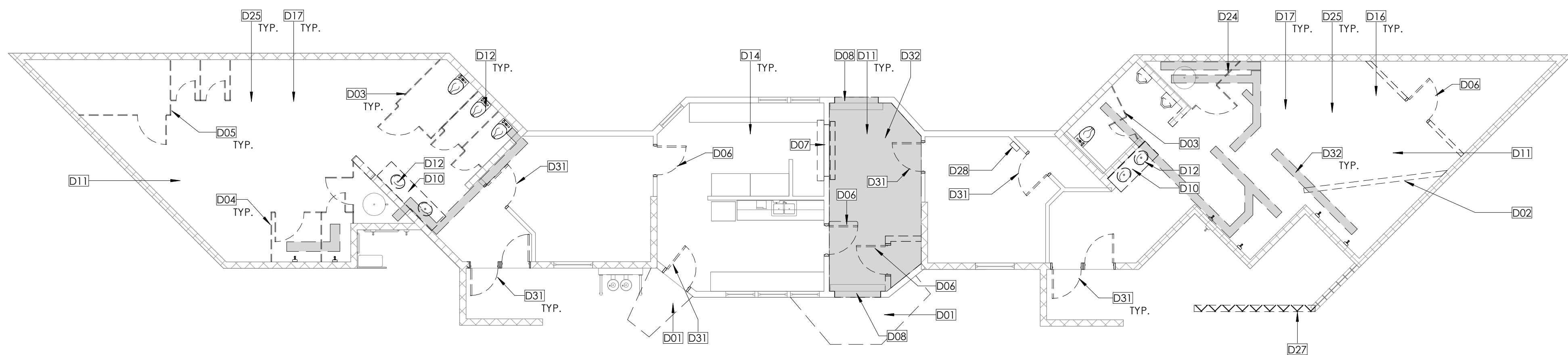
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A1.2

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For Council Approval
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B1 FLOOR PLAN
A2.1 SCALE: 1/8" = 1'-0"



D1 DEMO FLOOR PLAN
A2.1 SCALE: 1/8" = 1'-0"

CONSTRUCTION NOTES

- 037 EXISTING EXTERIOR SHOWER HEAD TO REMAIN
051 REPLACE CONCRETE AT DOOR THRESHOLD AREA TO CREATE A 60"x60" LEVEL LANDING (SLOPE MAX 2% AWAY FROM BUILDING UNTIL IT MEETS EXISTING CONCRETE DECK). LANDING TO HAVE 1/2" MAX DROP FROM TOP OF THRESHOLD. SEE DETAIL B4/A7.1
064 5'x5' LEVEL LANDING
202 REPAIR CRACKS IN CONCRETE SLAB/PREP FOR NEW EPOXY
215 NEW CONCRETE. SEE CIVIL
649 ADD WOOD SIDING TO MATCH EXISTING
902 EXISTING DRINKING FOUNTAIN. SEE PLUMBING DRAWINGS
903 EXISTING HOT WATER HEATER. SEE PLUMBING DRAWINGS
904 EXISTING ELECTRICAL PANEL TO REMAIN
925 PANEL - EXISTING TO REMAIN
927 MOP SINK. SEE PLUMBING DRAWINGS

FLOOR PLAN NOTES

1. SEE A2.2 FOR DIMENSION PLAN
2. SEE ENLARGED PLANS FOR ADDITIONAL INFORMATION
3. SEE A2.3 FOR REFLECTED CEILING PLAN
4. SEE A4.2 FOR WALL TYPES
5. SEE A6.1 FOR ROOM FINISH SCHEDULE & DOOR SCHEDULE

WALL LEGEND

- EXISTING WOOD FRAMED WALL TO REMAIN
EXISTING 8" CMU WALL TO REMAIN
NEW 2x4 WOOD FRAMED WALL
NEW 2x6 WOOD FRAMED WALL
NEW 2x6 METAL STUD WALL

DEMOLITION NOTES

- D01 DEMO SPALLED & CRACKED CONCRETE AT DOOR THRESHOLD. SEE CIVIL
D02 DEMO 6" TALL CURB
D03 DEMO TOILET PARTITIONS
D04 DEMO SHOWER STALL PARTITIONS
D05 DEMO CHANGING STALL PARTITIONS
D06 DEMO DOORS AND FRAMES
D07 DEMO WINDOW & METAL WINDOW GRATE. VERIFY EXTENT WITH OWNER
D08 DEMO OVERHEAD COILING DOOR FOR BID ALTERNATE #1
D10 DEMO COUNTERTOP
D11 DEMO HIGH PERFORMANCE EPOXY FLOORING
D12 SEE PLUMBING FOR PLUMBING DEMOLITION
D14 SEE ELECTRICAL FOR ELECTRICAL DEMOLITION
D16 DEMO BENCHES
D17 DEMO TOILET ROOM/SHOWER ROOM ACCESSORIES
D24 DEMO PARTITION
D25 DEMO TOILETS, URINALS, SINKS, COUNTERS, AND SHOWERHEADS
D27 REMOVE PORTION OF CMU WALL TO PROVIDE CLEAN, SMOOTH EDGE
D28 EXISTING CABINET TO REMAIN
D31 DEMO EXISTING DOOR. EXISTING DOOR FRAME TO REMAIN, PROTECT IN PLACE
D32 SAWCUT AND REMOVE PORTION OF SLAB

DEMOLITION PLAN NOTES

1. PERFORM ALL DEMOLITION SO THAT THE EXISTING CONSTRUCTION THAT WILL REMAIN IS UNDAMAGED.
2. EXTENT OF REMOVAL AS INDICATED IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXTENT OF REMOVAL WORK TO PROPERLY ACCOMMODATE THE CONSTRUCTION METHOD. ADDITIONAL REMOVAL AND PATCHING REQUIRED TO ACCOMMODATE NEW CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO NEW WORK.
3. ALL DIMENSIONS SHOWN SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
4. SEE CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL FOR ADDITIONAL REQUIREMENTS.
5. EXTENT OF SAWCUTTING OF THE CONCRETE SLAB ON GRADE AND EXCAVATION IS SHOWN SCHEMATICALLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL EXTENT OF SAWCUTTING AND EXCAVATION REQUIRED TO ACCOMMODATE THE NEW WORK.
6. CONTRACTOR SHALL PROTECT ALL AREAS OF THE SITE THAT WILL BE AFFECTED BY THE WORK PRIOR TO SAWCUTTING, TIE REMOVALS, EXCAVATING, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ANY EXISTING INFRASTRUCTURE.

DEMO WALL LEGEND

- EXISTING WOOD FRAMED WALL TO REMAIN
EXISTING 8" CMU WALL TO REMAIN
EXISTING 2x4 WOOD FRAMED WALL TO BE REMOVED
EXISTING 8" CMU WALL TO BE REMOVED
EXISTING CONCRETE SLAB TO BE REMOVED



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PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



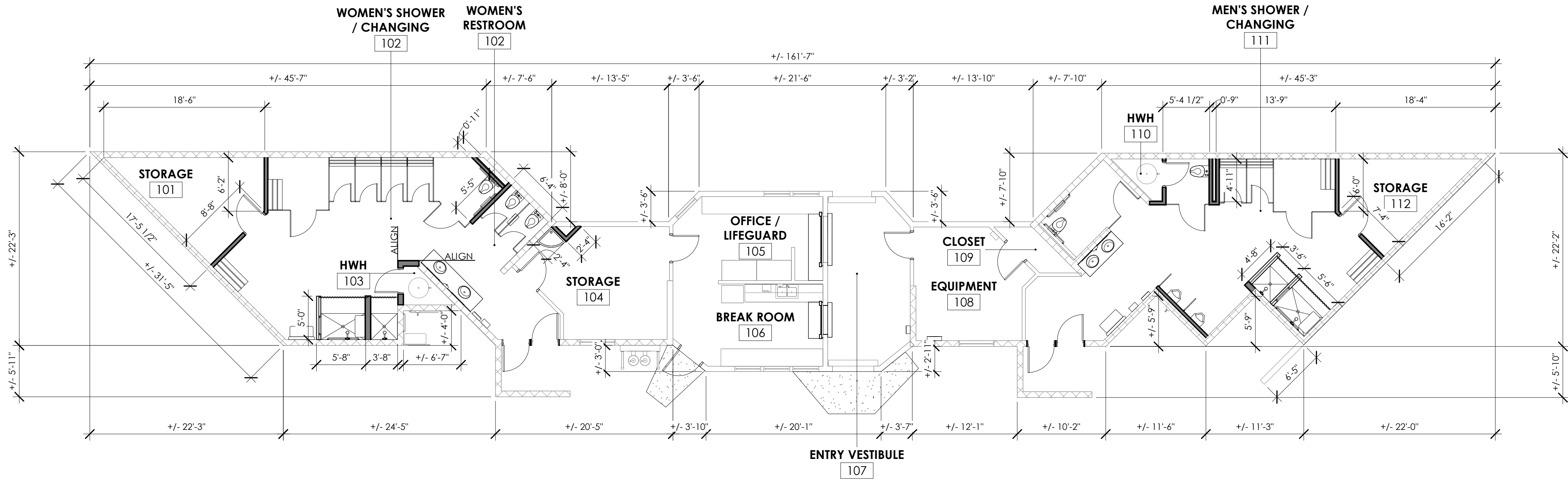
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REVISED SCOPE 12/14/22
SUBMITTAL

Project Number: 400702
Approved By: MK
Checked By: JB
Drawn By: SC

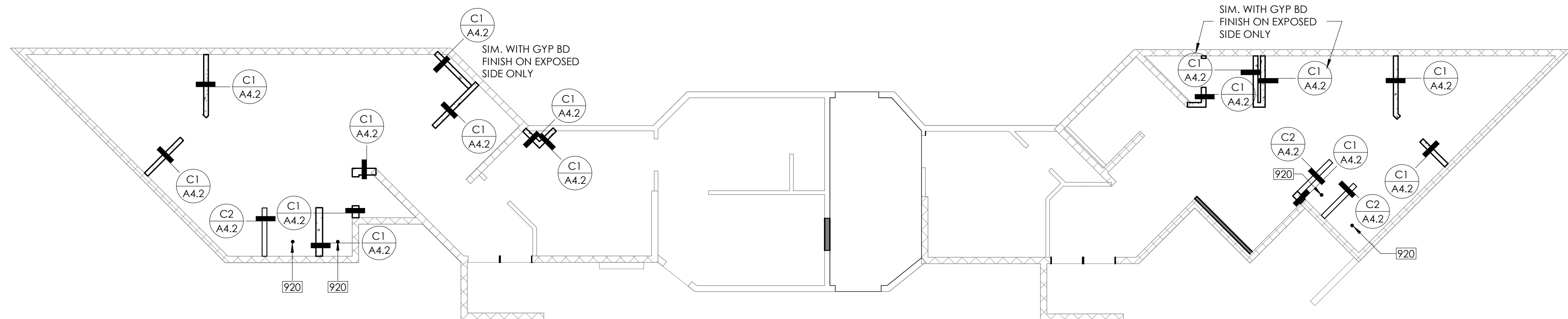
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FLOOR PLAN &
DEMO FLOOR
PLAN

SHEET NUMBER:

A2.1



B1
A2.2 DIMENSION PLAN
SCALE: 1/8" = 1'-0"



D1
A2.2 CURB PLAN
SCALE: 1/8" = 1'-0"

NOTES

1. VERIFY ALL ROUGH OPENING SIZES PRIOR TO FRAMING
2. SEE ENLARGED PLANS FOR ADDITIONAL DIMENSIONS

WALL LEGEND

- EXISTING WOOD FRAMED WALL TO REMAIN
- EXISTING 8" CMU WALL TO REMAIN
- NEW 2x4 WOOD FRAMED WALL
- NEW 2x6 WOOD FRAMED WALL
- NEW 2x6 METAL STUD WALL

CONSTRUCTION NOTES

920 FLOOR DRAIN, SEE PLUMBING

NOTES

1. VERIFY CURB WIDTH WITH ALL WALL SECTIONS AND WALL TYPES
2. SACK AND PATCH CONCRETE CURB TO PROVIDE SMOOTH FINISH WITH UNIFORM COLOR WHERE EXPOSED. SEAL CONCRETE SLAB AND CURB.

LEGEND

- CMU WALL ON CONCRETE SLAB
- CONCRETE CURB



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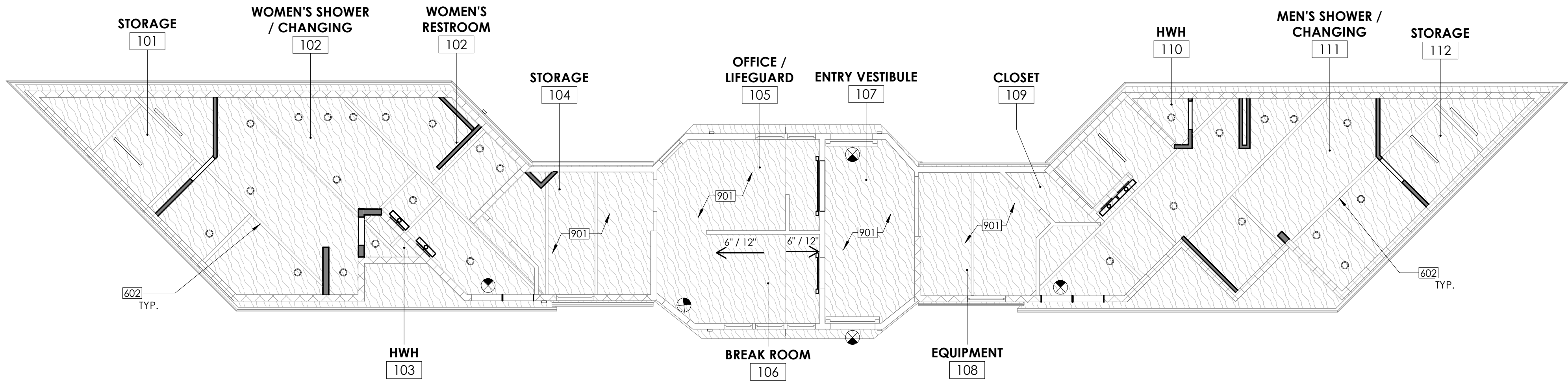
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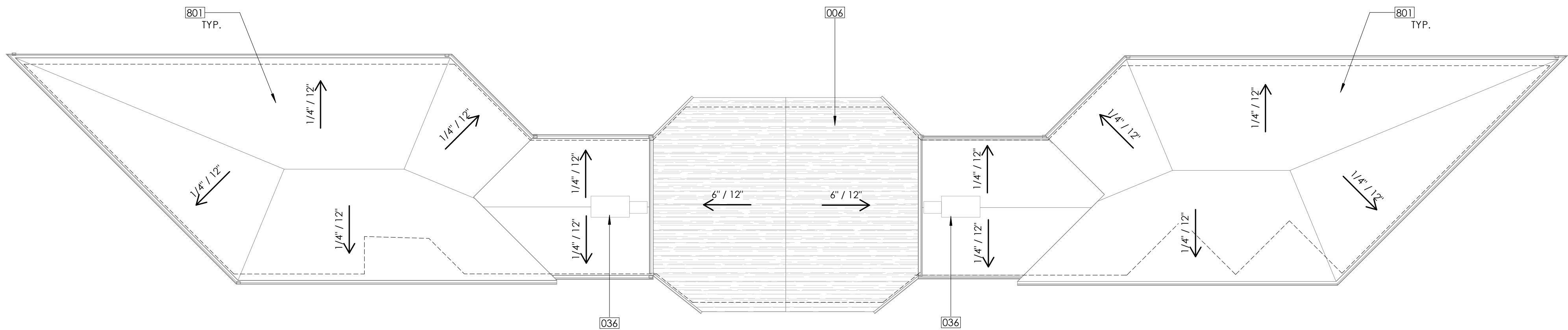
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DIMENSION
PLAN & CURB
PLAN

SHEET NUMBER:

A2.2



B1 REFLECTED CEILING PLAN
A2.3 SCALE: 1/8" = 1'-0"



D1 ROOF PLAN
A2.3 SCALE: 1/8" = 1'-0"

CONSTRUCTION NOTES

- 006 EXISTING SHINGLE ROOFING TO REMAIN
036 EXISTING EVAPORATIVE SWAMP COOLER
602 PAINT ALL EXPOSED BEAMS AND RAFTERS
801 EXISTING SINGLE PLY ROOFING OVER TAPERED INSULATION
901 EXISTING CEILING AND LIGHTING TO REMAIN

RCP NOTES

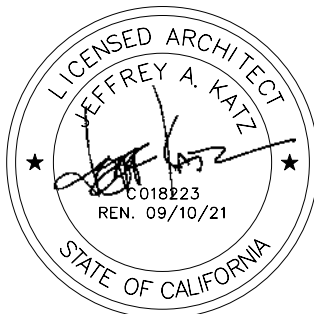
- CONTRACTOR SHALL VERIFY DIMENSIONS AND LAYOUT OF ALL FIXTURES AND EQUIPMENT WITH ARCHITECT PRIOR TO ROUGH IN. REQUEST CLARIFICATION FOR ANY DIMENSIONS NOT SHOWN.
- PROVIDE ACCESS PANELS AS REQUIRED FOR MECHANICAL EQUIPMENT, SEE MECHANICAL AND PLUMBING.
- EXIT SIGNS SHALL BE READILY VISIBLE FROM ANY DIRECTION OR APPROACH.
- EXIT SIGNS SHALL BE LOCATED AS NECESSARY TO CLEARLY INDICATE THE DIRECTION OF EGRESS TRAVEL. NO ONE POINT SHOULD BE MORE THAN 100 FEET FROM THE NEAREST VISIBLE SIGN.
- SEE A2.1 FOR FLOOR PLAN AND A2.2 FOR DIMENSION PLAN.

RCP LEGEND

- PAINT EXISTING PLYWOOD CEILING OR SOFFIT
- LIGHT FIXTURE, SEE ELECTRICAL
- LIGHT FIXTURE, SEE ELECTRICAL
- LIGHT FIXTURE, SEE ELECTRICAL
- LIGHT FIXTURE, SEE ELECTRICAL
- EXIT SIGN, SEE ELECTRICAL

ROOF PLAN NOTES

- REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL FOR LOCATIONS OF EQUIPMENT, VENTS, DUCTS, ETC.



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PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678



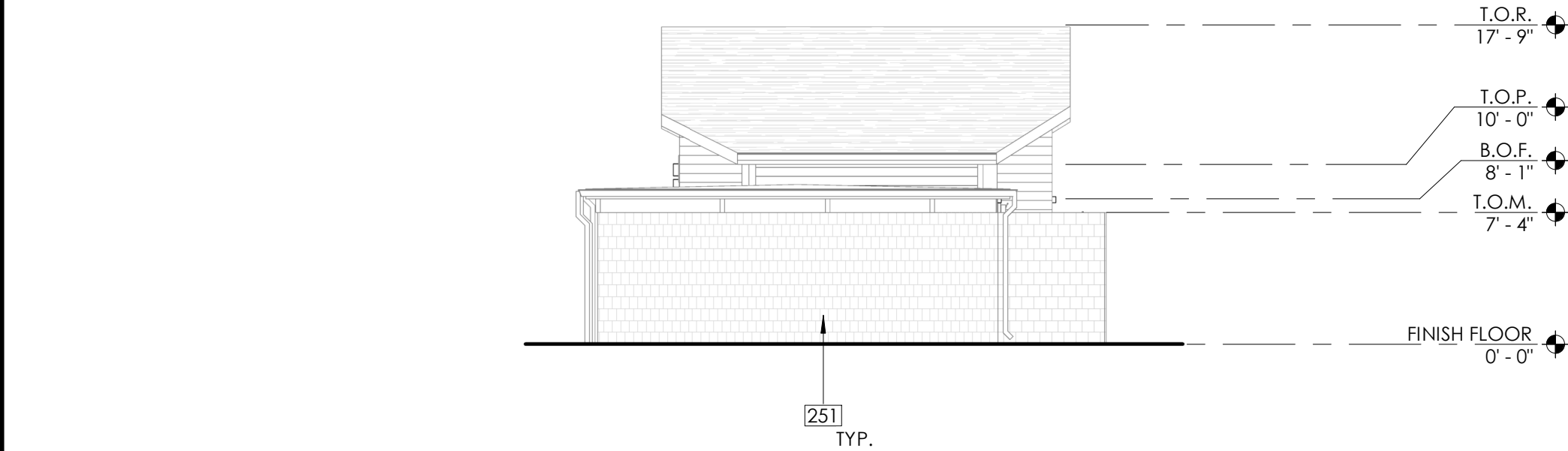
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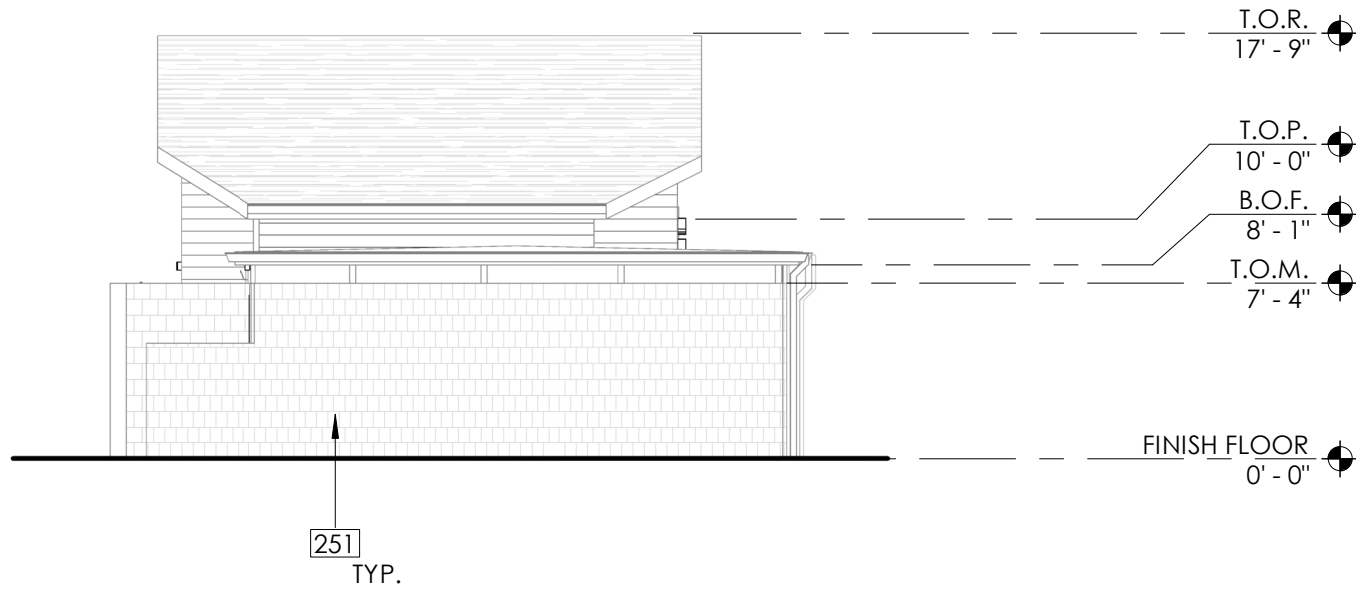
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REFLECTED
CEILING PLAN
& ROOF PLAN

SHEET NUMBER:

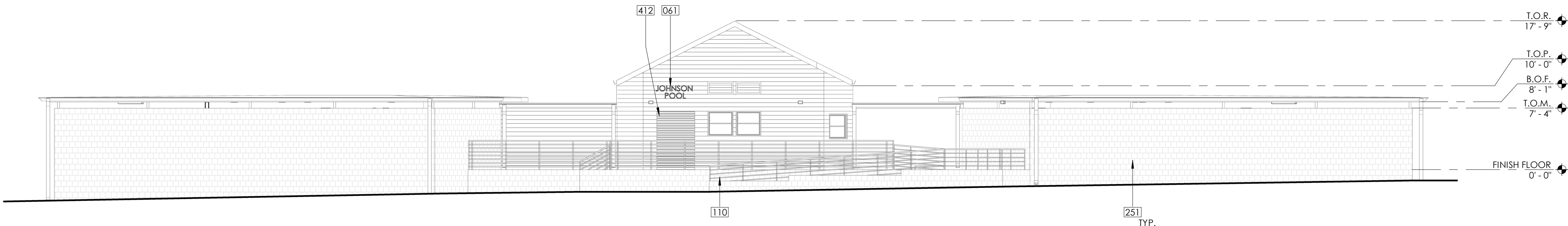
A2.3



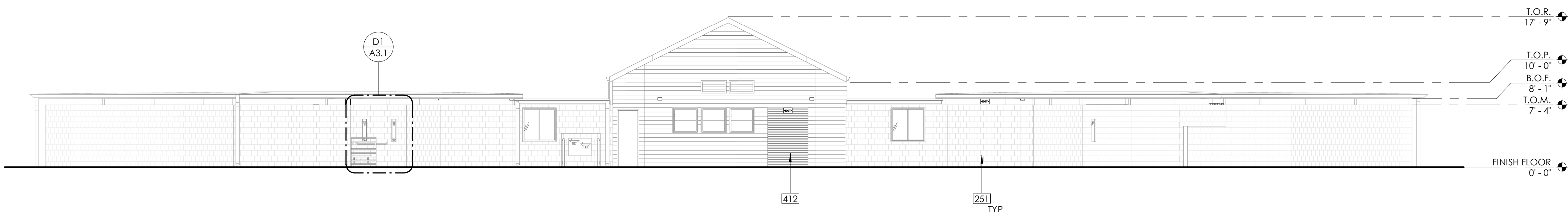
A1 NORTH ELEVATION
A3.1 SCALE: 1/8" = 1'-0"



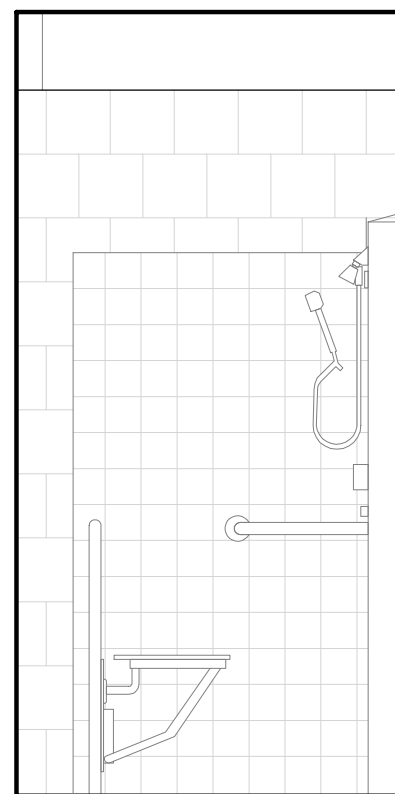
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A3.1 SCALE: 1/8" = 1'-0"



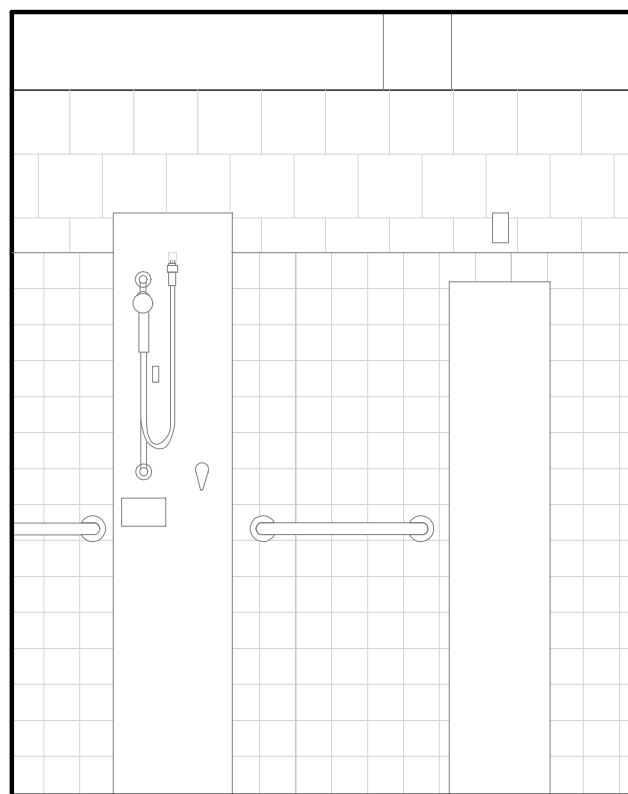
B1 EAST ELEVATION
A3.1 SCALE: 1/8" = 1'-0"



C1 WEST ELEVATION
A3.1 SCALE: 1/8" = 1'-0"



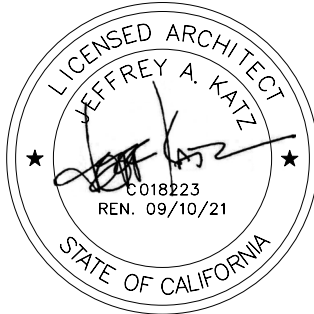
SEE B3 & B4/T-4 FOR TYPICAL
FIXTURE AND ACCESSORY HEIGHTS



D1 EXISTING EXTERIOR ACCESSIBLE SHOWER ELEVATIONS
A3.1 SCALE: 1/2" = 1'-0"

CONSTRUCTION NOTES

- 061 DIMENSIONAL LETTER SIGN
- 110 EXISTING STAIR AND RAMP
- 251 EXISTING PAINTED CMU WALLS
- 412 SEE DOOR SCHEDULE SHEET A6.1 FOR ADD ALTERNATE OVERHEAD DOOR REPLACEMENT



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PROJECT:

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
REMODEL
100 D STREET
ROSEVILLE, CA 95678

NOTES

- NOTES AND DETAILS APPLY TO ALL ELEVATIONS U.N.O.
- EXTERIOR PAINTING IS LIMITED TO PAINTED WOOD FASCIA, TRIM, GUTTERS AND EXPOSED PAINTED WOOD BEAMS.



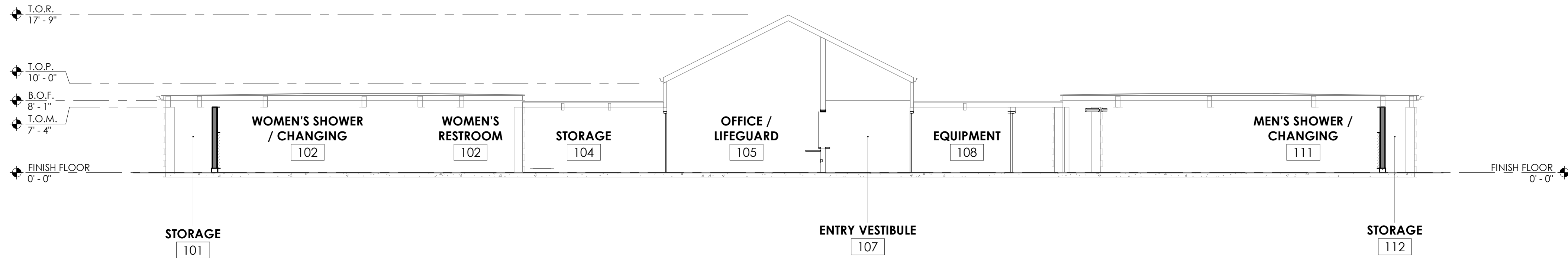
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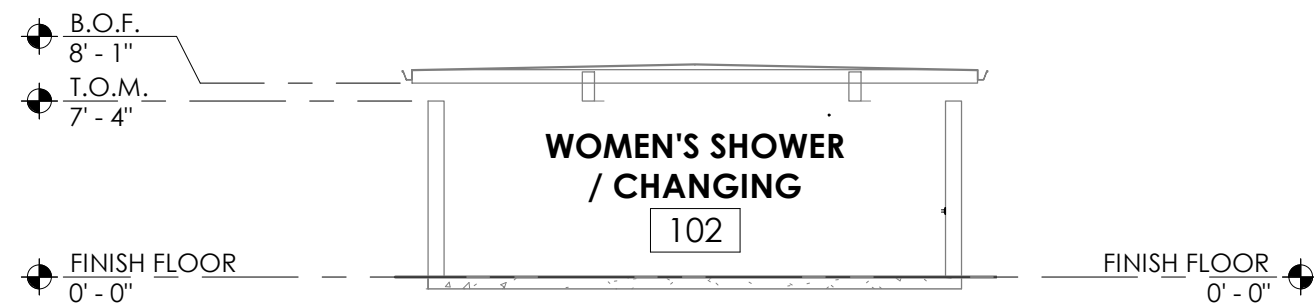
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ELEVATIONS

SHEET NUMBER:

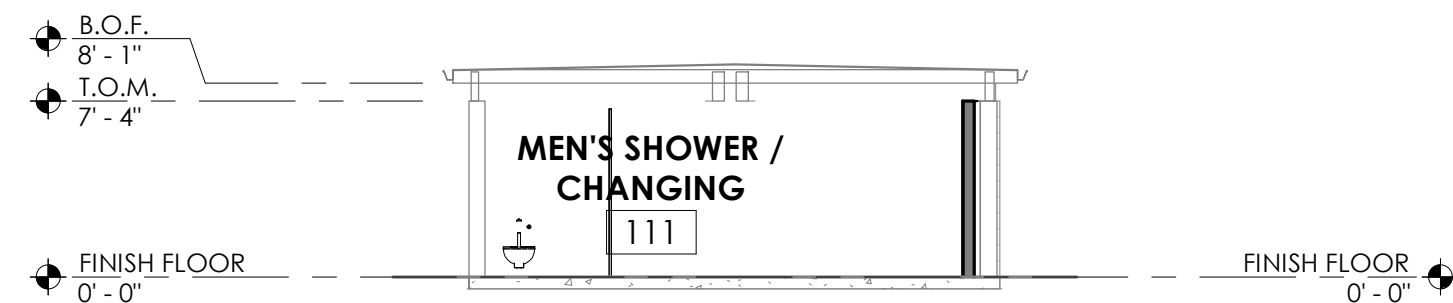
A3.1



B1 BUILDING SECTION
A4.1 SCALE: 1/8" = 1'-0"

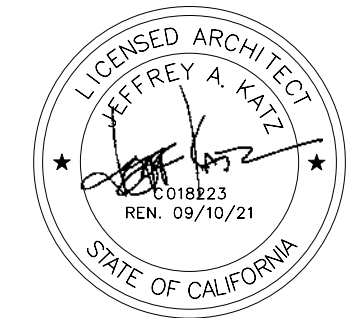


D1 BUILDING SECTION
A4.1 SCALE: 1/8" = 1'-0"



D3 BUILDING SECTION
A4.1 SCALE: 1/8" = 1'-0"

CONSTRUCTION NOTES



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NOTES

1. NOTES AND DETAILS APPLY TO ALL SECTIONS U.N.O.



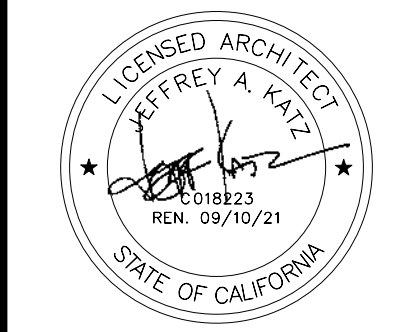
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Sheet Title:
BUILDING
SECTIONS

SHEET NUMBER:
A4.1

Not for Construction
For Council Approval
Re-Bid



PROJECT:
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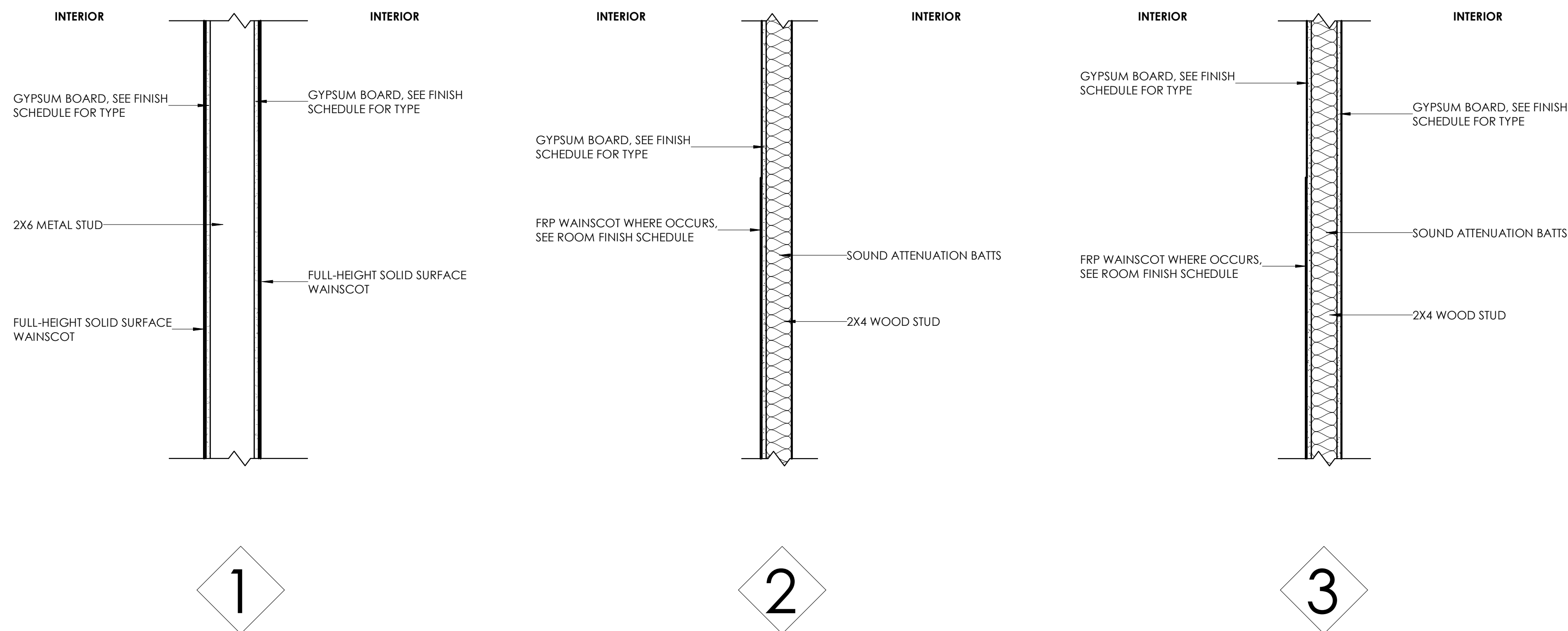


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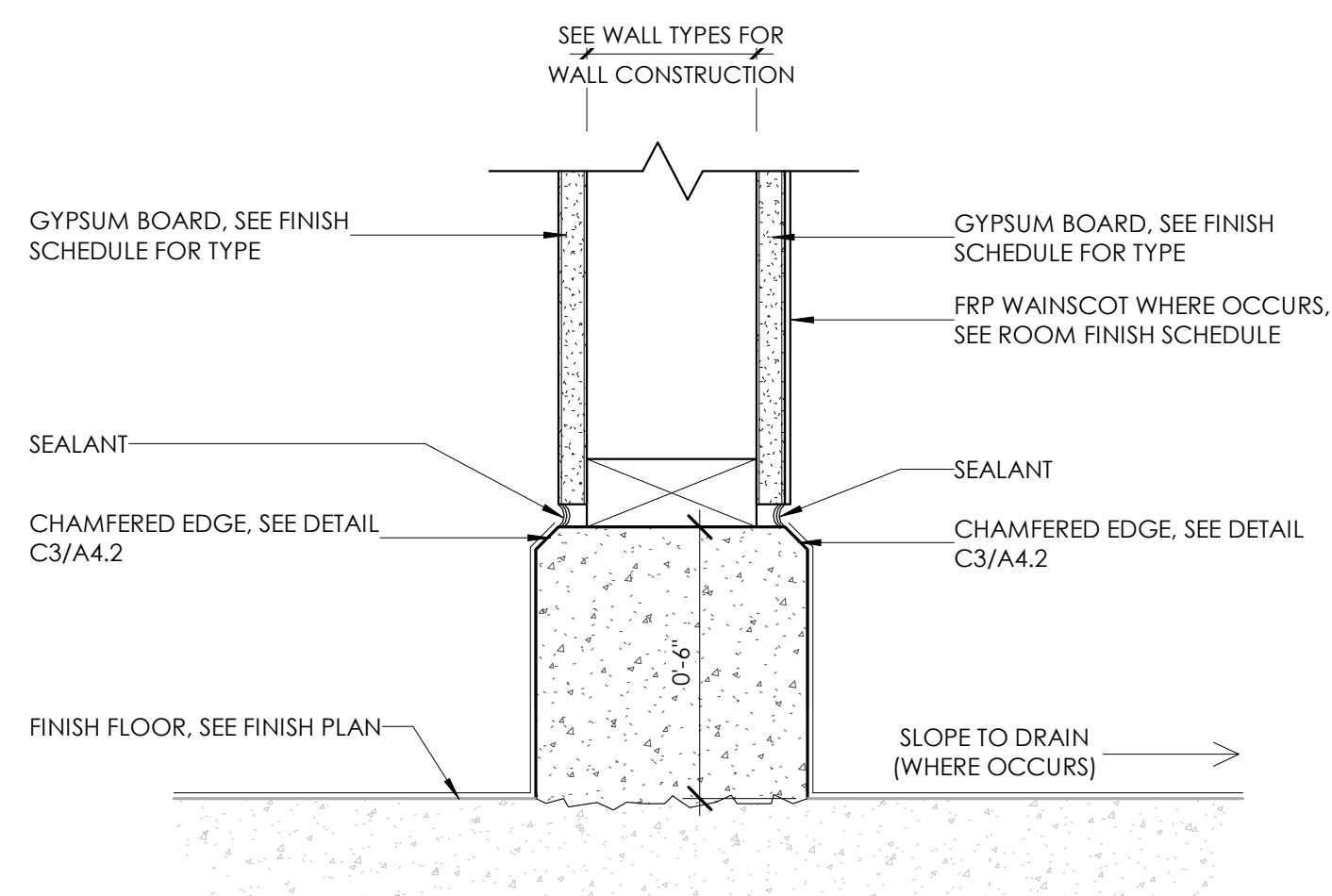
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Sheet Title:
WALL TYPES &
CURB DETAILS

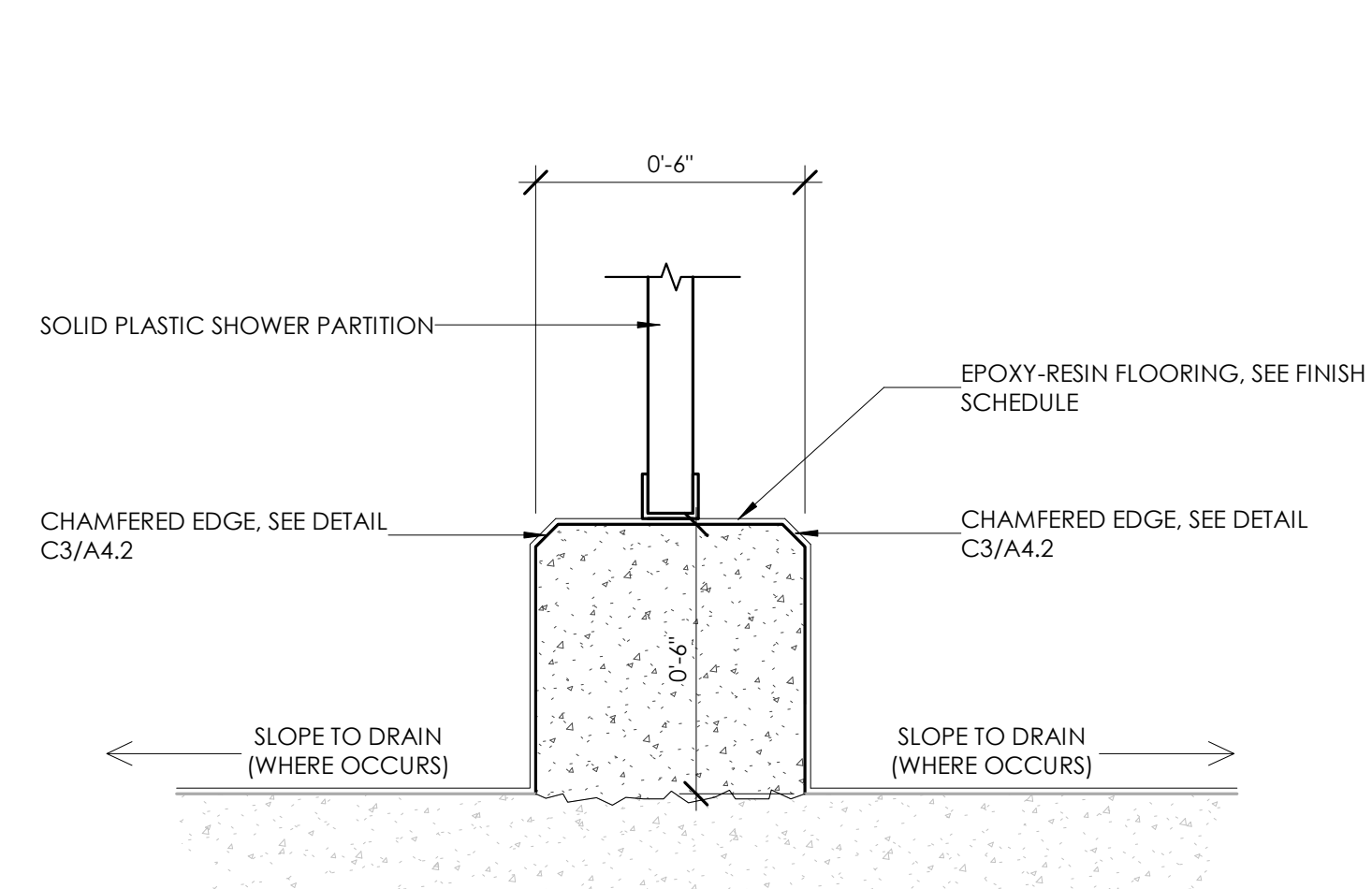
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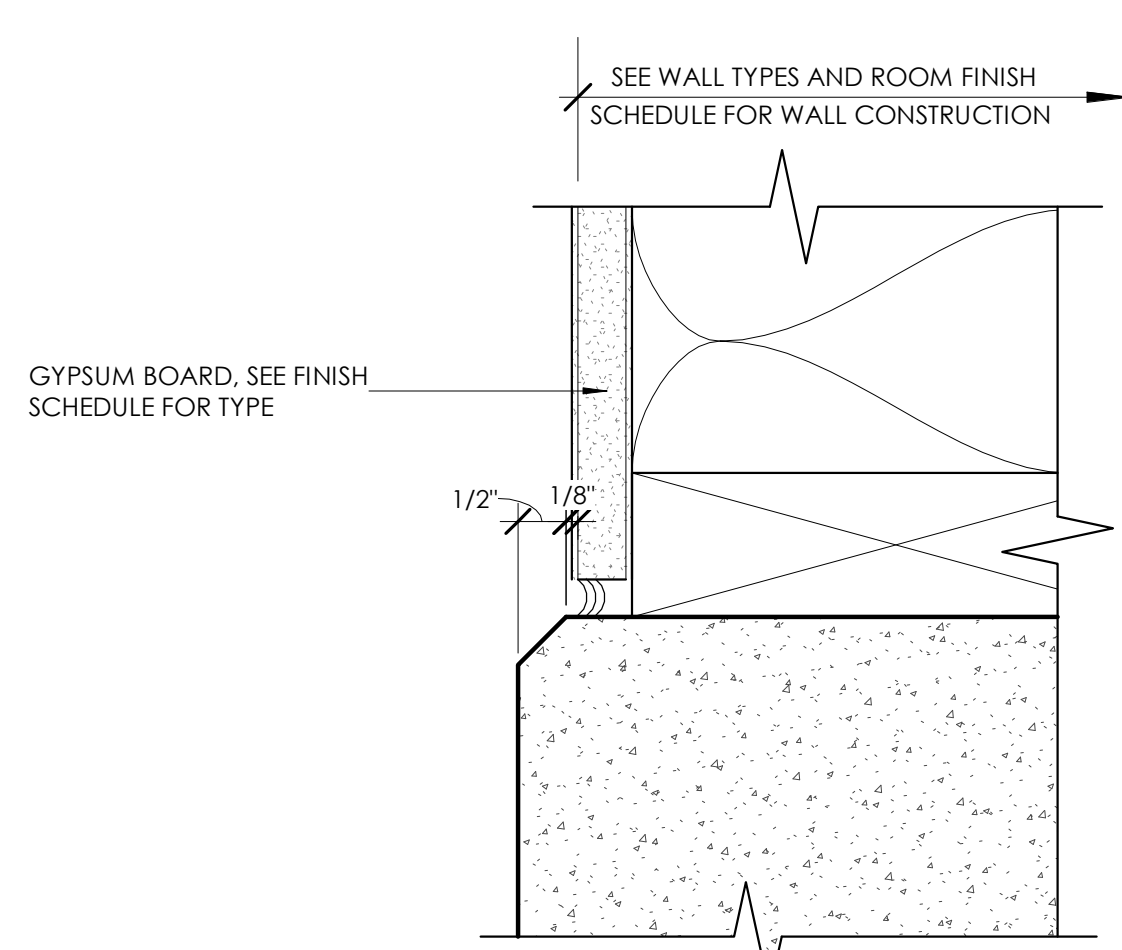
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A4.2 WALL TYPES
SCALE: 1" = 1'-0"



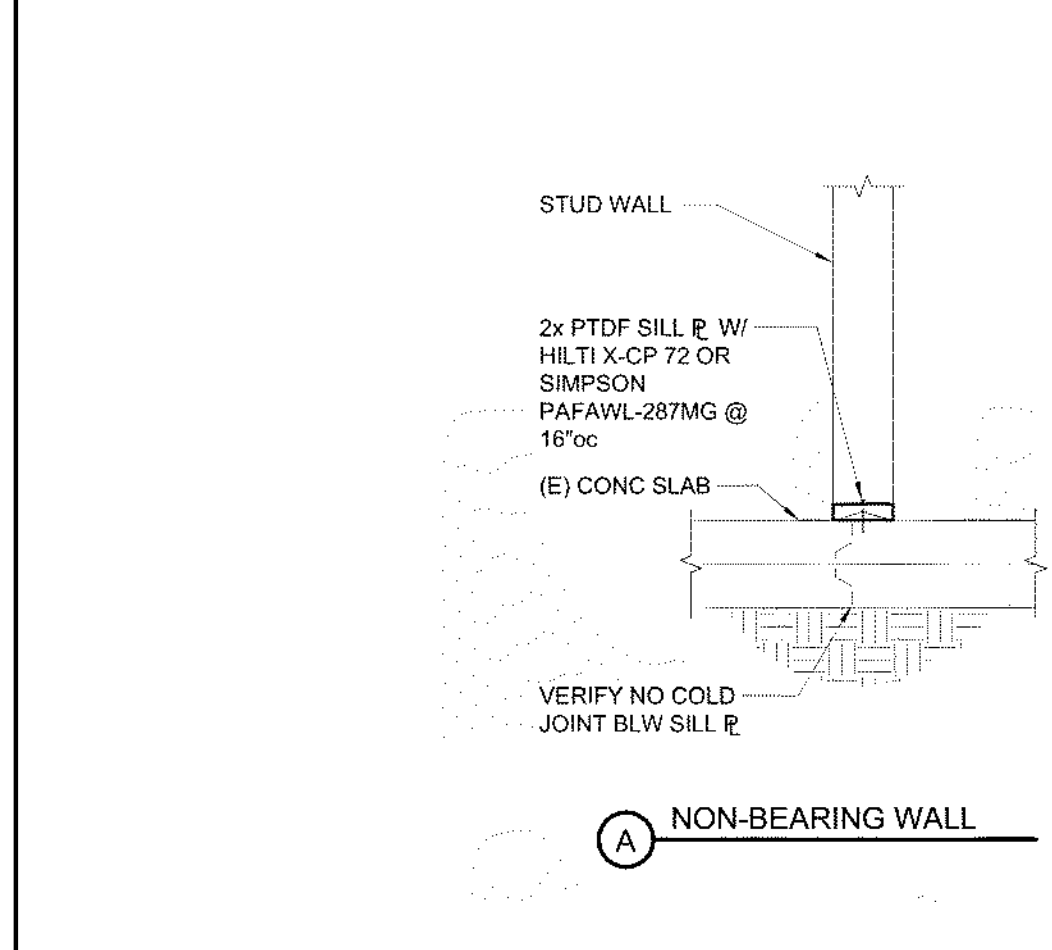
C1
A4.2 CURB - 2 SIDES EXPOSED AT INTERIOR WALLS
SCALE: 3" = 1'-0"



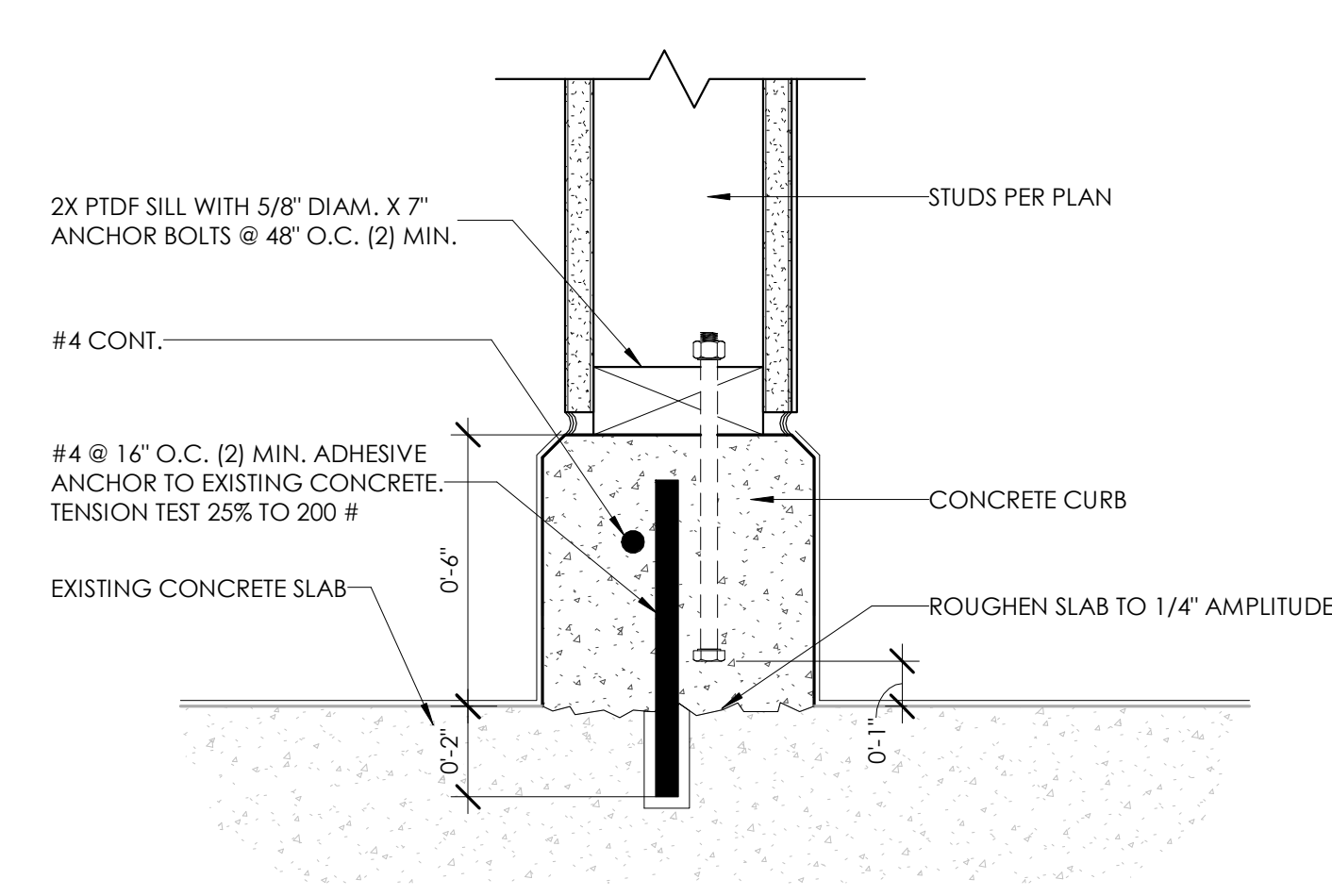
C2
A4.2 CURB AT SHOWER
SCALE: 3" = 1'-0"



C3
A4.2 CHAMFER EDGE DETAIL
SCALE: 6" = 1'-0"



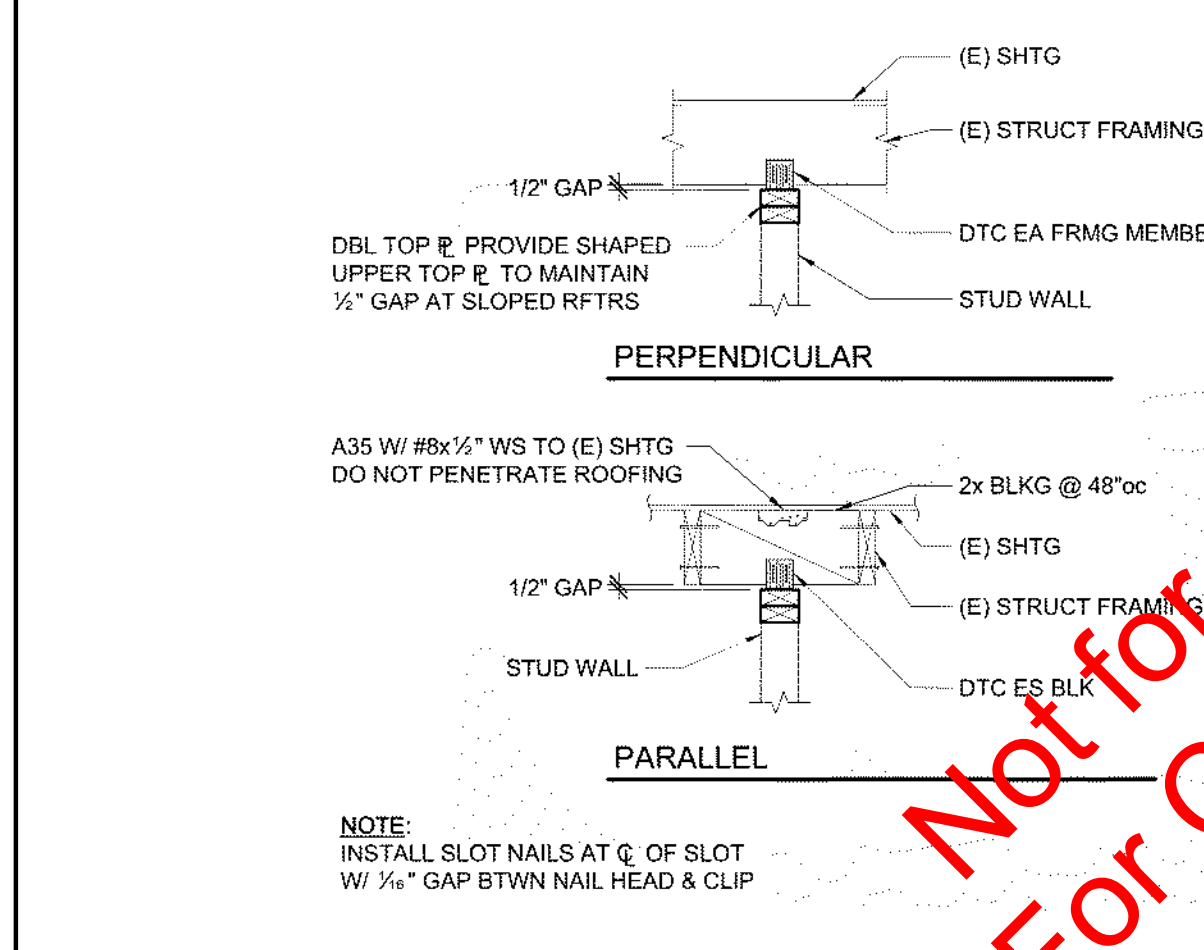
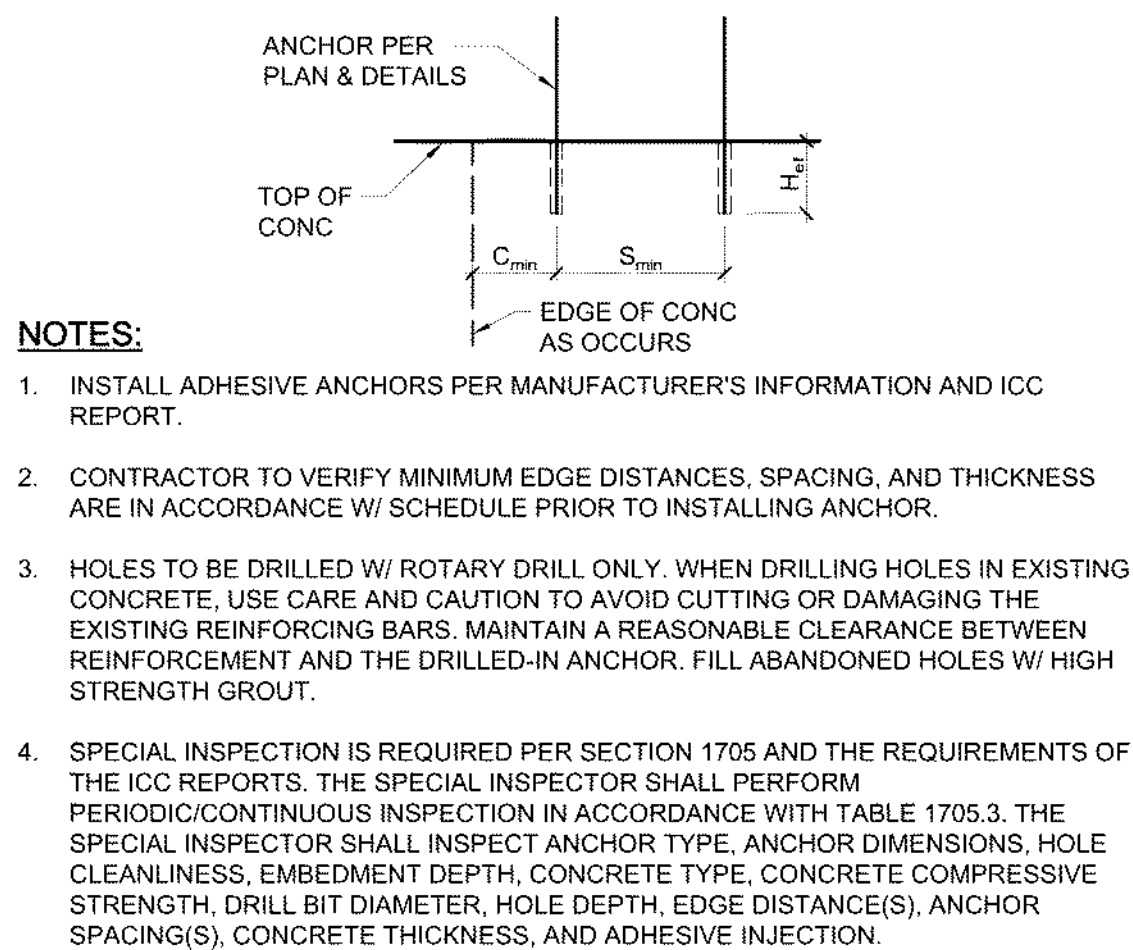
C4
A4.2 NON-BEARING WALL AT (E) SLAB
N.T.S.



D1
A4.2 NEW CURB AT EXISTING SLAB
SCALE: 3" = 1'-0"

ADHESIVE ANCHOR IN 2500 PSI MIN CONCRETE							
ADHESIVE TYPE	ANCHOR		PILOT HOLE	MIN EMBED UNO H _{ef}	MIN EDGE DISTANCE C _{min}	MIN SPCG S _{min}	MIN CONC DEPTH H _{dev}
	THRD ROD	REBAR					
SIMPSON SET-XP (ICC-ESR 2508)	3/8"Ø	#3	3/8"Ø	3"	1 1/4"	3"	H _{ef} + 2 1/2"
	1/2"Ø	#4	1/2"Ø	4"	1 1/4"	3"	H _{ef} + 3 1/4"
	3/8"Ø	#5	3/8"Ø	5"	1 1/4"	3"	H _{ef} + 3 3/4"
	1/2"Ø	#6	1/2"Ø	6"	1 1/4"	3"	H _{ef} + 4 1/4"
	3/8"Ø	#7	1"Ø	7"	1 1/4"	3"	H _{ef} + 4"
	1"Ø	#8	1 1/2"Ø	8"	1 1/4"	3"	H _{ef} + 5 1/4"
	1 1/2"Ø	#10	1 3/4"Ø	10"	2 1/4"	6"	H _{ef} + 6 1/4"
HILTI HIT-HY 200R (ICC-ESR 3187)	3/8"Ø	N/A	3/8"Ø	3"	1 1/4"	1 1/4"	H _{ef} + 1 1/4"
	N/A	#3	3/8"Ø	3"	1 1/4"	1 1/4"	
	1/2"Ø	N/A	1/2"Ø	4"	1 1/4"	2 1/2"	
	N/A	#4	3/8"Ø	4"	1 1/4"	2 1/2"	H _{ef} + 1 1/2"
	3/8"Ø	#5	3/8"Ø	5"	1 1/4"	3 1/4"	
	1/2"Ø	#6	3/8"Ø	6"	1 1/4"	3 3/4"	
	3/8"Ø	#7	1"Ø	7"	1 1/4"	4 3/4"	H _{ef} + 2"
	1"Ø	#8	1 1/2"Ø	8"	1 1/4"	5"	H _{ef} + 2 1/4"
	N/A	#9	1 3/4"Ø	9"	1 1/4"	5 1/4"	H _{ef} + 2 3/4"
	1 1/2"Ø	N/A	1 3/4"Ø	10"	1 1/4"	6 1/4"	
	N/A	#10	1 1/2"Ø	10"	1 1/4"	6 1/4"	

D2
A4.2 ADHESIVE ANCHOR
SCALE: 1 1/2" = 1'-0"



D4
A4.2 TYPICAL NON-BEARING STUD WALL DETAILS
N.T.S.

1 STRUCTURAL SPECIFICATIONS

CONCRETE CONSTRUCTION

1. CONCRETE SHALL MEET THE FOLLOWING REQUIREMENTS:

LOCATION	MIN 28-DAY STRENGTH (PSI)	AGGREGATE SIZE	MAX WATER TO CEMENTITIOUS MATERIALS RATIO	MIN SACKS CEMENTITIOUS MATERIAL PER CUBIC YARD ³
STRUCTURAL INTERIOR SLAB ON GROUND	3,000	1"x#4	0.45	6.1

2. CONCRETE MIX DESIGN AND TESTING SHALL MEET THE REQUIREMENTS OF CBC SECTIONS 1705 AND 1903, ACI 318 CHAPTER 19 & 26, AND THESE SPECIFICATIONS. CEMENT TO BE IN ACCORDANCE WITH ASTM C150 TYPE II. AGGREGATE TO MEET ASTM C33, FLY ASH TO MEET ASTM C618 CLASS F. SUBMIT MIX DESIGN AND SUPPORTING DOCUMENTATION IN ACCORDANCE WITH ACI 318 FOR REVIEW PRIOR TO PLACEMENT.
3. CONCRETE MIX DESIGN FOR INTERIOR SLABS ON GRADE TO HAVE 25% TO 35% CLASS F FLY ASH SUBSTITUTED FOR CEMENT AT A POUND-FOR-POUND RATE. REPLACE 200 POUNDS OF SAND WITH 200 POUNDS ¾"(-) AGGREGATE TO REDUCE TOTAL SAND.
4. CLASS F FLY ASH MAY BE SUBSTITUTED UP TO 25% FOR CEMENT AT A POUND-FOR-POUND RATE, UNLESS SPECIFIED OTHERWISE. DO NOT USE FLY ASH IN HIGH EARLY STRENGTH CONCRETE.
5. UNDER SLAB VAPOR RETARDER TO BE ASTM E1745 CLASS A; 15 MILS MINIMUM THICKNESS; 0.01 U.S. PERMS MAXIMUM PERMEANCE. INSTALL PER ASTM E1643 AND MANUFACTURER'S RECOMMENDATIONS. PROVIDE "STEGO WRAP VAPOR BARRIER (15MIL)" OR APPROVED EQUIVALENT. RETARDER SHALL EXTEND TO FOOTINGS BUT NOT TO BOTTOM OF FOOTING OR INTO A COLD JOINT.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 OR A706 GRADE 60. BARS #3 AND SMALLER MAY BE ASTM A615 GRADE 40. STEEL SHALL BE KEPT CLEAN AND FREE OF RUST. SECURELY TIE REBAR IN PLACE PRIOR TO CONCRETE PLACEMENT. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLATION. WELDED REINFORCING STEEL SHALL BE ASTM A706 OR A615 MEETING CARBON REQUIREMENTS OF AWS D1.4. WELDING SHALL CONFORM WITH AWS D1.4. WELDED WIRE REINFORCEMENT SHALL CONFORM WITH ASTM A185 AND SHALL BE LAPPED 12" MINIMUM.
7. SLABS, BEAMS, WALLS AND OTHER CONCRETE SHALL BE KEPT CONTINUOUSLY WET FOR 48 HOURS, AFTER PLACEMENT, AND SHALL BE KEPT DAMP FOR 7 DAYS AFTER PLACEMENT. SLABS SHALL HAVE CURE/SEALER APPLIED IMMEDIATELY AFTER FINISHING IF OTHER FINISHES ARE NOT AFFECTED. WHEN CURE SEALER CAN NOT BE APPLIED, SLAB SHALL BE KEPT CONTINUOUSLY WET OR COVERED WITH CURING PAPER. CURE SHALL BE OF A TYPE THAT WILL NOT BE DETRIMENTAL TO SEALERS TO BE APPLIED LATER.

8. ANCHOR BOLTS - ASTM F1554 GRADE 36 THREADED ROD WITH DOUBLE NUTS OR ASTM A307 HEADED BOLTS. (NO "J" OR "L" BOLTS EXCEPT AT WOOD SILL PLATES). SECURELY TIE ANCHOR BOLTS IN PLACE PRIOR TO CONCRETE POUR.

WOOD CONSTRUCTION (CARPENTRY)

1. EACH PIECE OF LUMBER SHALL BEAR THE STAMP OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLUB) OR WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) SHOWING GRADE MARK OR APPROVED EQUAL. BEAMS AND POSTS TO BE FREE OF HEART CENTER (FOHC). OTHER MATERIALS SHALL BE AS SHOWN BELOW:

SAWN LUMBER MEMBER	SPECIES AND MINIMUM GRADE, UNO	F _c (PSI)	F _v (PSI)	E (PSI)
6x POSTS	DOUGLAS FIR - #1	1200	170	1.6x10 ⁶
6x BEAMS	DOUGLAS FIR - #1	1350	170	1.6x10 ⁶
4x POSTS & BEAMS	DOUGLAS FIR - #1	1000	180	1.7x10 ⁶
2x JOISTS, RAFTERS	DOUGLAS FIR - #2	900	180	1.6x10 ⁶
# MATERIAL	DOUGLAS FIR - #2	900	180	1.6x10 ⁶
2x STUDS ≤ 10' HEIGHT	DOUGLAS FIR - STUD	700	180	1.4x10 ⁶
2x STUDS > 10' HEIGHT	DOUGLAS FIR - #2	900	180	1.6x10 ⁶

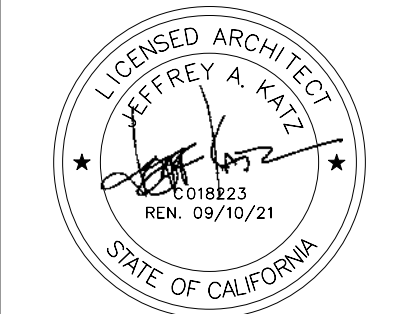
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE MAXIMUM MOISTURE CONTENT OF WOOD AT THE TIME OF INSTALLATION SHALL BE NOT MORE THAN 19%.
3. NAILS TO BE ASTM F1667 (INCLUDING SUPPLEMENT S1) OF COMMON WIRE AND OF CENTERED FULL-ROUND HEADS WHERE NAILING IS SPECIFIED ON THE DRAWINGS. MACHINE-DRIVEN NAILS MEETING SIZE REQUIREMENTS ARE ACCEPTABLE. NAILS MUST NOT BE OVER-DRIVEN. PRE-DRILL NAIL HOLES WHERE WOOD TENDS TO SPLIT. NAILS AS SPECIFIED ON PLANS AND INCLUDING IN PTFD MATERIAL CONTAINING AMMONIA IN EXTERIOR APPLICATIONS SHALL BE TYPE 304 OR 316 STAINLESS STEEL. NAILS USED IN EXTERIOR APPLICATIONS OR IN INTERIOR PTFD SHALL BE HOT-DIPPED GALVANIZED PER ASTM A153.

WIRE NAIL	MINIMUM SHANK DIAMETER	MINIMUM NAIL LENGTH UNO	MINIMUM HEAD DIAMETER	TYPICAL NAIL APPLICATION, UNO
16d COMMON	0.162"	3 ½"	0.344"	FRAMING
16d SINKER	0.148"	3 ½"	0.344"	FRAMING
10d COMMON	0.148"	2"	0.312"	FRAMING
10d COMMON	0.148"	PER 11/81.2	0.312"	SHEATHING
8d COMMON	0.131"	PER 11/81.2	0.281"	SHEATHING

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE METAL FRAMING CLIPS, HANGERS, ETC. ARE BY SIMPSON STRONG-TIE. NAILING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS WITH A NAIL PROVIDED FOR EACH PUNCHED HOLE UNO. CONNECTORS AS SPECIFIED ON PLANS AND THOSE IN CONTACT WITH PTFD MATERIAL CONTAINING AMMONIA IN EXTERIOR APPLICATIONS SHALL BE TYPE 304 OR 316 STAINLESS STEEL. ALL OTHER CONNECTORS USED IN EXTERIOR APPLICATIONS OR INTERIOR PTFD SHALL BE HDG (MINIMUM 2.0 oz/SQ FT) OR ZMAX (MINIMUM 1.85 oz/SQ FT PER ASTM A653). IN APPLICATIONS WHERE NON-AMMONIA TREATED WOOD IS DRY WHEN INSTALLED AND WILL REMAIN DRY IN-SERVICE A COATING THICKNESS OF 0.9 oz/SQ FT MAY BE USED.
5. WOOD SCREWS SHALL CONFORM TO ANSI/ASME B18.6.1. PROVIDE PILOT HOLE 70% OF DIAMETER OF SCREW SHANK WHERE FASTENING HARDWOOD TIMBER SPECIES OR WHERE WOOD TENDS TO SPLIT. MINIMUM PENETRATION IS (10) DIAMETERS, UNO.
6. BOLTS SHALL BE UNFINISHED MACHINE BOLTS PER ASTM A307. NUTS SHALL BE PER ASTM A563 AND OF STANDARD SIZE UNLESS NOTED OTHERWISE. LENGTH OF BOLTS SHALL BE SUCH THAT THE BOLT PROJECTION IS NOT LESS THAN ¼" NOR MORE THAN ½" PAST END OF NUT. BOLT HOLES IN WOOD SHALL BE ⅛" LARGER THAN BOLT SIZES (UNO). PROVIDE STANDARD CUT WASHERS UNDER HEAD AND NUT WHERE BOLT HEAD WOULD BEAR ON WOOD. USE MALLEABLE IRON WASHERS WHERE EXPOSED TO VIEW OR NOTED. NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED BEFORE CLOSING IN OF WALLS OR OTHER CONSTRUCTION. DO NOT CRUSH WOOD WHEN TIGHTENING. BOLTS AS SPECIFIED ON PLANS AND THOSE IN CONTACT WITH PTFD MATERIAL CONTAINING AMMONIA IN EXTERIOR APPLICATIONS SHALL BE TYPE 304 OR 316 STAINLESS STEEL. ALL OTHER BOLTS USED IN EXTERIOR APPLICATIONS SHALL BE HOT-DIPPED GALVANIZED PER ASTM A153.
7. WOOD AGAINST CMU OR CONCRETE SHALL BE PRESSURE TREATED DOUGLAS FIR (PTDF) PER AWP STANDARD U1. "USE CATEGORY" UC2 AT INTERIOR. "USE CATEGORY" UC3B AT EXTERIOR (NO GROUND CONTACT). CUT FACES SHALL BE BRUSH TREATED WITH EQUIVALENT PRESERVATIVE PRIOR TO INSTALLATION.
8. DECKING MATERIAL AND FRAMING EXPOSED TO WEATHER TO BE PTFD AWP "USE CATEGORY" UC3B OR REDWOOD, SAD.
9. WOOD ADHESIVE SHALL BE WATER-PROOF, CARTRIDGE DISPENSED, MEETING APA PRODUCT SPECIFICATION AFG-01 OR ASTM D3498. LOCITITE "PL PREMIUM" OR EQUAL. FOR USE AT SUBFLOOR SHEATHING AND WHERE SPECIFICALLY NOTED FOR USE ON DRAWINGS.

CONCRETE MASONRY CONSTRUCTION (CMU)

1. CONCRETE MASONRY UNITS SHALL BE MEDIUM- OR LIGHT-WEIGHT CONFORMING TO ASTM C90. UNITS TO BE DOUBLE OPEN END WHERE POSSIBLE AND SINGLE OPEN END OTHERWISE. ALL CELLS TO BE GROUTED SOLID. COMPRESSIVE STRENGTH OF MASONRY AT 28 DAYS, F_m, SHALL BE 2,000 PSI.
2. GROUT TYPE SHALL BE COURSE CONFORMING TO ASTM C476, HAVING A COMPRESSIVE STRENGTH OF 2,000 PSI MINIMUM AT 28 DAYS AND SHALL HAVE MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD. ADD 1 POUND SIKA GROUT AID PER SACK OF CEMENT UP TO 6 POUNDS MAXIMUM PER CUBIC YARD. MAINTAIN SLUMP BETWEEN 6 AND 11 INCHES.
3. MORTAR SHALL BE 1800 PSI MINIMUM TYPE S OR 2500 PSI MINIMUM TYPE M CONFORMING TO ASTM C270, AND PROPORTIONED TO OR WITH PROPERTY SPECIFICATIONS & TEST RESULTS PER CBC SECTION 2103.2.1.
4. REINFORCING STEEL SHALL BE BENT AND LAPPED AT ALL CORNERS AND INTERSECTIONS. THE MINIMUM LAP SPLICE SHALL BE PER DRAWINGS. ALL STEEL, INCLUDING EMBEDS, SHALL BE POSITIONED AND TIED, PRIOR TO PLACING GROUT.
5. A POUR IS DEFINED AS THE HEIGHT OF GROUT TO BE PLACED IN ONE DAY. THE HEIGHT OF MASONRY UNIT PLACEMENT AT THE TIME OF GROUTING SHALL NOT EXCEED THE POUR HEIGHT. MASONRY SHALL HAVE CURED A MINIMUM OF 4 HOURS BEFORE GROUT PLACEMENT. MAXIMUM POUR HEIGHT IS 24'-0". OR LESS, AS DETERMINED BY THE CONTRACTOR. MAXIMUM INDIVIDUAL LIFT HEIGHT IS 12'-8", OR LESS, AS DETERMINED BY THE CONTRACTOR. ALLOW TIME BETWEEN LIFTS FOR INITIAL WATER LOSS OF GROUT TO OCCUR. DO NOT ALLOW GROUT TO CURE BETWEEN LIFTS. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE CLEANING AND PREVENTION OF BLOWOUTS.
6. TO FACILITATE CLEANOUT WHERE POUR HEIGHT EXCEEDS 5'-4", PROVIDE INVERTED BOND BEAM UNITS AT THE BOTTOM OF EACH POUR AND PROVIDE CLEANOUTS IN THESE COURSES AS NECESSARY, NOT EXCEEDING 32"oc. PROVIDE MECHANICAL CLEANOUT METHODS AS NEEDED.
7. SUBMIT HOT AND/OR COLD WEATHER PROTECTION PROCEDURES WHEN AMBIENT TEMPERATURE IS BELOW 40°F OR ABOVE 90°F. CONFORM WITH TMS 602 AND CBC.
8. SUBMIT REINFORCING SHOP DRAWINGS FOR REVIEW. INCLUDE DETAILS AND LOCATION OF ALL CONTROL JOINTS.



PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
REMODEL

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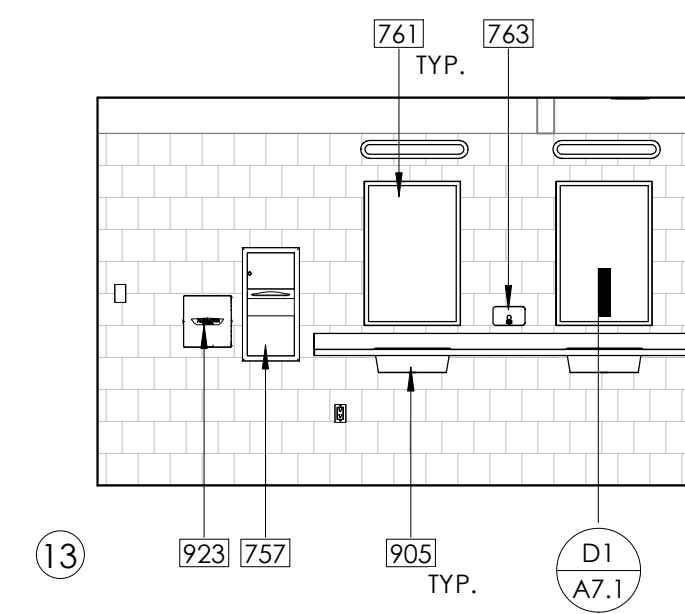
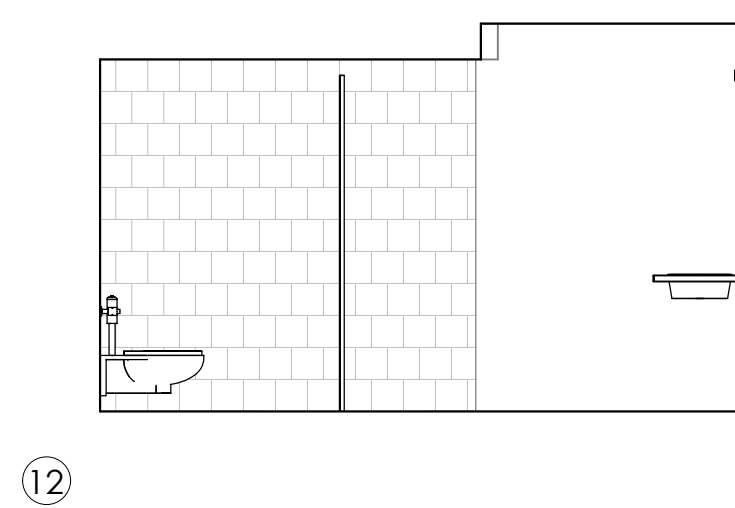
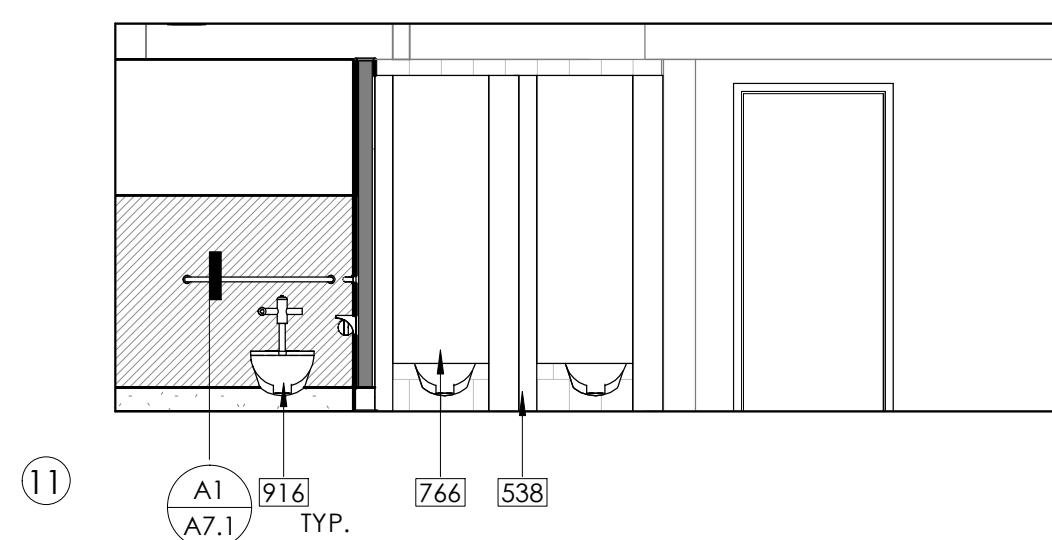
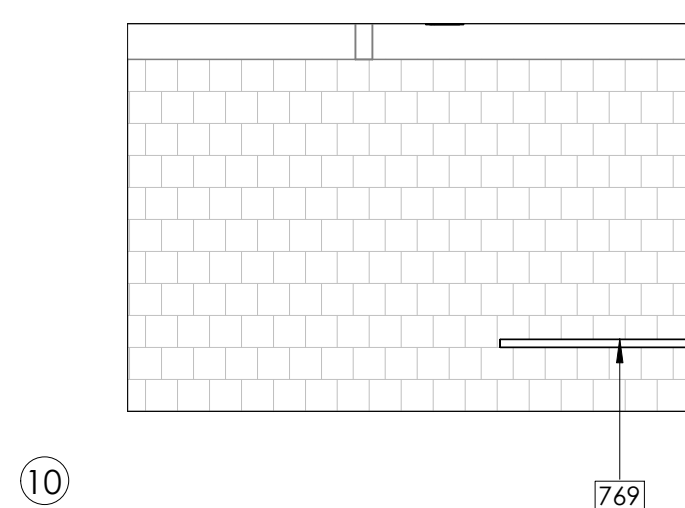
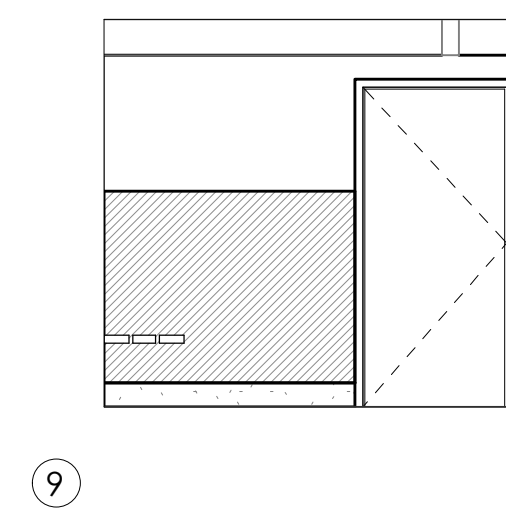
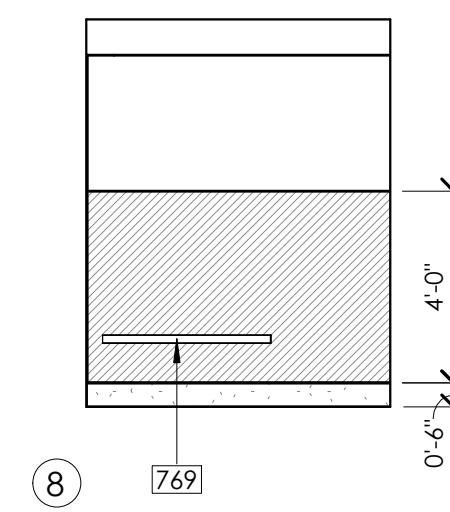
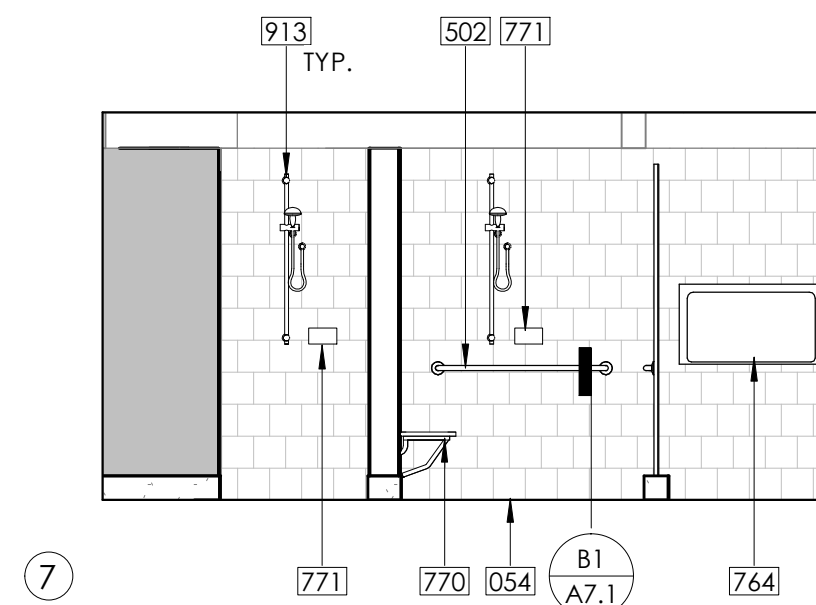
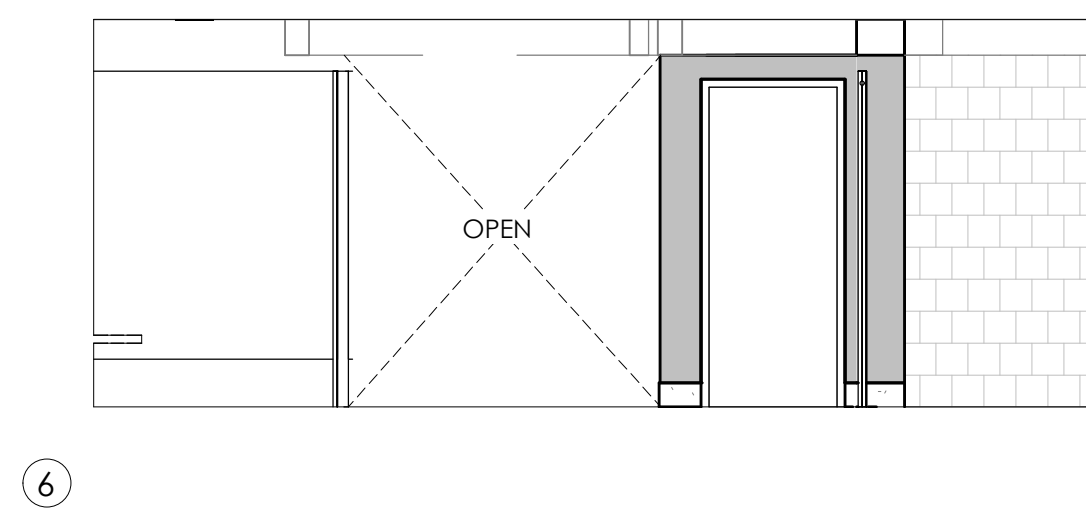
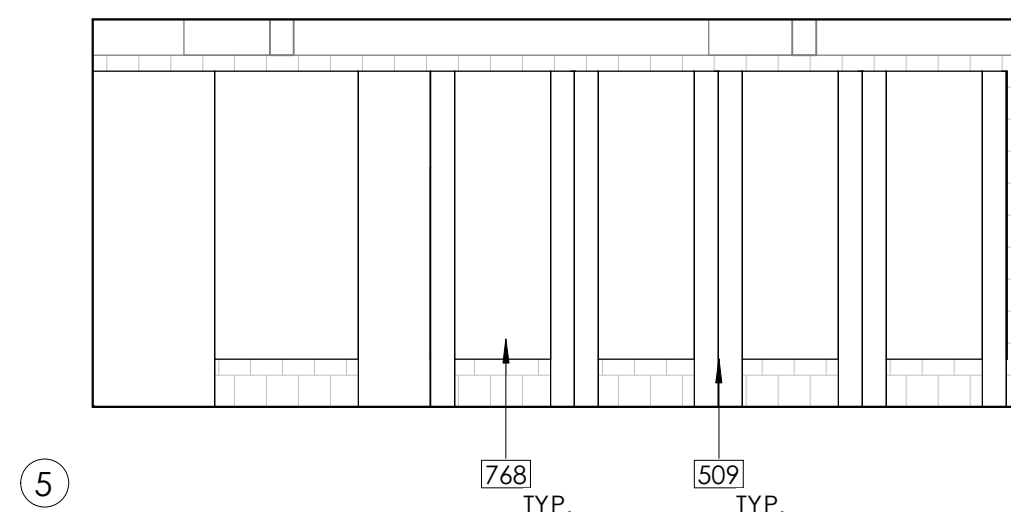
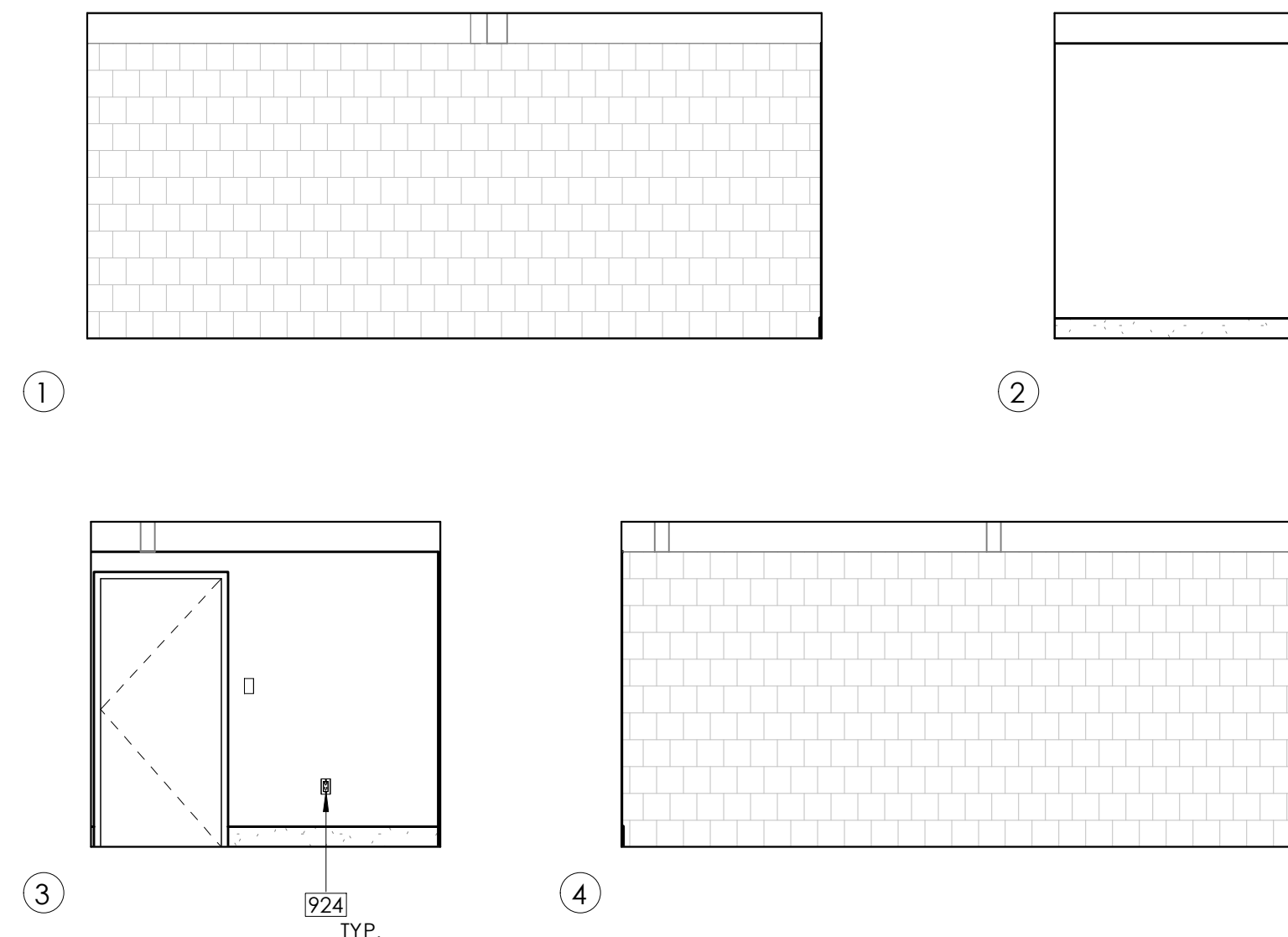
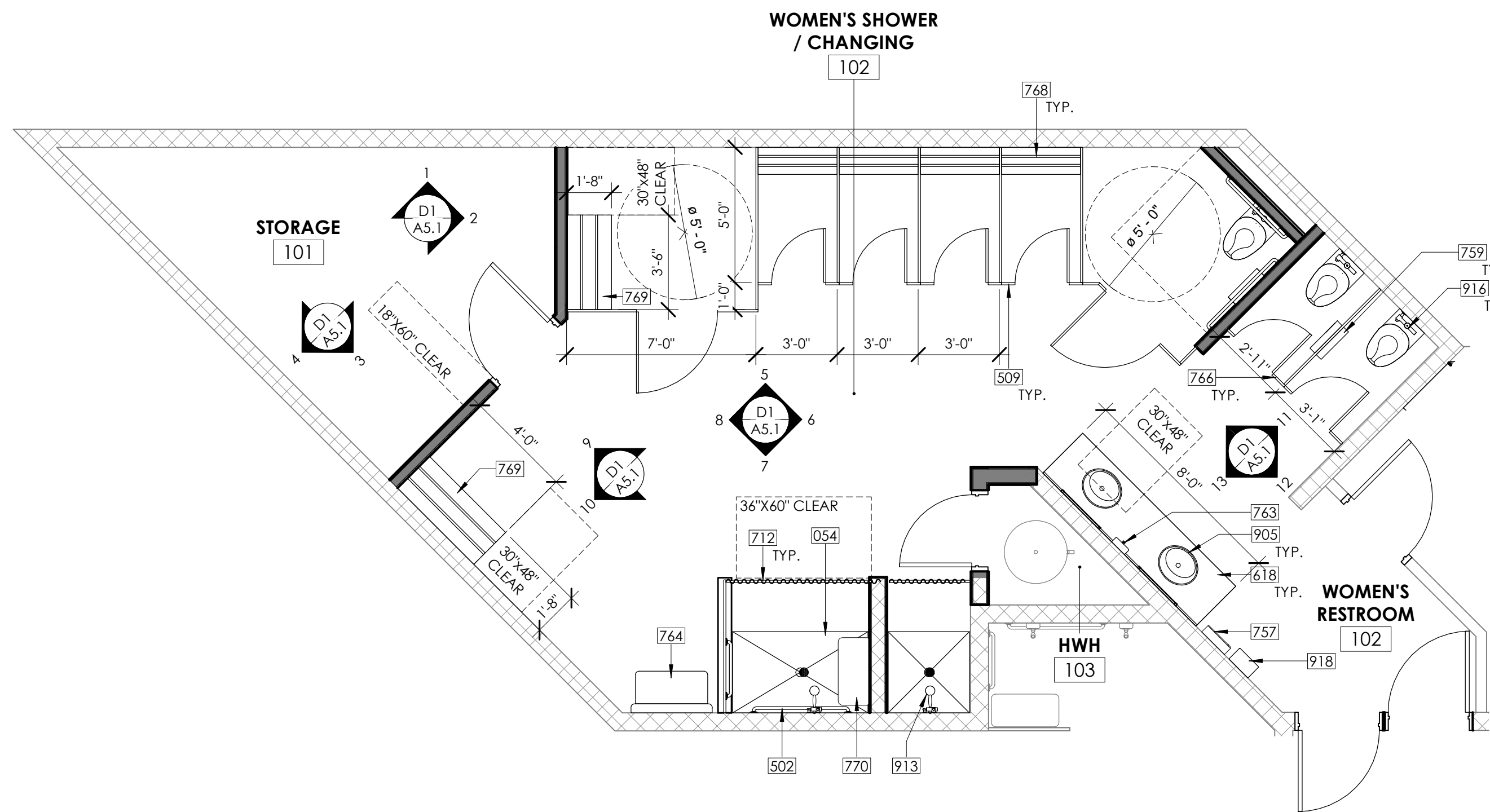
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MATERIAL
SPECIFICATIONS

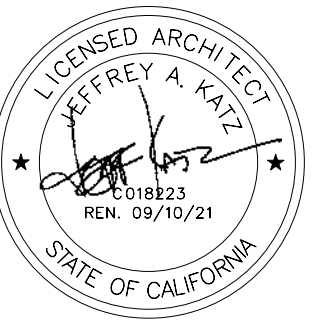
SHEET NUMBER:

A4.3



CONSTRUCTION NOTES

- 054 30X60 ACCESSIBLE ROLL IN SHOWER, SEE A3 AND A4/T-4
502 SHOWER GRAB BAR, SEE B1/A7.1
509 CHANGING STALL PARTITIONS
538 TOILET STALL PARTITIONS
618 SOLID SURFACE COUNTERTOP, SEE FINISH SCHEDULE
712 SHOWER CURTAIN AND CURTAIN ROD
757 PAPER TOWEL DISPENSER/RECEPTACLE
759 TOILET PAPER DISPENSER
761 MIRROR
763 SOAP DISPENSER
764 WALL MOUNTED BABY CHANGING STATION
766 TOILET STALL DOOR, SEE B1/T-4
768 FLOOR MOUNTED BENCH
769 ACCESSIBLE BENCH
770 FOLDING SHOWER SEAT
771 SOAP DISH
905 SINK, SEE PLUMBING DRAWINGS
913 SHOWER, SEE PLUMBING DRAWINGS
916 LAVATORY, SEE PLUMBING DRAWINGS
918 ELECTRIC HAND DRYER
923 HAND DRYER TO BE XLERATOR MODEL XL-SB
924 ELECTRICAL OUTLET, SEE ELECTRICAL DRAWINGS



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NOTES

1. SEE SHEETS T-3 & T-4 FOR RESTROOM FIXTURE AND ACCESSORY
HEIGHTS AND CLEARANCES

LEGEND



FIBER REINFORCED PLASTIC



SOLID SURFACE

Description: Date:

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Sheet Title:

ENLARGED

PLANS &

INTERIOR

ELEVATIONS

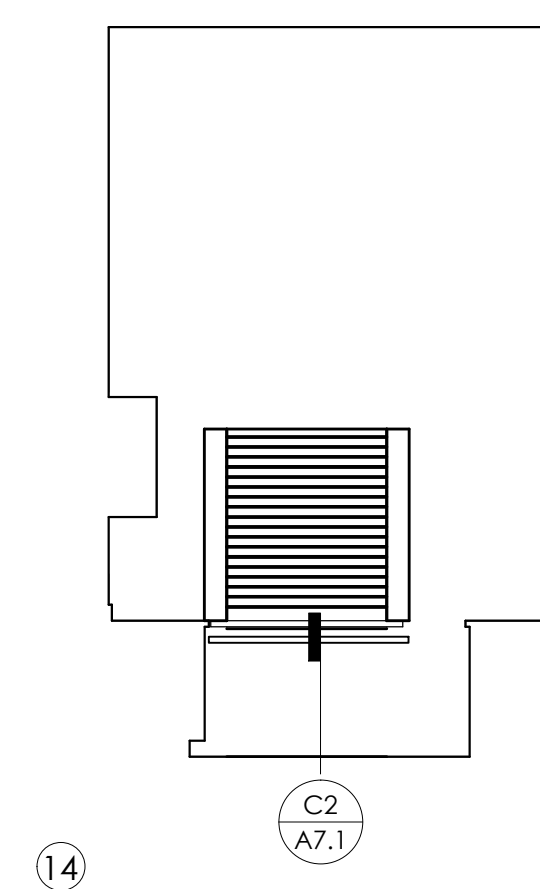
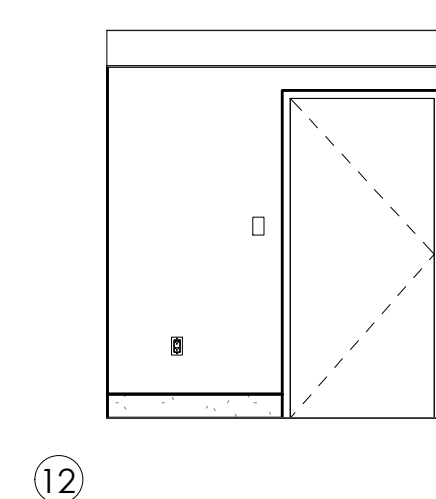
SHEET NUMBER:

A5.1

ENLARGED PLAN & INTERIOR ELEVATIONS - ROOMS 101, 102 & 103 - STORAGE, WOMEN'S
RESTROOM/SHOWER/CHANGING & HWH

SCALE: 1/4" = 1'-0"

Not for Construction
For Council Approval
Re-Bid



LEGEND	
	FIBER REINFORCED PLASTIC
	SOLID SURFACE

Project Number:	200702
Approved By:	MK
Checked By:	JB
Drawn By:	SC
Sheet Title:	ENLARGED PLANS & INTERIOR ELEVATIONS
SHEET NUMBER:	
A5.2	

ROOM FINISH SCHEDULE																							
ROOMS		FLOOR		BASE		WAINSCOT		WALLS								CEILING			CASEWORK				REMARKS
NUMBER	DESCRIPTION	MATERIAL	COLOR	MATERIAL	COLOR	MATERIAL	COLOR	NORTH		EAST		SOUTH		WEST		MATERIAL	COLOR	HEIGHT	COUNTERTOP	COLOR	CABINET	COLOR	
								MATERIAL	COLOR	MATERIAL	COLOR	MATERIAL	COLOR	MATERIAL	COLOR								
101	STORAGE	EP	EP-1	EP	EP-1			(E) CMU	PT-1	(E) CMU	PT-1	GWBWR	PT-1	(E) CMU/GWBWR	PT-1	(E) PLYWD	PT-1	8'- 1"					
102	WOMEN'S SHOWER / CHANGING	EP	EP-1	EP	EP-1	FRP/SSU	FRP-1/SSU-1	(E) CMU/GWBWR	PT-1	(E) CMU	PT-1	(E) CMU/GWBWR	PT-1	(E) CMU/GWBWR	PT-1	(E) PLYWD	PT-1	8'- 1"					
102	WOMEN'S RESTROOM	EP	EP-1	EP	EP-1	FRP/SSU	FRP-1/SSU-1	GWBWR	PT-1	(E) CMU	PT-1	(E) CMU/GWBWR	PT-1	(E) CMU	PT-1	(E) PLYWD	PT-1	8'- 1"	SSU	SSU-1			
103	HHW	EP	EP-1	EP	EP-1	SSU	SSU-1	(E) CMU/GWBWR	PT-1	GWBWR	PT-1	(E) CMU	PT-1	(E) CMU	PT-1	(E) PLYWD	PT-1	8'- 1"					
104	STORAGE	(E) TO REMAIN	(E) TO REMAIN	CNC/(E) TO REMAIN	CNC-1/(E) TO REMAIN	FRP	FRP-1	(E) TO REMAIN/GWBWR	PT-1	(E) TO REMAIN/GWBWR	PT-1	(E) TO REMAIN	(E) TO REMAIN	(E) CMU	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	7'- 4"					
105	OFFICE / LIFE GUARD	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN			(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	8'- 0"					
106	BREAK ROOM	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN			(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	8'- 0"					
107	ENTRY VESTIBULE	EP	EP-1	(E) TO REMAIN	(E) TO REMAIN			(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	8'- 1"					
108	EQUIPMENT	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN			(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	7'- 4"					
109	CLOSET	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN			(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	(E) TO REMAIN	8'- 0"					
110	HHW	EP	EP-1	EP	EP-1	FRP	FRP-1	(E) CMU	PT-1	(E) CMU	PT-1	GWBWR	PT-1	GWBWR	PT-1	(E) PLYWD	PT-1	8'- 1"					
111	MEN'S SHOWER / CHANGING	EP	EP-1	EP	EP-1	FRP/SSU	FRP-1/SSU-1	GWBWR	PT-1	(E) CMU	PT-1	GWBWR	PT-1	(E) CMU	PT-1	(E) PLYWD	PT-1	8'- 1"					
111	MEN'S RESTROOM	EP	EP-1	EP	EP-1	FRP/SSU	FRP-1/SSU-1	(E) CMU/GWB	PT-1	(E) CMU	PT-1	(E) CMU	PT-1	(E) CMU/GWBWR	PT-1	(E) PLYWD	PT-1	8'- 1"	SSU	SSU-1			
112	STORAGE	EP	EP-1	EP	EP-1			GWBWR	PT-1	(E) CMU	PT-1	(E) CMU	PT-1	(E) CMU	PT-1	(E) PLYWD	PT-1	8'- 1"					

FINISH NOTES

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- PAINT FINISH: EGG SHELL, COLOR PER OWNER
- PAINT FINISH: SEMI-GLOSS, COLOR PER OWNER
- REMOVE ALL EXISTING EPOXY COATING AT FLOOR AND BASE LOCATIONS AND REPLACE WITH NEW EPOXY COATING FLOOR AND BASE THROUGHOUT
- REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION
- SEAL EDGES AND PAINT PLYWOOD
- SACK AND PATCH CONCRETE CURB TO PROVIDE SMOOTH FINISH WITH UNIFORM COLOR WHERE EXPOSED SEAL, CONCRETE SLAB AND CURB
- ALL COLOR SELECTIONS ARE TO BE BY OWNER
- 4'-0" TALL FRP WAINSCOT AT NEW WALLS

MATERIAL LEGEND

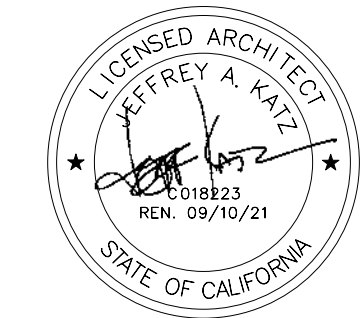
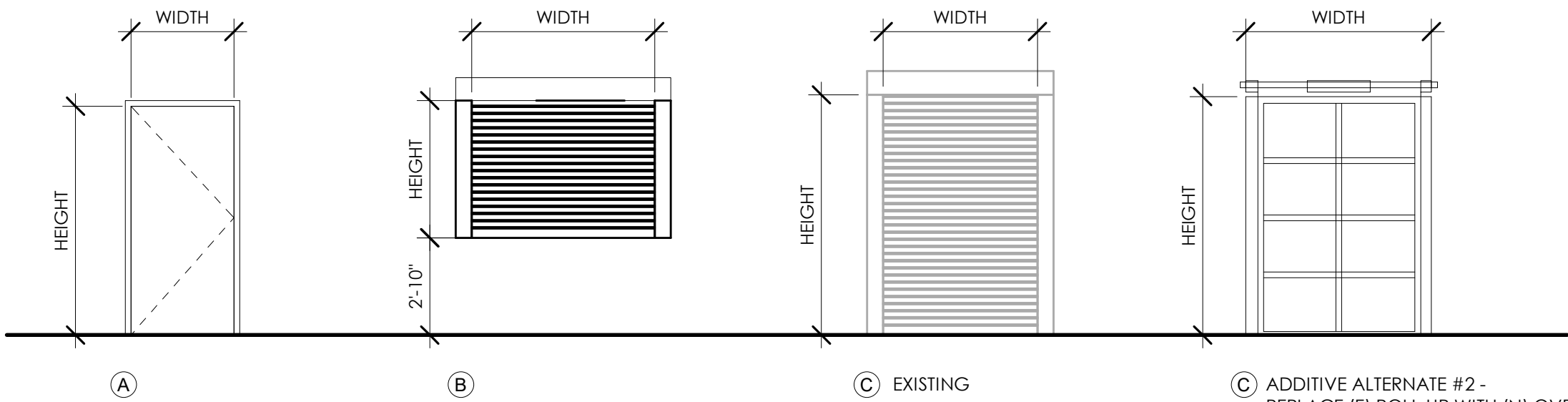
ABBR	DESCRIPTION
CNC	CONCRETE (SEALED)
CMU	CONCRETE MASONRY UNIT
CT	CERAMIC TILE
EXP	EXPOSED STRUCTURE
EP	HIGH PERFORMANCE EPOXY COATING OVER CONC. SLAB
FF	FACTORY FINISH
FRP	FIBER REINFORCED PLASTIC
GL	GLAZING
GWB	GYPSPUM WALL BOARD 5/8" UON
GWBWR	GYPSPUM WALL BOARD, WATER RESISTANT (5/8")
HM	HOLLOW METAL
MTL	METAL
PL	PLASTIC LAMINATE
PT	PAINT
PLYWD	1/2" PLYWOOD, PAINTED
RB	RUBBER BASE
SM	SHEET METAL
SS	STAINLESS STEEL
SSU	SOLID SURFACE
WD	WOOD

DOOR NOTES

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- TOILET ROOM ISA SIGNAGE AND TEXT ON WALL ADJACENT TO DOOR, SEE
- PROVIDE ISA SYMBOL ON DOOR
- (E) DOOR TO REMAIN, REFINISH & REPLACE HARDWARE
- (E) DOOR TO BE REPLACED. LEAVE (E) HM DOOR FRAME AND REUSE
- PROVIDE TACTILE EXIT / EXIT ROUTE SIGN
- PROVIDE ROOM IDENTIFICATION SIGNAGE, VERIFY TEXT WITH OWNER, SEE B3 & D4/T-6
- PROVIDE CLOSER AT THIS DOOR
- PROVIDE SIGN AT EXIT DOOR THAT IS READILY VISIBLE, DURABLE, ADJACENT TO EXIT DOOR THAT SAYS "THIS DOOR SHALL REMAIN UNLOCKED WHEN SPACE IS OCCUPIED"
- DOOR OPENING HARDWARE TO BE MOUNTED 34" TO 44" ABOVE FINISHED FLOOR
- ADDITIVE ALTERNATE #2 - REPLACE EXISTING OVERHEAD COILING DOOR WITH ALUMINUM AND GLASS OVERHEAD SECTIONAL DOOR

NOTES:

1.
- DOORS IN THE MEANS OF EGRESS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.



PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
REMODEL

100 D STREET
ROSEVILLE, CA 95678



Description: Date:

REVISED SCOPE 12/14/22
SUBMITTAL

Project Number: 200702

Approved By: MK

Checked By: JB

Drawn By: SC

Sheet Title:

ROOM FINISH
SCHEDULE &
DOOR
SCHEDULE

SHEET NUMBER:

A6.1

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES AND INDUSTRY STANDARDS.
2. VERIFY EXACT LOCATION OF ALL (E) EQUIPMENT, DUCTWORK, DIFFUSERS, REGISTERS AND GRILLES. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN (E) SYSTEMS AND DRAWINGS.
3. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH ROOF, FLOORS AND WALLS WITH ARCHITECTURAL STRUCTURAL SYSTEMS PRIOR TO COMMENCING WORK.
4. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK WITH ARCHITECTURAL PLANS, STRUCTURE AND EQUIPMENT PRIOR TO COMMENCING WORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES.
6. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DUFFUSER.
7. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 5' MAXIMUM LENGTH.
8. ALL DUCTWORK, CEILING DIFFUSERS/REGISTERS/GRILLES, EQUIPMENT, PIPING ETC., ARE NEW U.O.N. (SHOWN HEAVY). (E) DUCTWORK, PIPING ETC. IS SHOWN LIGHT. SEE LEGEND.
9. (E) DUCTWORK AND ITEMS TO BE REMOVED ARE SHOWN CROSSED ("X") OUT, SEE LEGEND, COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
10. WHERE INLET DUCT DIAMETER AND DIFFUSER NECK SIZE ARE THE SAME (I.E. 9"ø & 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMODATE THE ROUND DUCT CONNECTION.

DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	KRUEGER	METALAIRE	NAILOR	TITUS	TUTTLE & BAILEY
CD 	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER BEVEL FRAME 3/4" DROP	1240 FRAME 21 - 1 1/4"	9000-2	7500-S	MCD BORDER TYPE 6	S00-SB

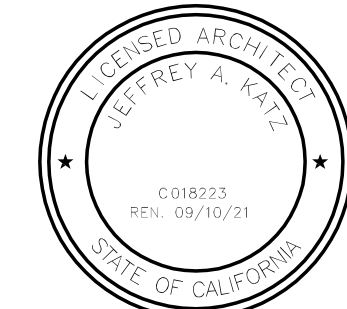
- NOTES:**
1. ALL SYMBOLS NOTED MAY NOT BE USED. REFER TO PLANS FOR SIZE AND QUANTITY.
2. ALL SUPPLY AIR DIFFUSERS ARE 4 WAY BLOW UNLESS SHOWN OTHERWISE.
3. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER.
4. COORDINATE DIFFUSER TYPE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
5. OPPOSED BLADE DAMPERS ARE NOT REQUIRED AT DIFFUSERS, REGISTERS OR GRILLES.
6. PROVIDE MANUAL AIR DAMPERS AT EACH BRANCH DUCT TO A SINGLE DIFFUSER, REGISTER OR GRILLE.
- * ALUMINUM REGISTERS FOR SHOWERS AND DAMP AREAS

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	ABC	ABOVE CEILING
	AF	ABOVE FLOOR
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AD , AP	ACCESS DOOR , ACCESS PANEL
	AC	AIR CONDITIONING
	APD	AIR PRESSURE DROP, INCHES WATER COLUMN
	AB	ANCHOR BOLT
	ANV	ANGLE VALVE
	AAV	AUTOMATIC AIR VENT
	ATV	ATMOSPHERIC VENT (STEAM OR HOT VAPOR)
	BV	BALL VALVE
	BDD	BACK DRAFT DAMPER
	BFP	BACKFLOW PREVENTER
	BF	BELOW FLOOR
	BHP	BRAKE HORSE POWER
	BTU(H)	BRITISH THERMAL UNITS (PER HOUR)
	BFV	BUTTERFLY VALVE
	BPT	BYPASS TIMER
	CBV	CALIBRATED BALANCE VALVE
	CC	CENTER TO CENTER
	CLG	CEILING
	CEF	CEILING EXHAUST FAN
	CKV	CHECK VALVE
	CP	CIRCULATING PUMP
	CLR	CLEAR
	CONC	CONCRETE
	CD	CONCENTRIC REDUCER
	COND	CONDENSATE DRAIN
	CONN	CONDENSER
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CONTR	CONTRACTOR
	CT	COOLING TOWER
	CFM	CUBIC FEET OF AIR FLOW PER MINUTE
	DPR	DAMPER
		DEGREES FAHRENHEIT
	DIA	DIAMETER , PHASE
	DL	DOOR LOUVER
	DN	DOWN
	DR	DRAIN
	DB	DRY BULB (DEGREES FAHRENHEIT)
	DS	DYNAMIC SENSOR
		ECCENTRIC REDUCER
	EP	ELECTRICAL PANEL
	EL	ELEVATION
	ENT	ENTERING
	EDB	ENTERING DRY BULB
	EW	ENTERING WATER
	EWT	ENTERING WATER TEMPERATURE
	EWB	ENTERING WET BULB
	EVAP	EVAPORATOR
	EC	EVAPORATIVE COOLER
	EA	EXHAUST AIR
	EAD	EXHAUST AIR DAMPER
	EF	EXHAUST FAN
	(E), EXIST	EXISTING
	(E)	EXISTING TO BE REMOVED
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
	FIN	FINISH
	FD	FIRE DAMPER
	FS	FIRE/SMOKE DAMPER
	FC	FLEXIBLE CONNECTION
	FLR	FLOOR
		FLOW IN DIRECTION OF ARROW
	FLV	FLOW LIMITING VALVE
	FA	FROM ABOVE
	FB	FROM BELOW
	FLA	FULL LOAD AMPS
	GCK	GAGE COCK
	GPH	GALLONS PER HOUR
	GPM	GALLONS PER MINUTE
	GV	GATE VALVE
	GLV	GLOBE VALVE
	GALV	GALVANIZED
	GI	GALVANIZED IRON
	GA	GAUGE
	HTG	HEATING

MECHANICAL LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	H	HUMIDISTAT, "X" INDICATES DEVICE CONTROLLED
	IE	INVERT ELEVATION
	KW	KILOWATTS
	KWH	KILOWATT HOUR
	LDB	LEAVING DRY BULB IN DEGREES FAHRENHEIT
	LWB	LEAVING WET BULB IN DEGREES FAHRENHEIT
	LRA	LOCKED ROTOR AMPERES
	LVR	LOUVER
	MAD, MD	MANUAL AIR DAMPER
	MAV	MANUAL AIR VENT
	MFR	MANUFACTURER
	MAX	MAXIMUM
	MIN	MINIMUM
	MCC	MOTOR CONTROL CENTER
	(N)	NEW
	OC	ON CENTER
	OA	OUTSIDE AIR
	OAD	OUTSIDE AIR DAMPER
	OD	OUTSIDE DIAMETER
	OV	OUTLET VELOCITY
	OH	OVERHEAD
		PETE'S PLUG
		PIPE ANCHOR
		PIPE DROP
		PIPE GUIDE
		PIPE RISE
		PITCH DOWN IN DIRECTION OF FLOW
		POINT OF CONNECTION
		POUND
	LBS	POUNDS
	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
	PD	PRESSURE DROP
	PG	PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE
	PCR	PUMPED CONDENSATE RETURN
	RG	REFRIGERANT GAS PIPING
	RS	REFRIGERANT SUCTION PIPING
	RL	REFRIGERANT LIQUID PIPING
	RV or P&TRV	RELIEF VALVE OR PRESSURE & TEMPERATURE RELIEF VALVE
		RETURN AIR
	RA	RETURN AIR DAMPER
	RAD	REVOLUTIONS PER MINUTE
	RPM	RUNNING LOAD AMPERES
	RLA	SECURITY BARS
	SB	SHEET METAL
	SM	SMOKE DAMPER
	SD	SMOKE DETECTOR
	SKD	SPLITTER DAMPER
	SD	SQUARE FEET
	SQFT, FT ²	SQUARE INCHES
	SQIN, IN ²	STATIC PRESSURE
	SP	STATIC PRESSURE DROP
	SPD	STEAM TRAP (ALL TYPES)
		STRAINER
	STR	SUPPLY AIR
	SA	SUPPLY FAN
	SF	TEMPERATURE CONTROL PANEL
	TCP	TEMPERATURE CONTROL VALVE
	TCV	TEMPERATURE SENSOR, "X" INDICATES DEVICE CONTROLLED
		THERMOMETER
		THERMOSTAT, "X" INDICATES DEVICE CONTROLLED. 48" AFF (TO TOP OF STAT)
	T	THOUSAND BRITISH THERMAL UNITS PER HOUR
	MBH	TO ABOVE
	TA	TO BELOW
	TB	TOTAL PRESSURE
	TP	TOTAL STATIC PRESSURE
	TSP	TYPICAL
	TYP	UNDERGROUND
	UG	UNDER CUT DOOR
	UCD	UNLESS OTHERWISE NOTED
	UON	UNION
		VALVE
	VLV	VALVE IN RISER (TYPE AS INDICATED OR NOTED)
		VALVE IN VALVE BOX
	WPD	WATER PRESSURE DROP
	W	WATTS
	WT	WEIGHT
	WB	WET BULB
	WMS	WIRE MESH SCREEN
	WP	WORKING PRESSURE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE



AC - IS 218613.00
PME - DESIGN TEAM PROJECT NO.



DATE SIGNED: _____

PROJECT: _____

CITY OF ROSEVILLE
JOHNSON POOL HOUSE
UPGRADES
100 D STREET
ROSEVILLE, CA 95678



Description: _____ Date: _____

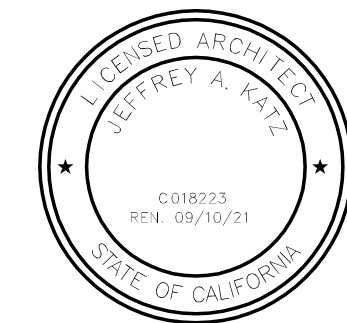
BUILDING DEPARTMENT 08/05/22
SUBMITTAL
BUILDING DEPARTMENT 09/16/22
RESUBMITTAL #1
BUILDING DEPARTMENT 10/17/22
RESUBMITTAL #2
REVISED 12/14/22
SCOPE
SUBMITTAL

Project Number: 20074
Approved By: _____
Checked By: _____
Drawn By: _____
Sheet No: _____

MECHANICAL
SCHEDULE,
NOTES &
LEGENDS

SHEET NUMBER: _____

M0.1



AC - IS 218613.00
PM - DESIGN TEAM PROJECT NO.



DATE SIGNED: _____

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: Date:

BUILDING 08/05/22

DEPARTMENT

SUBMITTAL

BUILDING 09/16/22

DEPARTMENT

RESUBMITTAL #1

BUILDING 10/17/22

DEPARTMENT

RESUBMITTAL #2

REVISED 12/14/22

SCOPE

SUBMITTAL

Project Number: 20070

Approved By: JC

Checked By: JC

Drawn By: JS

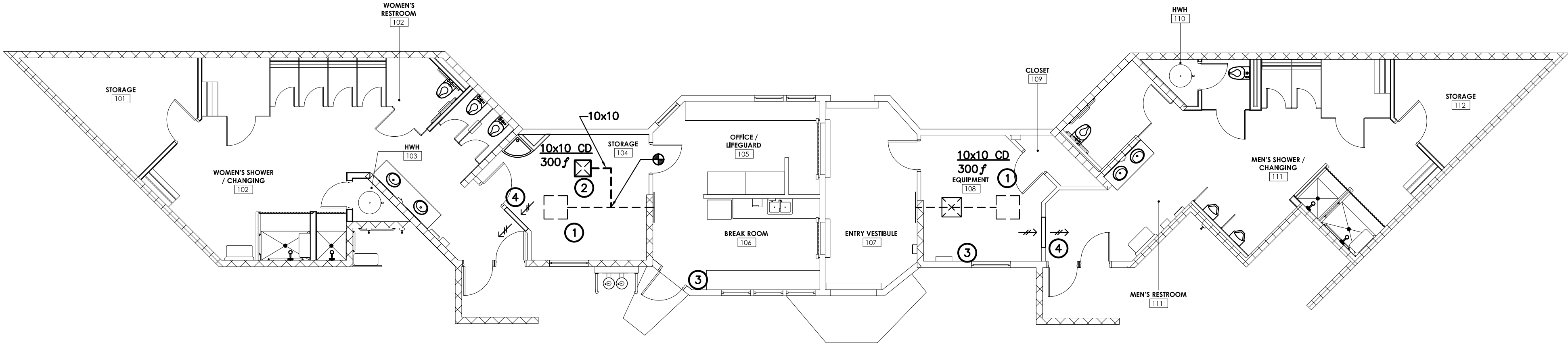
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MECHANICAL
FLOOR PLAN

SHEET NUMBER:

M2.1

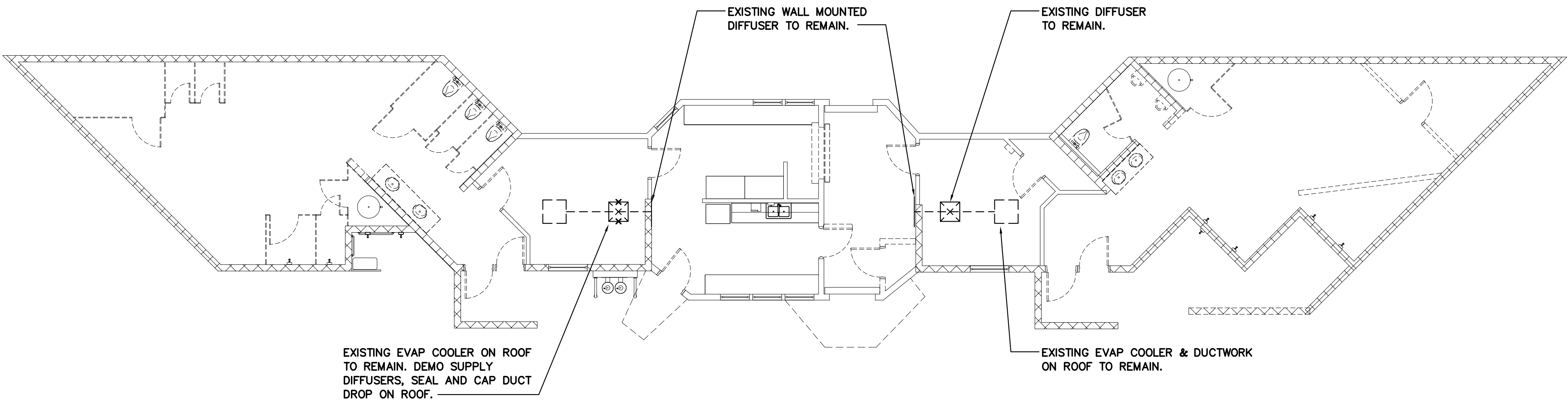
- SHEET NOTES**
- 1 EXISTING EVAPORATIVE COOLER AND DUCTWORK ON ROOF TO REMAIN.
 - 2 NEW DUCT DROP THRU ROOF.
 - 3 (N) OCCUPANCY SENSOR, INTERLOCK WITH EVAPORATIVE COOLER TO ENABLE UNIT OPERATION.
 - 4 (N) TRANSFER OPENING WITH WIRE MESH SCREEN, MATCH EXISTING, MIN. 1 SQ. FT. FREE AREA.



MECHANICAL FLOOR PLAN

SCALE : 1/8" = 1'-0"

2
M2.1



MECHANICAL DEMO FLOOR PLAN

SCALE : 1/8" = 1'-0"

1
M2.1



Not for Construction
For Council Approval
Re-Bid

PLUMBING GENERAL NOTES

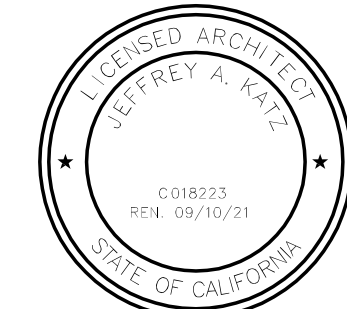
1. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO TRENCHING OR INSTALLING PIPING AND ASSOCIATED ITEMS.
2. KEEP VTR'S A MINIMUM OF 10 FEET FROM AIR INTAKES AND 4 FEET MINIMUM FROM OUTSIDE WALLS.
3. ALL MECHANICAL UNITS ARE SHOWN FOR REFERENCE AND COORDINATION ONLY. SEE "M" SHEETS.
4. OFFSET ALL RISERS AND DROPS TO AVOID PENETRATIONS AT TOP PLATES.
5. FIELD VERIFY EXACT SIZES, LOCATIONS AND ELEVATIONS OF ALL PIPING CONNECTIONS, OTHER WORK, ETC., PRIOR TO TRENCHING OR INSTALLING OF ANY NEW WORK.
6. ALL VALVES SHALL BE LINE SIZE.
7. PENETRATION OF PIPES, CONDUIT, ETC., IN WALLS AND/OR FLOORS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE STATE FIRE MARSHAL.
8. ALL FLOOR DRAINS LOCATED IN CERAMIC TILE SHALL HAVE A SQUARE TOP.
9. CONCRETE ANCHORS SHALL BE HILTI, KWIK BOLT $\frac{3}{8}$ " $\varnothing$ WITH $2\frac{1}{2}$ " MIN. EMBEDMENT. ANCHORS SHALL BE TESTED PER IR 26-6, INTERPRETATIVE REGULATION FOR EXPANSION ANCHORS IN HARDENED CONCRETE. ANCHOR TEST LOAD IS 968 LBS. TENSION.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABC	ABOVE CEILING
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AF , BF	ABOVE FLOOR , BELOW FLOOR
	AD , AP	ACCESS DOOR , ACCESS PANEL
	AW	ACID WASTE BELOW FLOOR
	AW	ACID WASTE ABOVE FLOOR
	AV	ACID VENT PIPING
	ANV	ANGLE VALVE
	AQ	AQUASTAT
	AD	AREA DRAIN
	BFP, RP, DCV	BACKFLOW PREVENTER, REDUCED PRESSURE, DOUBLE CHECK VALVE
	BV	BALL VALVE
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
		BRANCH - SIDE CONNECTION
	BFV	BUTTERFLY VALVE
	CBV	CALIBRATED BALANCE VALVE
	COP	CAP ON END OF PIPE
	CO2	CARBON DIOXIDE
	CB , RD	CATCH BASIN , ROOF DRAIN
		CENTER LINE
	CG	CHASIS GREASE
	CKV	CHECK VALVE
	DWR	CHILLED DRINKING WATER RETURN
	DWS	CHILLED DRINKING WATER SUPPLY
	CP	CIRCULATING PUMP
	CW	COLD WATER
	CWD	COLD WATER DROP
	CWR	COLD WATER RISE
	CWH, HWH, VH	COLD WATER HEADER, HOT WATER HEADER, VENT HEADER
	A	COMPRESSED AIR
	X#A	COMPRESSED AIR - X#
	CR	CONCENTRIC REDUCER
	CD	CONDENSATE DRAIN LINE
	CMP	CORRUGATED METAL PIPE
	CO	CLEANOUT
	DI	DEIONIZED WATER
	F	DEGREES FAHRENHEIT
		DIAMETER , SQUARE (FEET)
	DF	DIESEL FUEL
	DIS	DISTILLED WATER
	DSP	DRY STAND PIPE
	ER	ECCENTRIC REDUCER
	(E)	EXISTING TO BE REMOVED
	EJ	EXPANSION JOINT
		FINISHED FLOOR ELEVATION
	FHC	FIRE HOSE RACK AND CABINET
	F	FIRE PROTECTION WATER SUPPLY
	FU	FIXTURE UNIT
	FC	FLEXIBLE CONNECTOR
	CO	CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
		FLOW IN DIRECTION OF ARROW
	FLV	FLOW LIMITING VALVE
	FS	FLOW SWITCH
	FV , FT	FLUSH VALVE , FLUSH TANK
	(FA) , (TA)	FROM ABOVE , TO ABOVE
	(FB) , (TB)	FROM BELOW , TO BELOW
	GCK	GAGE COCK
	GSCK , PC	GAS COCK , PLUG COCK
	GA	GASOLINE
	GV	GASOLINE VENT
	G	GAS - LOW PRESSURE
	MG	GAS - MEDIUM PRESSURE
	HG	GAS - HIGH PRESSURE
	GPR	GAS PRESSURE REGULATOR VALVE
	GPR	GAS PRESSURE REGULATOR
	GM	GAS METER
	GV	GAS SEISMIC VALVE
	GV	GATE VALVE
	GV	GREASE VENT
	GPM	GALLONS PER MINUTE
	GLV	GLOBE VALVE
	CO	CLEANOUT
	GW	GREASE WASTE PIPING
	HD	HOPPER DRAIN , HUB DRAIN
	HB	HOSE BIBB

PLUMBING LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	HW	HOT WATER PIPING
	HWR	HOT WATER PIPING RISE
	HWD	HOT WATER PIPING DROP
	HW	HOT WATER PIPING WITH HEAT TRACE TAPE
	HWRET	HOT WATER RETURN
	HWRET(R)	HOT WATER RETURN RISE
	HWRET(D)	HOT WATER RETURN DROP
	() HW	HOT WATER (TEMP. °F)
	() HWR	HOT WATER RETURN (TEMP. °F)
	IS	IRRIGATION SUPPLY
	D	INDIRECT DRAIN , CONDENSATE DRAIN
	LPG	LIQUIFIED PETROLEUM GAS
	LO	LUBRICATING OIL
	LOV	LUBRICATING OIL VENT
	(N) , (E)	NEW , EXISTING
	(NTS)	NOT TO SCALE
	OH	OVERHEAD
	OF	OVERFLOW RAINWATER LEADER
	OFD	OVERFLOW DRAIN
	AN	PIPE ANCHOR
		PIPE GUIDE
	PT	PIPE IN SLEEVE
	P	PITCH DOWN IN DIRECTION OF FLOW
	POC	PLUGGED TEE
	PG	POINT OF CONNECTION
	P & TRV	PRESSURE GAUGE
	PRV	PRESSURE & TEMPERATURE RELIEF VALVE PIPING
	PD	PRESSURE REDUCING VALVE
	PD	PUMP DISCHARGE LINE
	RWL	RAINWATER LEADER
	WH	RECESSED BOX HOSE BIBB OR WALL HYDRANT
	RV or P&TRV	RELIEF VALVE OR PRESSURE & TEMPERATURE RELIEF VALVE
	RET	RETURN
	RE , IE	RIM ELEVATION , INVERT ELEVATION
	(R) , (D)	RISE , DROP
	R , D	RISER DOWN (ELBOW)
	RD	RISER UP (ELBOW)
	S , W	RISE OR DROP
	S , W	ROOF DRAIN
	SD	SOIL, WASTE OR SANITARY SEWER ABOVE FLOOR
	STR	SOIL, WASTE OR SANITARY SEWER BELOW FLOOR
	T	SOLENOID VALVE WITH MOTOR ACTUATOR
	TH	STORM DRAIN
	TP	STRAINER
	TYP	TEMPERED WATER SUPPLY
	UN	THERMOMETER
	UD	THREE WAY CONTROL VALVE
	AV	TRAP PRIMER
	VB	TRAP PRIMER PIPING
	V	TWO WAY CONTROL VALVE
	WCO	TYPICAL
	WHA	UNION OR FLANGE
	WM	UNDER DRAIN
	WO	VALVE WITH MOTOR ACTUATOR
	WOV	VALVE IN RISER (TYPE AS INDICATED OR NOTED)
	WSP	VALVE IN VALVE BOX (VALVE TYPE SYMBOL AS REQUIRED FOR VALVE TYPE USED)
	PIV	VENTED PIPING
	FH	VENT , VENT RISER , VENT THRU ROOF
	FDC	VITRIFIED CLAY PIPE
	WCO	WALL CLEANOUT
	WHA	WATER HAMMER ARRESTER
	WM	WATER METER
	WO	WASTE OIL
	WOV	WASTE OIL VENT
	WSP	WET STAND PIPE
	PIV	POST INDICATOR VALVE
	FH	FIRE HYDRANT
	FDC	FIRE DEPARTMENT CONNECTION



AC - IS 218613.00
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DATE SIGNED: _____

PROJECT: _____

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: _____ Date: _____

BUILDING 08/05/22

DEPARTMENT

SUBMITTAL

BUILDING 09/16/22

DEPARTMENT

RESUBMITTAL #1

BUILDING 10/17/22

DEPARTMENT

RESUBMITTAL #2

REVISED 12/14/22

SCOPE

SUBMITTAL

Project Number: 20074

Approved By: _____

Checked By: _____

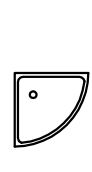
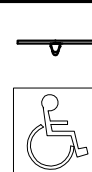
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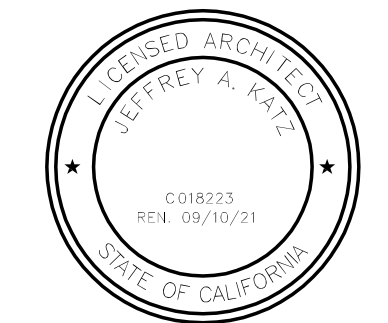
PLUMBING
SCHEDULE,
NOTES &
LEGENDS

SHEET NUMBER: _____

P0.1

PLUMBING FIXTURE SPECIFICATION & CONNECTION SCHEDULE													
ADA	SYMBOL	FIXTURE	FIXTURE MANUFACTURER AND MODEL No.	FAUCET OR VALVE MANUFACTURER AND MODEL No.	TRIM MANUFACTURER AND MODEL No.	REMARKS	VENT	WASTE		COLD WATER		HOT WATER	
								BRANCH	OUTLET	BRANCH	OUTLET	BRANCH	OUTLET
	WC-1	WATER CLOSET WALL MOUNTED FLUSH VALVE STD/ACCESSIBLE	"KOHLER" KINGSTON 1.28, NO. K84325-SS-0, WALL HUNG, VITREOUS CHINA, ELONGATED, SIPHON JET ACTION, 1-1/2" TOP SPUD. 1.28 GPF	"SLOAN" ROYAL SFSM 111-1.28, ADA COMPLIANT, 1.28 GPF (BATTERY SIDE)	SEAT: "CHURCH" MODEL 295SSCT OR "BEMIS" MODEL 1955SSCT. PROVIDE WITH SELF- SUSTAINING CONCEALED CHECK HINGES, ONE PIECE STAINLESS STEEL POST HINGES, WHITE COLOR. CARRIER: "JAY R. SMITH" 100 OR 200 SERIES OR 500# RATED "ZURN" Z1201 AND Z1202 SERIES PROVIDE REAR SUPPORT LUG AND ANCHOR FOOT ASSEMBLY.	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. WHERE USED FOR CBC ACCESSIBLE WATER CLOSETS, THE FLUSH VALVE HANDLE SHALL BE MOUNTED ON THE WIDE SIDE OF THE WATER CLOSET ENCLOSURE.	2"	4"	4"	1-1/4"	1"	--	--
	UR-1	URINAL WALL MOUNTED FLUSH VALVE STD/ACCESSIBLE	"KOHLER" BARDON 1/8 GPF NO. K-4991-ET WALL HUNG, VITREOUS CHINA, SIPHON JET ACTION. 3/4" TOP SPUD, 2" THREADED OUTLET. .125 GPF WEIGHT = 51 LBS.	"SLOAN" ROYAL OPTIMA SMOOTH 186 HEU 0.125 GPF (BATTERY SIDE)	CARRIER: "JAY R. SMITH" 637 SERIES OR "ZURN" Z1222	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS.	1-1/2"	2"	2"	1"	3/4"	--	--
	L-1	LAVATORY UNDERMOUNTED HOT AND COLD WATER STD/ACCESSIBLE	"KOHLER" CAXTON OVAL NO. K-2211 UNDERCOUNTER, VITREOUS CHINA, FRONT OVERFLOW, 4" CENTERS, 20-1/4" x 17-1/2" WITH FITTING LEDGE, SELF-RIMMING STYLE.	"CHICAGO" 3600-E2805AB FAUCET, PUSH LEVER WITH AERATOR WITH 0.5 GPM FLOW RATE. WITH VANDAL RESISTANT ECONO-FLO SPRAY OUTLET. WITH IPS CONNECTIONS, ADA COMPLIANT.	ADA COMPLIANT. LAVATORY GRID DRAIN WITH 1-1/4" OFFSET TAILPIECE, INTEGRAL PERFORATED GRID NO. 7723.018, CHROME FINISH. MOUNT P-TRAP FLUSH TO WALL.	COUNTER MOUNTED	1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	SS-1	SERVICE SINK FLOOR MOUNTED HOT AND COLD WATER JANITORS	"ACORN" TCR-28, TERRAZZO-WARE, 28"x28"x12" DEEP FLOOR MOUNTED, TERRAZZO, WITH STAINLESS STEEL CAP. UNIT SHALL INCLUDE MODEL KH36 HOSE WITH WALL HANGER, KMH MOP HANGER WITH 3 SPRING LOADED GRIPS ON A STAINLESS STEEL BRACKET.	"CHICAGO" MODEL 897-CP WALL MOUNTED POLISHED CHROME FAUCET WITH VACUUM BREAKER, ADJUSTABLE TOP BRACE AND 3/4" MALE THREADED HOSE OUTLET.		AS PART OF ROUGH-IN FOR FAUCET, PROVIDE SUITABLE BLOCKING FOR TOP BRACE. PROVIDE CAP WITH FLANGE ON SIDES ADJACENT TO WALLS.	2"	3"	3"	3/4"	3/4"	3/4"	3/4"
	SH-1	SHOWER FLUSH MOUNTED ACCESSIBLE	"BRADLEY" MODEL HN250-T24 (California) - HD/SX FLUSH MOUNTED INDIVIDUAL WALL SHOWER ADA COMPLIANT	COMPLETE WITH HOT AND COLD WATER PRESSURE BALANCED MIXING VALVES, 2.0 GPM FLOW CONTROL, EQUA-FLO HEAVY DUTY PRESSURE BALANCED MIXING VALVE, SEVERE SERVICE SHOWER HEAD AND RECESSED SOAP DISH.	INTEGRAL	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. SEE PLAN FOR ACCESSIBLE SEAT AND BAR LOCATION	-	-	-	3/4"	1/2"	3/4"	1/2"
	SH-2	SHOWER SURFACE MOUNTED STANDARD	"BRADLEY" MODEL WS-1WCA-HD/SX/SHV-RSD SURFACE MOUNTED INDIVIDUAL WALL SHOWER	COMPLETE WITH HOT AND COLD WATER PRESSURE BALANCED MIXING VALVES, 2.0 GPM FLOW CONTROL, EQUA-FLO HEAVY DUTY PRESSURE BALANCED MIXING VALVE, SEVERE SERVICE SHOWER HEAD, RECESSED SOAP DISH AND VERTICAL SHROUD.	INTEGRAL	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS.	-	-	-	3/4"	1/2"	3/4"	1/2"
	FD	FLOOR DRAIN	GENERAL SERVICE FD - ZURN MODEL Z-415, OR EQUAL, WITH TYPE "B" STRAINER FOR EXPOSED CONCRETE AND TYPE "S" STRAINER FOR TILE FLOOR. PROVIDE BRONZE TRIM. FD IN RESINOUS/EPOXY TYPE FLOORS - ZURN MODEL Z-415BL, OR EQUAL, NICKEL BRONZE WITH ADJUSTABLE STRAINER. OTHER APPROVED EQUAL MANUFACTURERS INCLUDE: JAY R. SMITH, WATTS & MIFAB.				2"	2"	2"	-	-	-	-
	TP-1	TRAP PRIMER	PRECISION PLUMBING PRODUCTS "FVP-1VB"				-	-	-	1/2"	1/2"	-	-

1



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DATE SIGNED: _____

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: Date:

BUILDING	08/05/22
DEPARTMENT	
SUBMITTAL	
BUILDING	09/16/22
DEPARTMENT	
RESUBMITTAL #1	
BUILDING	10/17/22
DEPARTMENT	
RESUBMITTAL #2	
REVISED	12/14/22
SCOPE	
SUBMITTAL	

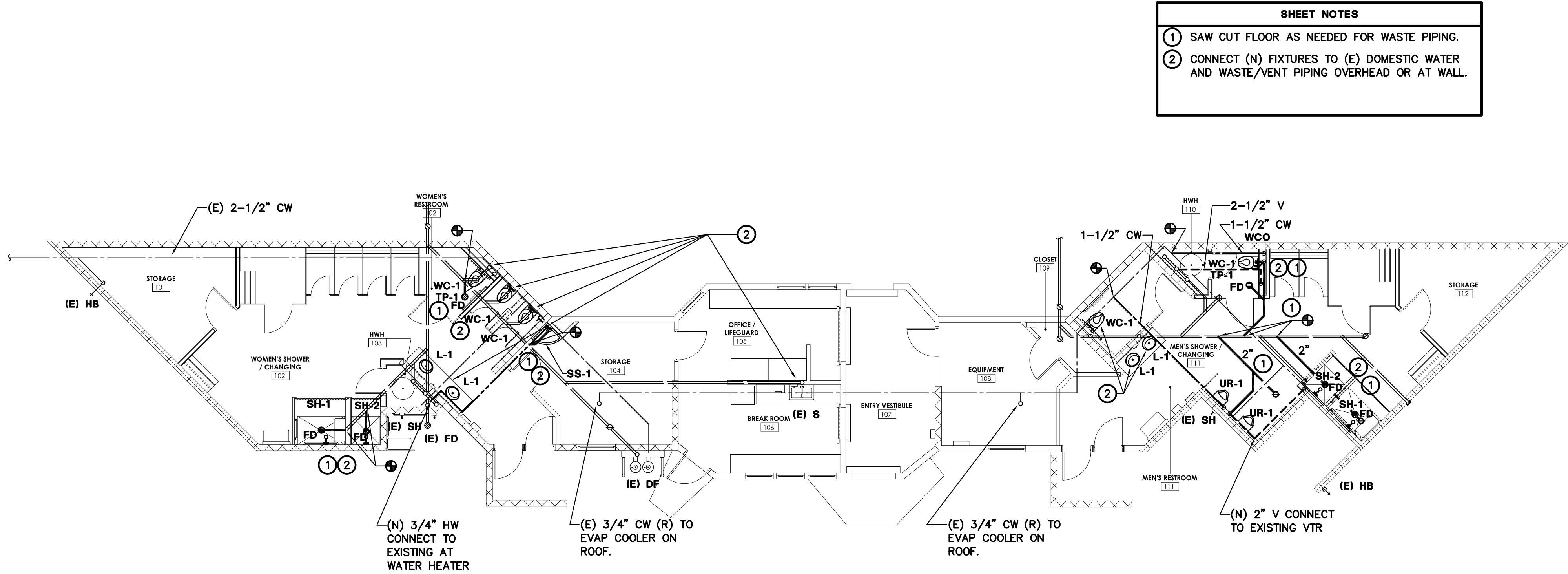
Project Number: 20079
Approved By: JC
Checked By: JC
Drawn By: JS

Sheet Title:
PLUMBING
FIXTURE
SCHEDULE &
DETAILS

SHEET NUMBER:

P0.2

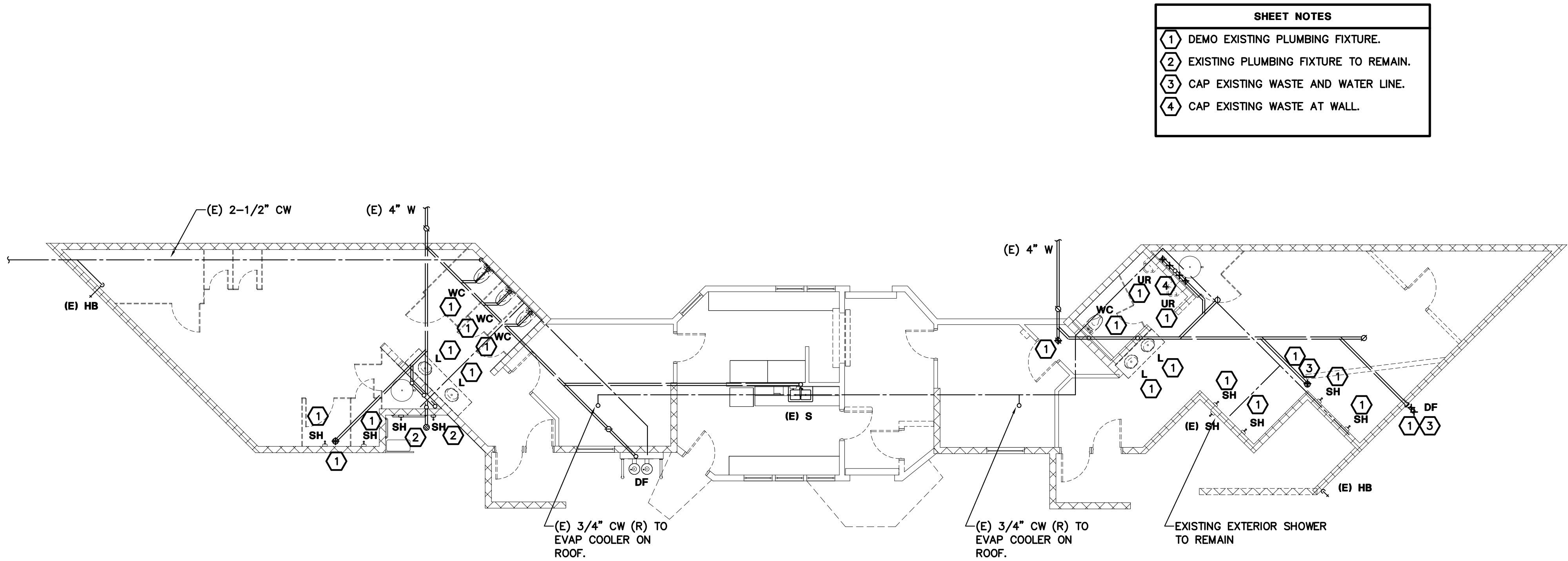
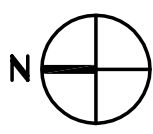
Not for Construction
For Council Approval
Revised



PLUMBING FLOOR PLAN

SCALE : 1/8" = 1'-0"

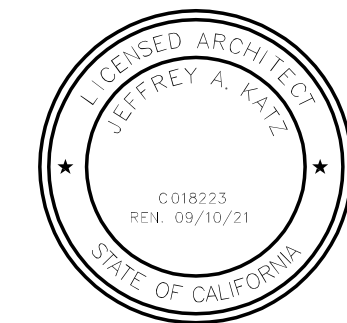
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PLUMBING DEMO FLOOR PLAN

SCALE : 1/8" = 1'-0"

1
P2.1



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Approved By: C

Checked By: LC

Drawn By: JS

Sheeting

PLUMBING
FLOOR PLAN

SHEET NUMBER:

P2.1

Not for Construction
For Council Approval
Re-Bid

LIGHTING LEGEND

COORDINATE THE EXACT MOUNTING AND LOCATION OF ALL LIGHTING, SUPPORTS AND ALL CONDUITS WITH OTHER TRADES PRIOR TO ROUGH-IN. SEE ARCH PLANS FOR EXACT GRID, FLUSH AND SURFACE MOUNTING LOCATIONS.

LIGHTING FIXTURES. SEE FIXTURE SCHEDULE FOR MODEL/PART NUMBERS AND ADDITIONAL DETAILS.

EMERGENCY LIGHTING FIXTURES. SEE FIXTURE SCHEDULE FOR MODEL/PART NUMBERS AND ADDITIONAL DETAILS.

LUMINAIRE(S) POLE MOUNTED WITH ARM. TYPE AS NOTED.

LUMINAIRE(S) POLE MOUNTED ON TOP. TYPE AS NOTED.

EMERGENCY BUG EYE FIXTURE.

LIGHTED EXIT SIGN. TOP MOUNTED ON CEILING OR STEM MOUNTED. SHADED SIDE INDICATES FACE. PROVIDE ARROWS TO MATCH ARCHITECTURAL OR LIFE SAFETY PLANS.

SUBSCRIPT ADJACENT TO LIGHTING FIXTURE INDICATES:
L# = FIXTURE DESIGNATION
1,2,3 etc. = BRANCH CIRCUIT NUMBERS
a,b,c etc. = SWITCH-LEG REFERENCE
NL = NIGHT/SECURITY LIGHTING FIXTURE

LIGHTING LEGEND

COORDINATE THE EXACT MOUNTING AND LOCATION OF ALL LIGHTING, SUPPORTS AND ALL CONDUITS WITH OTHER TRADES PRIOR TO ROUGH-IN. SEE ARCH PLANS FOR EXACT GRID, FLUSH AND SURFACE MOUNTING LOCATIONS.

TOGGLE SWITCH

DIMMER SWITCH

OCCUPANCY SENSOR SWITCH

DIMMER/OCCUPANCY SENSOR SWITCH

GRAPHICAL LOW VOLTAGE SWITCH.

OCCUPANCY SENSOR - CEILING MOUNTED.

PHOTOCELL - CEILING OR ROOF MOUNTED.

DAYLIGHT SENSOR - CEILING MOUNTED.

SUBSCRIPT ADJACENT TO SWITCH INDICATES:
K = KEYED SWITCH
a,b,c etc. = MULTIPLE SWITCHES/CONTROL LEGS IN A GANGED BOX WITH A COMMON COVER PLATE.

POWER LEGEND

COORDINATE THE EXACT MOUNTING AND LOCATION OF ALL WIRING DEVICES AND ALL CONDUITS WITH OTHER TRADES PRIOR TO ROUGH-IN. SEE ARCH PLANS FOR EXACT DEVICE LOCATIONS.

DUPLEX

QUAD

DUPLEX GFI

QUAD GFI

DUPLEX WITH USB

RECEPTACLE, NON-LOCKING TYPE, GROUNDING, 120V - 20A. MOUNTED AT +18 AFF UNO. SHADED REPRESENTS ABOVE COUNTER OR +42" AFF.

DUPLEX

QUAD

DUPLEX GFI

QUAD GFI

DUPLEX WITH USB

SPLIT YOLK HALF CONTROLLED RECEPTACLE NON-LOCKING TYPE 120V-20A. TO BE LOCATED WITHIN 6' OF AN UNCONTROLLED RECEPTACLE. CONNECT SWITCH LEG BETWEEN RELAY POWER PACK AND OCCUPANCY CONTROLS FOR AUTOMATIC SHUT OFF. CONTROLLED RECEPTACLES SHALL HAVE PERMANENT MARKING TO DIFFERENTIATE THEM FROM UNCONTROLLED RECEPTACLES. (CEC TITLE 24 SECTION 130.5(D)), PROVIDE FACEPLATE PER NEC 406.3(E).

CEILING MOUNTED DUPLEX OR QUAD RECEPTACLE, NON-LOCKING TYPE, GROUNDING.

POWER FLOOR BOX.

WALL OR FLOOR POWER CONNECTION TO MODULAR FURNITURE. VERIFY EXACT LOCATION WITH FURNITURE SUPPLIER.

JUNCTION BOX

WALL MOUNTED JUNCTION BOX

SPECIAL NEMA CONFIGURATION RECEPTACLE MOUNTED AT +18" AFF UNO. SEE FLOOR PLANS FOR CONFIGURATION.

CEILING MOUNTED SPECIAL NEMA CONFIGURATION RECEPTACLE. SEE FLOOR PLANS FOR CONFIGURATION.

EQUIPMENT SIZES SHOWN ON PLANS ARE NOT EXACT. CONTRACTOR IS RESPONSIBLE FOR ENSURING EQUIPMENT CLEARANCES ARE MET BASED ON ACTUAL SIZE.

TRANSFORMER

SWITCHBOARD OR MCC

PANEL BOARD (SURFACE)

PANEL BOARD (FLUSH)

LOW VOLTAGE PANEL

LIGHTING CONTROL PANEL

TELEPHONE BACKBOARD. 3/4" PLYWOOD, LENGTH AND WIDTH AS NOTED

COMMUNICATION LEGEND

COORDINATE THE EXACT MOUNTING OF ALL CABLE TRAY SUPPORTS AND ALL CONDUITS WITH OTHER TRADES PRIOR TO ROUGH-IN.

COMBINATION VOICE/DATA OUTLET MOUNTED AT 18" UNO. PROVIDE 3/4" C.O. TERMINATE IN ACCESSIBLE CEILING WITH INSULATED BUSHING.

WALL MOUNTED VOICE OUTLET AT +18" UNO. PROVIDE 3/4" C.O. TERMINATE IN ACCESSIBLE CEILING WITH INSULATED BUSHING.

WALL MOUNTED DATA OUTLET AT +18" UNO. PROVIDE 3/4" C.O. TERMINATE IN ACCESSIBLE CEILING WITH INSULATED BUSHING.

CEILING MOUNTED DATA OR VOICE/DATA OUTLET.

FLOOR DATA OR VOICE/DATA OUTLET. VERIFY EXACT LOCATION WITH ARCHITECT.

WALL OR FLOOR VOICE/DATA CONNECTION TO MODULAR FURNITURE. VERIFY EXACT LOCATION WITH FURNITURE SUPPLIER.

SPEAKER - CEILING MOUNTED

COORDINATE THE EXACT MOUNTING OF ALL CABLE TRAY SUPPORTS AND ALL CONDUITS WITH OTHER TRADES PRIOR TO ROUGH-IN.

12" WIDE MONO-TRAY, 4" DEEP (NOMINAL), 6" RUNG SPACING. TYPICAL UNO

12" WIDE CABLE TRAY, 4" DEEP (NOMINAL) TYPICAL UNO

ELECTRICAL ABBREVIATIONS

A
ADA
A.F.F.
AIC
ALT.
ATS
BLDG
C
CB
CFCI

CFL
CKT
C.O.
CONC.
CX
CU
dBA
DIST.
DWG.
EM
ETC
EG
EPO
EWC
EX
FA
FACP
FLA
GD
GFI
GND
HORIZ.
HP
KCMIL
KVA
KW
JB
LTG
MCA
MCC
MEP
MIC
MIN
MOP
MTD
MTG. HT.
NIC
NFPA
NL
NTS
OC
OFCI
P
PB
PH
PIV
PNL
POC
PVC
RCP
RECEPT
REF
REQ'D
RGS
SEC
SHT
S.N.
SPD
SS
SWGR
TC
TEL
T.I.
T.R.
TV
TYP
U.C.
UL
U.N.O.
V
WH
W
WP
XFMR
X
XD
XR
XL

AMPERES
AMERICANS WITH DISABILITIES ACT
ABOVE FINISHED FLOOR
AMPS INTERRUPTING CURRENT
ALTERNATE
AUTOMATIC TRANSFER SWITCH
BUILDING
CONDUIT
CIRCUIT BREAKER
CONTRACTOR FURNISHED,
CONTRACTOR INSTALLED
COMPACT FLUORESCENT LAMP
CIRCUIT
CONDUIT ONLY
CONCRETE
CONNECT TO EXISTING CIRCUIT
COPPER
DECIBELS
DISTRIBUTION
DRAWING
EMERGENCY SERVICE
ET CETERA
EQUIPMENT GROUND
EMERGENCY POWER OFF BUTTON
ELECTRIC WATER COOLER
EXISTING
FIRE ALARM
FIRE ALARM CONTROL PANEL
FULL LOAD AMPS
GARBAGE DISPOSAL
GROUND FAULT INTERRUPTER
GROUND
HORIZONTALLY MOUNTED
HORSEPOWER
THOUSAND CUBIC MILLIMETERS
KILOVOLT-AMPERES
KILOWATTS
JUNCTION BOX
LIGHTING
MINIMUM CIRCUIT AMPS
MOTOR CONTROL CENTER
MECHANICAL, ELECTRICAL, PLUMBING
MICROWAVE
MINIMUM
MAXIMUM OVERCURRENT PROTECTION
MOUNTED
MOUNTING HEIGHT
NOT IN CONTRACT
NATIONAL FIRE PROTECTION ASSOCIATION
NIGHT LIGHT
NOT TO SCALE
ON CENTER
OWNER FURNISHED, CONTRACTOR INSTALLED
POLE
PULL BOX
PHASE
POST INDICATOR VALVE
PANEL
POINT OF CONNECTION
POLYVINYL CHLORIDE
REFLECTED CEILING PLAN
RECEPTACLE
REFRIGERATOR
REQUIRED
RIGID GALVANIZED STEEL
SECURITY
SHEET
SOLID NEUTRAL
SURGE PROTECTION DEVICE
STAINLESS STEEL
SWITCHGEAR
TERMINAL CABINET
TELEPHONE
TENANT IMPROVEMENT
TAMPER RESISTANT
TELEVISION
TYPICAL
UNDER COUNTER
UNDERWRITERS LABORATORY
UNLESS NOTED OTHERWISE
VOLTS
WATER HEATER
WATTS
WEATHERPROOF
TRANSFORMER
EXISTING TO REMAIN
EXISTING TO BE DEMOLISHED
EXISTING TO BE RELOCATED
NEW LOCATION OF EXISTING ITEM

GENERAL NOTES

1. ALL GROUNDING PER NEC.
2. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF RECEPTACLES IN TEL/COM ROOMS PRIOR TO ROUGH-IN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTATION. COORDINATE WITH ALL OTHER TRADES FOR EQUIPMENT LOCATIONS.
4. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT OF ALL RECEPTACLES AND DEVICES.
5. COORDINATE WITH EQUIPMENT MANUFACTURER FOR LOCATIONS AND CONNECTIONS.
6. VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.
7. EACH BRANCH CIRCUIT THAT SUPPLIES NON-LINEAR LOADS INCLUDING COMPUTERS, COMMUNICATION RACKS, ETC. MUST HAVE A DEDICATED NEUTRAL.
8. MULTI-WIRE BRANCH CIRCUITS FOR GENERAL LOADS CAN INCLUDE UP TO THREE PHASE CONDUCTORS WITH A SHARED NEUTRAL IN A RACEWAY IF A MULTI-POLE BREAKER IS PROVIDED TO SIMULTANEOUS DISCONNECT ALL SINGLE POLE CIRCUIT BREAKERS THAT SUPPLY INDIVIDUAL PHASE CONDUCTORS OF THE MULTI-WIRE CIRCUIT.

GENERAL SYMBOLS LEGEND

1
3
E1

CONDUIT STUBOUT
CONDUIT RISING UP
CONDUIT CONCEALED IN WALLS OR CEILING.

CONDUIT DROP DOWN

CONDUIT CONCEALED IN FLOOR, UNDERFLOOR, OR BELOW GRADE
CONDUIT RUN EXPOSED

FLEXIBLE CONDUIT

HOMERUN TO PANEL AND CIRCUITS INDICATED. NUMBER ADJACENT TO CIRCUIT DENOTES WIRE SIZE OTHER THAN #12 FOR ALL CONDUCTORS UNO.

SINGLE LINE LEGEND

GROUND

CIRCUIT BREAKER

TRANSFORMER DELTA PRIMARY, WYE SECONDARY WITH KVA RATING

SURGE PROTECTION DEVICE

GROUND FAULT PROTECTION

ENCLOSED CIRCUIT BREAKER

TIME CLOCK

KILOWATT-HOUR METER

EXTERNALLY MOUNTED METER

FUSED SWITCH

NON-FUSIBLE DISCONNECT SWITCH (RATINGS AS NOTED)

FUSIBLE DISCONNECT SWITCH (RATINGS AS NOTED)

MOTOR STARTER (NEMA SIZE AS NOTED)

COMBINATION FUSIBLE DISCONNECT SWITCH AND MOTOR STARTER, (NEMA SIZE AS NOTED), 3P, 600 VAC MAXIMUM RATING.

TOGGLE TYPE FRACTIONAL HP MANUAL MOTOR STARTER WITH THERMAL OVERLOADS (DELETED IF FOR DISCONNECT USE ONLY) AND HANDLE GUARD/LOCK-OFF, 2 POLES (VERIFY WITH BRANCH CIRCUIT).

EPO - EMERGENCY POWER OFF BUTTON

MOTOR

AUTOMATIC TRANSFER SWITCH

PANEL BOARD

CIRCUIT BREAKER CALLOUT

175
3

- TRIP SIZE
- POLE

FUSE CALLOUT

150
3

- FUSE SIZE
- POLE

LEGEND NOTES AND ABBREVIATIONS

005-115

JKA
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PROJECT:
CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678

BELEN
CONSULTING
1818 CHESTNUT AVE. STE 205
SAN DIEGO, CA 92101
www.BElenConsulting.com

Description:

Date:

BUILDING
DEPARTMENT
SUBMITTAL

08/05/22

BUILDING
DEPARTMENT
RESUBMITTAL #1

09/16/22

REVISED SCOPE
SUBMITTAL

12/14/22

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AN

Checked By:

AN

Drawn By:

SP

Issue Date:

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SHEET NUMBER:

E001

ELECTRICAL SPECIFICATIONS

SOME SPECIFICATIONS MAY NOT BE USED FOR THIS PROJECT.

1.0 INTENT

- 1.1 FURNISH AND INSTALL A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
- 1.2 ALL DRAWINGS ARE DIAGRAMMATIC IN NATURE AND THE REQUIRED INSTALLATION IS NOT LIMITED TO WHAT IS SHOWN. ALL APPURTENANCES NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM MUST BE INCLUDED IN THE CONTRACTORS BID AND WORK.
- 2.0 GENERAL
- 2.1 THE CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS WHICH MAY AFFECT HIS BID OR WORK. NO ALLOWANCES WILL BE MADE FOR EXISTING CONDITIONS OR THE CONTRACTORS FAILURE TO ACCOMMODATE EXISTING CONDITIONS ON HIS BID.
- 2.2 IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN CLARIFICATION OF ANY APPARENT CONFLICT OR INCONSISTENCY IN THE DRAWINGS, SPECIFICATION, OR DESIGN, PRIOR TO HIS BID AND IN WRITING WITH THE ENGINEER. OTHERWISE THE CONTRACTOR ACCEPTS RESPONSIBILITY TO CORRECT (AT HIS COST) ANY SUCH ITEMS TO MEET THE INTENT AS INTERPRETED BY THE ENGINEER.
- 2.3 ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE MOST RECENT EDITIONS OF THE NFPA, NATIONAL ELECTRIC CODE, IBC, APPLICABLE CITY AND STATE CODES AND ORDINANCES, THE AMERICANS WITH DISABILITIES ACT, E.P.A. REGULATIONS (INCLUDING EPACT 1992), AND UTILITY COMPANY REQUIREMENTS. THE FOREGOING CODES AND REGULATIONS ARE REQUIREMENTS AND ARE INCORPORATED IN THIS SPECIFICATION FOR THIS WORK BY REFERENCE.
- 2.4 THE CONTRACTOR SHALL COORDINATE AND PROVIDE INFORMATION AS REQUIRED TO SERVICE REQUIRED AND MEET UTILITY REQUIREMENTS. IMMEDIATE COORDINATION WILL BE REQUIRED FOR MOST PROJECTS. FIELD COORDINATE ALL REQUIREMENTS WITH UTILITY Co. PRIOR TO TRENCHING.
- 2.5 REFER TO ARCHITECTURAL, MECHANICAL, CIVIL, STRUCTURAL, AND/OR EQUIPMENT SUPPLIERS DRAWINGS AND SPECIFICATIONS FOR EXACT EQUIPMENT LOCATIONS, LOADS AND ADDITIONAL REQUIREMENTS. REPRESENTATIONS OF THE WORK SPECIFIC TO THE OTHER DISCIPLINES IS SHOWN ON THE ELECTRICAL DRAWINGS FOR REFERENCE ONLY.
- 2.6 THE CONTRACTOR ASSUMES RESPONSIBILITY FOR ALL EQUIPMENT HE SUPPLIES. ALL EQUIPMENT SHALL BE INSTALLED STRICTLY PER MANUFACTURERS RECOMMENDATIONS. OTHERWISE THE CONTRACTOR ASSUMES RESPONSIBILITY (AT HIS COST) TO CORRECT AND REMEDY ANY INSTALLATION NOT IN COMPLIANCE WITH THE MANUFACTURES RECOMMENDATIONS AND INTENTIONS AS INTERPRETED BY THE ENGINEER.
- 2.7 ANY VARIANCE OR EXCEPTIONS TO THE DRAWINGS AND SPECIFICATIONS MUST BE REQUESTED AND APPROVED IN WRITING. INTERIM VERBAL APPROVALS WILL ONLY BE PROVIDED WHEN THE ENGINEER DETERMINES THIS TO BE JUSTIFIED AND MUST BE CONFIRMED IN WRITING TO BE FINAL.
- 2.8 THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS, VARIANCES, AND APPROVALS, ETC. (AT HIS COST) WHICH MAY BE REQUIRED FOR COMPLETION OF THIS WORK.
- 2.9 PRIOR TO ROUGH-IN, THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL LIGHT FIXTURES AND WIRING DEVICES WITH ARCITECT/OWNER. TO INCLUDE MOUNTING HEIGHT AND LOCATIONS. ALL CONFLICTS SHALL BE REPORTED TO THE ENGINEER/ARCHITECT.
- 2.10 THE ELECTRICAL CONTRACTOR SHALL PROVIDE EQUIPMENT AND SUPPORT FOR PROGRESS AND FINAL INSPECTIONS. THIS INCLUDES COMPLETE ACCESS TO ALL AND A 5% SUPPLY OF ALL LIGHT BULBS PROVIDED IN FIXTURES (TO A MAXIMUM OF 15 EQUIPMENT. ADDITIONALLY A COMPLETE SET OF SPARE FUSES FOR ALL FUSES USED FOR EACH STYLE) SHALL BE PROVIDED TO THE OWNER AT FINAL INSPECTION.
- 2.11 RECONSTRUCTION (TO INCLUDE TENANT IMPROVEMENTS)
- ALL RECONSTRUCTION OF EXISTING FACILITIES AND EQUIPMENT SHALL REQUIRE COMPLETE RENOVATION (MAKE GOOD AS NEW) FOR ALL EXISTING EQUIPMENT UPON WHICH WORK IS PERFORMED OR EQUIPMENT WHICH IS AFFECTED BY THE WORK PERFORMED. THIS WILL INCLUDE THESE FOLLOWING REQUIREMENTS:
- 2.11.1 VERIFICATION OF EXISTING S.E.S. COMPLIANCE WITH NEC "GROUNDING" ARTICLES.
- 2.11.2 VERIFICATION OF CABLE SIZE AND AMPACITY OF EXISTING FEEDERS AND BRANCH CIRCUITS WITH NEC TABLES.
- 2.11.3 EXISTING LIGHT FIXTURES TO BE REUSED MUST BE CLEANED, RE-LAMPED, AND RESTORED TO "LIKE NEW" CONDITION.
- 2.11.4 EXISTING PANEL BOARDS, SWITCH BOARDS, AND TRANSFORMERS WHICH ARE INCLUDED IN THE PROJECT WORK SHALL HAVE PREVENTATIVE MAINTENANCE PERFORMED TO INCLUDE RE-TORQUING OF ALL LUGS, CLEANING AND INSPECTION.
- 2.11.5 VERIFY PROPER WORKING CONDITION OF ALL EXISTING EMERGENCY FIXTURES AND EXIT SIGNS. REPAIR OR REPLACE AS REQUIRED.
- IN THE EVENT THAT INSPECTION REVEALS DISCREPANCIES AND/OR NONCOMPLIANCE THE OWNER AND THE ENGINEER SHALL BE NOTIFIED IN WRITING, AND EQUIPMENT BROUGHT INTO COMPLIANCE.
- 2.11.6 ELECTRICAL CONTRACTOR SHALL PROVIDE FIELD VERIFIED PANEL SCHEDULE PRIOR TO START OF DEMO. TRACE CIRCUITS OF DEVICES EXISTING TO REMAIN BACK TO PANEL AND PROVIDE AS A SUBMITTAL TO ELECTRICAL ENGINEER PRIOR TO DEMO. CIRCUITS OF DEMOLISHED DEVICES MAY BE LABELED SPARE UNTIL THEY ARE RE-ASSOCIATED IN NEW WORK.
- 3.0 MATERIALS AND METHODS
- 3.1 THE USE OF EMT IS ACCEPTABLE IN ACCORDANCE WITH NEC ARTICLE "ELECTRICAL METALLIC TUBING". EMT SHALL NOT BE USED WHERE IT IS SUBJECT TO SEVERE PHYSICAL DAMAGE. EMT FITTINGS SHALL BE COMPRESSION TYPE. MINIMUM TRADE CONDUIT SIZE IS 1/2" AND 3/4" FOR HOME RUNS.
- 3.2 CONDUCTORS SHALL BE 600V COPPER (98 % CONDUCTIVITY), MINIMUM LINE VOLTAGE WIRE SIZE IS #12 A.W.G. #6 AND SMALLER SHALL HAVE THHN/THHW INSULATION. #4 AND LARGER SHALL HAVE XHHW/XHHW-2 INSULATION. ALL CONDUCTORS SHALL HAVE 90° RATED INSULATION. ALL 120V, 20A BRANCH CIRCUIT CONDUCTORS (#12) OVER 100' IN LENGTH TO BE #10'S MINIMUM. ALL 277V, 20A BRANCH CIRCUIT CONDUCTORS (#12) OVER 200' IN LENGTH TO BE #10'S MINIMUM.
- 3.3 WHEN SEPARATE BRANCH CIRCUIT NEUTRAL CONDUCTORS ARE USED WITH EACH PHASE CONDUCTOR OR SYSTEMS FURNITURE IS INDICATED, THE MINIMUM NEUTRAL CONDUCTOR SIZE SHALL BE #10 A.W.G. STRANDED COPPER.
- 3.4 ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE. (MINIMUM 20 AMPS RATED FOR RECEPTACLES AND SWITCHES). HUBBELL, PASS & SEYMOUR, BRYANT, OR LEVITON ARE ACCEPTABLE. ALL SPECIAL RECEPTACLES AND GROUND FAULT PROTECTION DEVICES MUST BE PERMANENTLY MARKED WITH ENGRAVED COVER PLATES. INDICATE USE AND CIRCUIT NUMBER.
- 3.5 COVER PLATES AND DEVICES SHALL BE PHENOLIC PLASTIC (WHITE OR COLOR SELECTED BY ARCHITECT) IN OFFICE/COMMERCIAL/OR LIVING AREAS, AND GALVANIZED STEEL IN WAREHOUSE/INDUSTRIAL/MANUFACTURING AREAS OR AREAS SUBJECT TO PHYSICAL ABUSE.
- 3.6 ALL CONDUCTORS TO BE CONCEALED EXCEPT, IN AREAS WITH CMU WALLS, TO SURFACE MOUNTED PANELS AND AT THE CEILING OF EXPOSED STRUCTURE AREAS. CONDUITS WILL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- 3.7 FLEXIBLE METAL CONDUIT (SEAL TITE FOR EXTERIOR APPLICATIONS) SHALL BE USED FOR CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION (E.G. MOTORS) WITH A MAXIMUM DISTANCE OF 6 ft.

- 3.8 THE USE OF MC CABLE IS ACCEPTABLE (UPON OWNER NOTIFICATION AND APPROVAL) AND MAY BE USED IN ACCORDANCE WITH NEC ARTICLE "METAL-CLAD CABLE: TYPE MC", BUT LIMITED TO USE FOR CONCEALED BRANCH CIRCUITS ONLY. ADDITIONALLY MC CABLE MAY NOT BE USED FOR HOME RUNS, OUTDOORS, AND MEDICAL/DENTAL ENVIRONMENTS.
- 3.9 NON-METALLIC CONDUIT (MIN. SCHEDULE 40) MAY BE USED ONLY IN OR UNDER SLABS & IN CONCRETE OR MASONRY WALLS. MIN. 24" COVER REQUIRED FOR UNDERGROUND USE.
- 3.10 FUSES SHALL BE BUSSMAN, LITTLEFUSE, OR GOULD SHAWMUT.
- 3.11 CONDUCTORS WILL BE SOLID AND/OR STRANDED WITH INSULATION CONTINUOUSLY COLOR COATED UP TO AND INCLUDING SIZE #6 A.W.G. GROUNDING/BONDING CONDUCTORS SHALL BE U.L. LABELED ROPE STRAND.
- 3.12 CONNECTIONS OR SPLICES SHALL BE EXOTHERMIC WELD (CAD WELD OR THOMAS AND BETTS FUSEWELD) FOR GROUNDING/BONDING CONDUCTORS.
- 3.13 NEW CONDUCTORS SHALL BE CONTINUOUS. HYDRAULIC CRIMP SPLICES OR CONNECTIONS ARE EXCEPTIONS AND REQUIRE SPECIFIC APPROVAL IN WRITING BY ENGINEER.
- 3.14 ALL CONDUIT SUPPORT SYSTEMS SHALL BE INSTALLED ON THE BUILDING STRUCTURE. UNISTRUT, BEELINE, SUPERSTRUT STEEL CITY SPRING STEEL FASTENERS OR CADDY MOUNTING SYSTEMS ARE ACCEPTABLE. NO CONDUIT WILL BE SUPPORTED BY THE CEILING WIRES, TIE WIRE OR GRID SYSTEM. PERFORATED STRAPS OR OTHER PIPING AND CONDUIT STRAPS ARE NOT ACCEPTABLE SUPPORTS.
- 3.15 ACCEPTABLE MANUFACTURES FOR SWITCH GEAR, DISTRIBUTION GEAR AND RELATED COMPONENTS ARE: SQUARE D, ACME TRANSFORMERS, GENERAL ELECTRIC, SIEMENS, AND CUTLER-HAMMER.
- 3.16 CONDUCTORS SHALL BE COLOR CODED FOR BRANCH CIRCUITS AND PHASE LEGS OF FEEDERS TO PANEL BOARDS, SWITCHBOARDS, ETC. IN ACCORDANCE WITH NEC AND LOCAL MUNICIPAL REQUIREMENTS. SPECIFIC REQUIREMENTS INCLUDE THE FOLLOWING:
- 120-V, 2-WIRE CIRCUIT: GROUNDED NEUTRAL-WHITE; UNGROUNDED LEG-BLACK.
- 208Y/120-V, 3-PHASE, 4-WIRE: GROUNDED NEUTRAL-WHITE; PHASE A-BLACK; PHASE B-RED; PHASE C-BLUE.
- 240/120-V, 3 WIRE, SINGLE PHASE CIRCUIT: GROUNDED NEUTRAL-WHITE; PHASE A-BLACK; PHASE B-RED.
- 240-V, DELTA, 3-PHASE, 3-WIRE: PHASE A-BLACK; PHASE B-RED; PHASE C-BLUE.
- 240/120-V, 3-PHASE, 4-WIRE, HIGH-LEG DELTA: GROUNDED NEUTRAL-WHITE; HIGH LEG (208-V TO NEUTRAL)-ORANGE; PHASE A-BLACK; PHASE C-BLUE.
- 480Y/277-V, 3-PHASE, 4-WIRE: GROUNDED NEUTRAL-GRAY; PHASE A-BROWN; PHASE B-ORANGE; PHASE C-YELLOW.
- 480-V, DELTA, 3-PHASE, 3-WIRE: PHASE A-BROWN; PHASE B-ORANGE; PHASE C-YELLOW.
- EQUIPMENT GROUNDING CONDUCTORS-GREEN;ISOLATED GROUNDS-GREEN WITH A YELLOW STRIPE.
- 3.17 ALL INSTALLATIONS WITHIN PLENUM RATED CEILING SPACE SHALL BE IN ACCORDANCE WITH NEC ARTICLE "WIRING METHODS" WITH REGARDS TO SMOKE DEVELOPMENT AND FLAME SPREAD.
- 3.18 ALL UNDERGROUND CABLE, PIPE AND CONDUITS SHALL BE DETECTABLE (METALLIC) OR HAVE A DETECTABLE UNDERGROUND LOCATION DEVICE INSTALLED WITH IT. THE RECOMMENDED DETECTABLE UNDERGROUND LOCATION DEVICE IS A #18 OR LARGER COPPER TRACER WIRE SECURELY ATTACHED TO THE TOP OF ANY NON-METALLIC CABLE, PIPE OR CONDUIT AT 8'-0" O/C AND SHALL HAVE A MINIMUM OF 12" OF TRACER WIRE ACCESSIBLE AT ALL ABOVE GRADE TERMINATIONS.
- 3.19 ALL HORIZONTAL UNDERGROUND CONDUIT RUNS (INCLUDING UNDER CONCRETE SLABS) SHALL BE A MINIMUM OF 24" BELOW GRADE.
- 3.20 ALL MATERIAL & DEVICES USED EXTERIOR OF THE BUILDING SHALL BE LISTED U.L. FOR WATERPROOF APPLICATIONS.
- 4.0 SUBMITTALS
- 4.1 SUBMIT SAMPLES AND 6 SETS OF SHOP DRAWINGS AND SAMPLES FOR ALL EQUIPMENT PRIOR TO ORDERING IN A TIMELY MANNER. SUBMITTALS SHALL INCLUDE LIGHT FIXTURES (INCLUDING LIGHT POLES), SWITCHBOARDS, PANELBOARDS, BREAKERS, STARTERS, HVAC ELECTRICAL EQUIPMENT AND TRANSFORMERS.
- 4.1.1 SHOP DRAWINGS SHALL INCLUDE LAYOUT DIMENSIONS AND IDENTIFICATION OF SPECIFIC EQUIPMENT FOR INSTALLATION, MINIMUM NEC CLEARANCES SHALL BE INDICATED.
- 4.1.2 THE CONTRACTOR SHALL INCLUDE COMPARISON DATA AND SAMPLES FOR BOTH THE SUBSTITUTE AND SPECIFIED ITEMS WHEN SUBSTITUTIONS ARE PROPOSED. THE CONTRACTOR REMAINS RESPONSIBLE TO PROVIDE THE ORIGINALLY SPECIFIED INSTALLATION IN ACCORDANCE WITH THE ORIGINAL DELIVERY DATE (AT HIS COST) WHEN SUBSTITUTIONS ARE NOT APPROVED.
- 4.2 THE CONTRACTOR SHALL SUBMIT COMPLETE AND ACCURATE "AS BUILT" DRAWING TO THE OWNER AND ENGINEER WITHIN 2 WEEKS OF OWNER ACCEPTANCE. PROVIDE 4 SETS OF BLUELINES OR REPRODUCIBLES. FAILURE TO COMPLY WILL RESULT IN WITHHOLDING OF PAYMENTS DUE, AND ASSESSMENT OF CHARGES (AGAINST THE CONTRACTOR) FOR AS-BUILT DEVELOPMENT BY THE ENGINEER AT THE CURRENT HOURLY RATE.
- 4.3 PROVIDE A LETTER TO THE OWNER AND ENGINEER CERTIFYING ALL EQUIPMENT AND TERMINATIONS ARE PROPERLY TORQUED. THIS CERTIFICATION SHALL BE EXECUTED BY A LICENSED CONTRACTOR, AND WRITTEN CERTIFICATION PROVIDED ON COMPANY LETTERHEAD.
- 4.4 PROVIDE 2 COPIES OF ALL MANUFACTURER/SUPPLIER WARRANTIES AND GUARANTEES TO THE OWNER WITHIN 2 WEEKS OF FINAL ACCEPTANCE BY THE OWNER.
- 5.0 WARRANTY
- 5.1 THE CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND/OR WORKMANSHIP FURNISHED BY HIM UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER, UNLESS LONGER WARRANTY PERIOD HAS BEEN REQUIRED BY BIDDING INSTRUCTIONS OR HAS BEEN INDICATED FOR SPECIFIC EQUIPMENT OR SYSTEMS. ANY DEFECTS DEVELOPING DURING THE WARRANTY PERIOD TRACEABLE TO MATERIALS OR WORKMANSHIP SHALL BE CORRECTED AT THE CONTRACTORS EXPENSE.
- 5.2 THE OWNER RETAINS THE RIGHT TO REQUIRE REMOVAL AND INSTALLATION (AT ANY TIME) OF ANY MATERIAL OR EQUIPMENT NOT IN COMPLIANCE WITH THE PROVISIONS AND STANDARDS OF THESE DRAWINGS AND SPECIFICATIONS. NO CLAIM FOR ADDITIONAL COMPENSATION WILL BE ALLOWED FOR WORK PERFORMED IN THIS REGARD.
- 5.3 THE CONTRACTOR AGREES TO TRANSFER ALL MANUFACTURER'S/SUPPLIER'S WARRANTIES AND GUARANTEES TO THE OWNER. THIS INCLUDES COMPLETION OF ALL DOCUMENTATION FOR THE MANUFACTURER/SUPPLIER.

6.0 DISTRIBUTION

- 6.1 PANELBOARDS (EXISTING): ADD CIRCUIT BREAKERS (FULL SIZED BREAKERS) AS REQUIRED FOR CIRCUITING. MATCH PRECISELY BRAND AND PROVIDE A.I.C. RATING AS INDICATED ON DRAWINGS. TANDEM AND PIGGY-BACK BREAKERS ARE NOT PERMITTED. ALL LUGS OR CONNECTORS TO BE 60°C RATED FOR PANEL LESS THAN OR EQUAL TO 100 AMPS AND 75°C FOR PANELS GREATER THAN 100 AMPS MINIMUM.
- 6.2 PANELBOARDS (NEW): SHALL BE RATED AS SHOWN ON DRAWINGS WITH PLATED COPPER BUSSING. PROVIDE NEMA ENCLOSURES AS REQUIRED TO SUITE THE ENVIRONMENT. BACK BOXES ENLARGED FOR DOUBLE NEUTRALS AND LUGS CAPABLE OF OVERSIZING ISOLATED GROUND AND NORMAL GROUND BUS. ALL LUGS OR CONNECTORS TO BE60°C RATED FOR PANEL LESS THAN OR EQUAL TO 100 AMPS AND 75°C FOR PANELS GREATER THAN 100 AMPS MINIMUM. PANELBOARD CABINET SHALL BE EQUIPPED WITH PIANO HINGES WITH DOOR IN DOOR CONSTRUCTION.
- 6.3 CIRCUIT BREAKERS SHALL BE SWITCH RATED AND AMBIENT COMPENSATED FOR ALL CIRCUITS. PROVIDE SWITCHED NEUTRALS ON ALL CIRCUIT BREAKERS FEEDING CLASS 1 AND CLASS 2 AREAS WITH NEUTRALS. GFCI ON CIRCUITS WITH NEUTRALS TO DEVICES ABOVE CLASSIFIED AREAS. ALL LIGHTING PANELS/CIRCUIT BREAKERS SHALL BE RATED FOR CONTINUOUS DUTY. HACR RATED BREAKERS SHALL BE INSTALLED FOR ALL HVAC CIRCUITS CONTAINING MULTIPLE MOTOR LOADS.
- 6.4 ALL EQUIPMENT (PANELS, DISCONNECT SWITCHES, STARTERS, ETC.) SHALL BE MARKED WITH BLACK OR RED ENGRAVERS STOCK TAGS EMBOSSED WITH 1/4" HIGH LETTERS DESCRIBING EACH ITEM. CONDUCTORS WILL BE MARKED AT ALL TERMINATION AND JUNCTION POINTS (PANELS, JUNCTION BOXES, SPLICES, ETC.) WITH LABELS BEARING THE PANEL AND CIRCUIT NUMBER WHICH FEEDS EACH CONDUCTOR (PER NEC 210.4, 300.3).
- 6.5 ALL PANELBOARDS WILL HAVE TYPED DIRECTORY CARDS IDENTIFYING ALL CIRCUITS AND SPACES.
- 6.6 TRANSFORMERS 15 KVA AND ABOVE SHALL BE 150°C TEMPERATURE RISE ABOVE 40°C AMBIENT. ALL INSULATING MATERIALS TO BE IN ACCORDANCE WITH NEMA ST20-1972 STANDARDS FOR A 220°C UL COMPONENT RECOGNIZED INSULATION SYSTEM. SINGLE PHASE TRANSFORMERS 15 KVA THROUGH 167 KVA, AND THREE PHASE TRANSFORMERS THROUGH 45 KVA SHALL BE DESIGNED SO THEY CAN BE EITHER FLOOR OR WALL MOUNTED. THE TRANSFORMER SHALL BE LISTED BY UNDERWRITERS LABORATORY FOR SPECIFIED TEMPERATURE RISE. TRANSFORMERS 75 KVA AND ABOVE SHALL BE DESIGNED FOR FLOOR INSTALLATION ONLY UNLESS NOTED OTHERWISE.
- 6.7 LABEL ALL PANELS/TRANSFORMERS/DISCONNECTS WITH "WARNING" - ELECTRICAL EQUIPMENT - DANGER - QUALIFIED PERSONNEL ONLY TO OPERATE ON OPEN EQUIPMENT.
- 6.8 DISCONNECT SWITCHES WILL BE COMMERCIAL-DUTY, QUICK-MAKE, QUICK-BREAK, HORSEPOWER RATED, NEMA 1 INDOOR, NEMA 3R GASKETED, (4X) NEMA 12, OR NEMA 7 AS APPLICABLE WITH FUSES PER DRAWING.
- 6.9 MANUAL MOTOR STARTERS WITH THERMAL OVERLOADS WILL BE PROVIDED FOR FRACTIONAL HORSEPOWER MOTORS 1/2 HP OR GREATER. SQUARE 'D' CLASS 2510, 2511, 2512. AMBIENT COMPENSATED AS REQUIRED.
- 6.10 MAGNETIC MOTOR STARTERS WITH THERMAL OVERLOADS, (2) AUXILIARY CONTACT SWITCHES, INTERNAL LINE VOLTAGE TO 24 VOLT TRANSFORMER (250VA. MIN) WITH PROPER PRIMARY/SECONDARY PROTECTION, AMBIENT COMPENSATED, RED RUNNING LIGHT, HAND-OFF-AUTO, ACROSS THE LINE STARTERS TO 25HP. WILL BE PROVIDED WITH EACH MOTOR AS SHOWN ON THE DRAWING (ONE HORSEPOWER TO 25 H.P.).
- 6.11 CONTROL PANELS SHALL HAVE A WITHSTAND RATING OF 10,000 AMPS FOR .5 SEC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- 7.0 LIGHT FIXTURES
- 7.1 8.1 FURNISH AND INSTALL ALL LIGHTING FIXTURES COMPLETE WITH LAMPS, WHIPS AND ACCESSORIES. ALL RECESSED FIXTURES WILL BE RATED FOR USE IN ANY CEILING APPLICATIONS AND BE THERMALLY PROTECTED.
- 7.2 MOUNTING TYPE AND VOLTAGE OF FIXTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. (4) EARTHQUAKE CLIPS WILL BE INSTALLED ON EACH FIXTURE MOUNTED IN GRID OR FLANGE TYPE CEILINGS. FLUORESCENT FIXTURE LENSES WILL BE 100% ACRYLIC, .125" THICK MINIMUM.
- 7.3 ALL FIXTURES TO BE INSTALLED IN SYMMETRICAL MANNER FREE FROM LIGHT LEAKS AND DIRTY LENSES OR REFLECTORS.
- 7.4 ALL LAY-IN FIXTURES IN ACOUSTICAL CEILING SYSTEMS WILL BE INSTALLED PER IBC STANDARD. VERIFY WITH LOCAL BUILDING AUTHORITY.
- 8.4.1 SUPPORT FIXTURES PER IBC WITH TWO LOOSE SIZE #9 WIRES TO STRUCTURES ON OPPOSITE CORNERS AND 2 TAUGHT SIZE #9 WIRE TO STRUCTURE AT CORNERS AND/OR FIXTURE SHALL BE FASTENED BY SCREWS INTO T-BAR RUNNERS IN ACCORDANCE WITH LOCAL AUTHORITY HAVING JURISDICTION.
- 7.5 LAMPS SHALL CONFORM TO THE FOLLOWING:
- A. 80 CRI (COLOR RENDERING INDEX) MINIMUM.
- B. LED
- B.A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- B.B. NRTL COMPLIANCE: LUMINAIRES FOR HAZARDOUS LOCATIONS SHALL BE LISTED AND LABELED FOR INDICATED CLASS AND DIVISION OF HAZARD BY AN NRTL.
- B.C. FM GLOBAL COMPLIANCE: LUMINAIRES FOR HAZARDOUS LOCATIONS SHALL BE LISTED AND LABELED FOR INDICATED CLASS AND DIVISION OF HAZARD BY FM GLOBAL.
- B.D. RECESSED FIXTURES: COMPLY WITH NEMA LE 4.
- B.E. CRI OF 80. CCT OF 3500K UON.
- B.F. RATED LAMP LIFE OF 50,000 HOURS.
- B.G. LAMPS DIMMABLE FROM 100 PERCENT TO 0 PERCENT OF MAXIMUM LIGHT OUTPUT.
- B.H. INTERNAL DRIVER.
- B.I. NOMINAL OPERATING VOLTAGE AS INDICATED IN FIXTURE SCHEDULE
- 7.6 DIMMERS AND SWITCHES
- 8.7.1 ALL DEVICES SHALL BE UL LISTED SPECIFICALLY FOR THE REQUIRED LOADS (I.E., INCANDESCENT, FLUORESCENT, LOW VOLTAGE, ELECTRONIC LOW VOLTAGE).
- 8.7.2 DIMMERS AND SWITCHES SHALL MEET OR EXCEED ANSI/IEEE STD.C62.41-1980
- 8.7.3 DIMMERS AND SWITCHES SHALL MEET UL 20 AND UL 1472.
- 8.7.4 DIMMER CONTROL SHALL BE LINEAR SLIDE. DIMMER SHALL PROVIDE A SMOOTH AND CONTINUOUS SQUARE LAW DIMMING CURVE.
- 8.7.5 DIMMERS SHALL UTILIZE AN LC FILTERING NETWORK TO MINIMIZE INTERFERENCE WITH PROPERLY INSTALLED RADIO, AUDIO, AND VIDEO EQUIPMENT.
- 8.7.6 DIMMER CONTROL SLIDER SHALL BE CAPTURED.
- 8.7.7 FACEPLATE SHALL SNAP ON TO DEVICE WITH NO VISIBLE MEANS OF ATTACHMENT.
- 8.7.8 ACCEPTABLE MANUFACTURES FOR DIMMERS ARE LUTRON, LITHONIA, LEVITON AND PRESCOLITE, LIGHTOLIER OR PRIOR APPROVED EQUAL.

- 7.7 LIGHTING CONTACTORS/CONTROL PANELS - LIGHTING CONTACTORS/CONTROL PANELS SHALL HAVE A WITHSTAND RATING OF 5,000 AMPS FOR .5 SEC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- 7.8 OCCUPANCY SENSORS
- 7.8.1 WALL- OR CEILING-MOUNTED, SOLID-STATE INDOOR OCCUPANCY SENSORS WITH A SEPARATE POWER PACK.
1. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
2. OPERATION: UNLESS OTHERWISE INDICATED, TURN LIGHTS ON WHEN COVERAGE AREA IS OCCUPIED, AND TURN THEM OFF WHEN UNOCCUPIED; WITH A TIME DELAY FOR TURNING LIGHTS OFF, ADJUSTABLE OVER A MINIMUM RANGE OF 1 TO 15 MINUTES.
3. SENSOR OUTPUT: CONTACTS RATED TO OPERATE THE CONNECTED RELAY, COMPLYING WITH UL 773A. SENSOR IS POWERED FROM THE POWER PACK.
4. POWER PACK: DRY CONTACTS RATED FOR 20-A BALLAST LOAD AT 120- AND 277-V AC, FOR 13-A TUNGSTEN AT 120-V AC, AND FOR 1 HP AT 120-V AC. SENSOR HAS 24-V DC, 150-MA, CLASS 2 POWER SOURCE, AS DEFINED BY NFPA 70.
5. MOUNTING:
- 5.1. SENSOR: SUITABLE FOR MOUNTING IN ANY POSITION ON A STANDARD OUTLET BOX.
- 5.2. RELAY: EXTERNALLY MOUNTED THROUGH A 1/2-INCH (13-MM) KNOCKOUT IN A STANDARD ELECTRICAL ENCLOSURE.
- 5.3. TIME-DELAY AND SENSITIVITY ADJUSTMENTS: RECESSED AND CONCEALED BEHIND HINGED DOOR.
6. INDICATOR: DIGITAL DISPLAY, TO SHOW WHEN MOTION IS DETECTED DURING TESTING AND NORMAL OPERATION OF SENSOR.
7. BYPASS SWITCH: OVERRIDE THE "ON" FUNCTION IN CASE OF SENSOR FAILURE.
8. AUTOMATIC LIGHT-LEVEL SENSOR: ADJUSTABLE FROM 2 TO 200 FC (21.5 TO 2152 LUX); TURN LIGHTS OFF WHEN SELECTED LIGHTING LEVEL IS PRESENT.
- 7.8.2 PER TYPE, CEILING MOUNTED: DETECT OCCUPANTS IN COVERAGE AREA BY THEIR HEAT AND MOVEMENT.
1. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN.
2. DETECTION COVERAGE (ROOM): DETECT OCCUPANCY ANYWHERE IN A CIRCULAR AREA OF 1000 SQ. FT. WHEN MOUNTED ON A 96-INCH- HIGH CEILING.
3. DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY WITHIN 90 FEET WHEN MOUNTED ON A 10-FOOT- HIGH CEILING.
- 7.8.3 ULTRASONIC TYPE: CEILING MOUNTED; DETECT OCCUPANTS IN COVERAGE AREA THROUGH PATTERN CHANGES OF REFLECTED ULTRASONIC ENERGY.
1. DETECTOR SENSITIVITY: DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S.
2. DETECTION COVERAGE (SMALL ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 600 SQ. FT. WHEN MOUNTED ON A 96-INCH- HIGH CEILING.
3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. WHEN MOUNTED ON A 96-INCH- HIGH CEILING.
4. DETECTION COVERAGE (LARGE ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 2000 SQ. FT. WHEN MOUNTED ON A 96-INCH- HIGH CEILING.
5. DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY ANYWHERE WITHIN 90 FEET WHEN MOUNTED ON A 10-FOOT- HIGH CEILING IN A CORRIDOR NOT WIDER THAN 14 FEET.
- 7.8.4 DUAL-TECHNOLOGY TYPE: CEILING MOUNTED; DETECT OCCUPANTS IN COVERAGE AREA USING PIR AND ULTRASONIC DETECTION METHODS. THE PARTICULAR TECHNOLOGY OR COMBINATION OF TECHNOLOGIES THAT CONTROL ON-OFF FUNCTIONS IS SELECTABLE IN THE FIELD BY OPERATING CONTROLS ON UNIT.
1. SENSITIVITY ADJUSTMENT: SEPARATE FOR EACH SENSING TECHNOLOGY.
2. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN., AND DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S.
3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. WHEN MOUNTED ON A 96-INCH- HIGH CEILING.
- 7.8.5 COMPLY WITH ALL COMMISSIONING REQUIRED FOR TITLE 24 (CEC 2013)

8.0 TELEPHONE SYSTEMS

- 8.1 PROVIDE AND INSTALL A COMPLETE SYSTEM OF EMPTY RACEWAYS 3/4" EMT MINIMUM WITH PULL STRAP/CORD. PROVIDE REQUIRED/REQUESTED INFORMATION TO TELEPHONE COMPANY PRIOR TO INSTALLATION.

9.0 DATA/INFORMATION SYSTEMS

- 9.1 PROVIDE AND INSTALL A COMPLETE SYSTEM OF RACEWAYS (CABLE TRAYS, J-HOOKS, CONDUIT SLEEVES) OF PREFERABLY OPEN CONSTRUCTION WITH PULL LINE. RACEWAYS TO BE CONTINUOUS.

005-115



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PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



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CONSULTING

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Description:

Date:

BUILDING
DEPARTMENT
SUBMITTAL

08/05/22

BUILDING
DEPARTMENT
RESUBMITTAL #1

09/16/22

REVISED SCOPE
SUBMITTAL

12/14/22

Project Number:

400702

Approved By:

AN

Checked By:

AN

Drawn By:

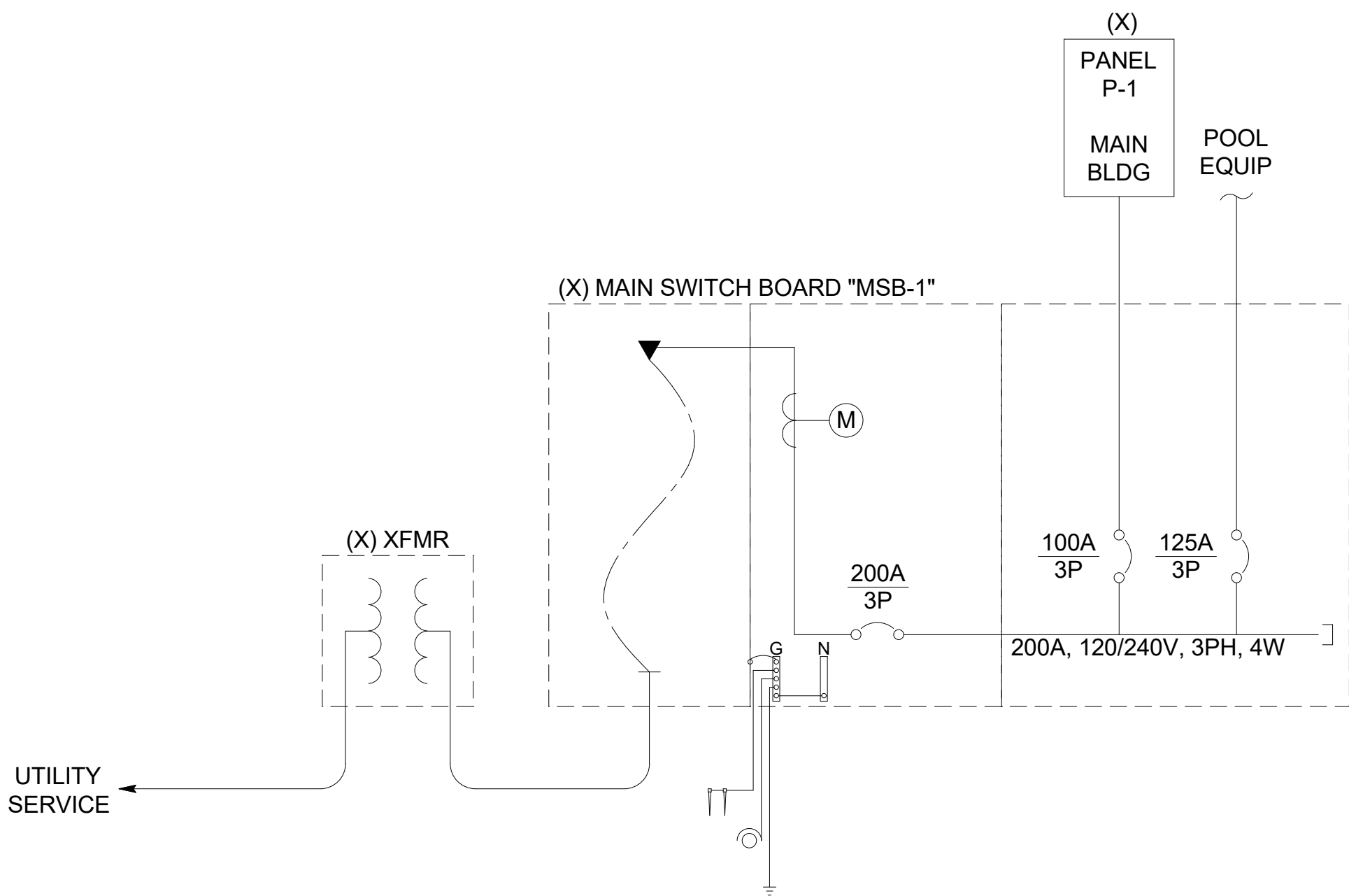
SP

Issue Date:

ELECTRICAL TI
SPEC NOTES

SHEET NUMBER:

E002



1 SINGLE LINE DIAGRAM
E002 SCALE: NONE

Branch Panel: P-1

Location: EQUIPMENT 108

Supply From: MSB

Mounting: Surface

Enclosure: Type 1

Volts: 240/120V

Phases: 3

Wires: 4

A.I.C. Rating: 10,000

Mains Type: MCB 100A

Bus Rating: 100

MCB Rating: 100

Notes: ELECTRICAL CONTRACTOR SHALL PROVIDE FIELD VERIFIED PANEL SCHEDULE PRIOR TO START OF DEMO. TRACE CIRCUITS OF DEVICES EXISTING TO REMAIN BACK TO PANEL AND PROVIDE AS A SUBMITTAL TO ELECTRICAL ENGINEER PRIOR TO DEMO. CIRCUITS OF DEMOLISHED DEVICES MAY BE LABLED SPARE UNTIL THEY ARE RE-ASSOCIATED IN NEW WORK.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	INTERIOR LIGHTING	20 A	1	640 VA	720 VA					1	20 A	STORAGE / RESTROOM RECEPTS	2
3	HIGH LEG - NO 1-POLE LOADS	--	1			--	--			1	--	HIGH LEG - NO 1-POLE LOADS	4
5	EXTERIOR LIGHTING	20 A	1					133 VA	500 VA	1	20 A	HAND DRYER	6
7	STORAGE/RESTROOM/CLOSET RECEPTS	20 A	1	540 VA	0 VA					1	20 A	SPARE	8
9	HIGH LEG - NO 1-POLE LOADS	--	1			--	4429...						10
11	HAND DRYER	20 A	1					500 VA	4429...	3	80 A	EWH-1	12
13	SPARE	20 A	1	0 VA	4429...								14
15	HIGH LEG - NO 1-POLE LOADS	--	1			--	4429...						16
17	BREAK ROOM RECEPTS	20 A	1					720 VA	4429...	3	80 A	EWH-2	18
19	GARBAGE DISPOSAL	20 A	1	500 VA	4429...								20
21	HIGH LEG - NO 1-POLE LOADS	--	1			--	--			1	--	HIGH LEG - NO 1-POLE LOADS	22
23	REFRIGERATOR	20 A	1					180 VA	0 VA	1	20 A	SPARE	24
25	OFFICE RECEPTS	20 A	1	900 VA	0 VA					1	20 A	SPARE	26
27	HIGH LEG - NO 1-POLE LOADS	--	1			--	--			1	--	HIGH LEG - NO 1-POLE LOADS	28
29	FIRST AID RECEPTS	20 A	1					360 VA	0 VA	1	20 A	SPARE	30
31	EQUIPMENT / VEST RECEPTS	20 A	1	360 VA	0 VA					1	20 A	SPARE	32
33	HIGH LEG - NO 1-POLE LOADS	--	1			--	--			1	--	HIGH LEG - NO 1-POLE LOADS	34
35	BUSSED SPACE	--	1					--	--	1	--	BUSSED SPACE	36
37	BUSSED SPACE	--	1	--	--					1	--	BUSSED SPACE	38
39	HIGH LEG - NO 1-POLE LOADS	--	1			--	--			1	--	HIGH LEG - NO 1-POLE LOADS	40
41	BUSSED SPACE	--	1					--	--	1	--	BUSSED SPACE	42
Total Load:				12517 VA		8857 VA		11250 VA					
Total Amps:				104 A		74 A		94 A					
Load Classification		Connected Load		Demand Factor		Estimated Demand		Panel Totals					
Receptacle		4780 VA		100.00%		4780 VA		Connected Load (kVA): 32625 VA					
Lighting		773 VA		125.00%		966 VA		Connected Load (A): 78 A					
Non-Continuous		500 VA		100.00%		500 VA							
Continuous		26572 VA		125.00%		33215 VA		Demand Load (kVA): 39461 VA					
								Demand Load (A): 95 A					

ELECTRICAL EQUIPMENT SCHEUDLE							
EQUIPMENT	PANEL	CIRCUIT	FLA	MCA	MOCP	CIRCUIT CONDUCTORS	VOLTAGE/PHASE-VA
EWB-1	P-1	10,12,14	56 A	70 A	80 A	1-1/4"C, 3#2, #2N, #8G	240 V/3-13286 VA
EWB-2	P-1	16,18,20	56 A	70 A	80 A	1-1/4"C, 3#2, #2N, #8G	240 V/3-13286 VA

GENERAL NOTES

- ALL EQUIPMENT IS EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
- ELECTRICAL CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS. IF CONDITION IS DIFFERENT FROM THAT INCLUDED IN THIS DRAWING, PROVIDE UPDATED INFORMATION TO ELECTRICAL ENGINEER PRIOR TO ROUGH-IN.
- ELECTRICAL CONTRACTOR SHALL PROVIDE UPDATED PANEL DIRECTORY FOR EACH PANEL WITH MODIFIED CIRCUITS.
- ELECTRICAL CONTRACTOR MUST PROVIDE NEW LABELS ON ALL BRANCH PANELS WITH MODIFIED CIRCUITS INDICATING "HIGH-LEG" 240V 3PH SYSTEM.



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PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



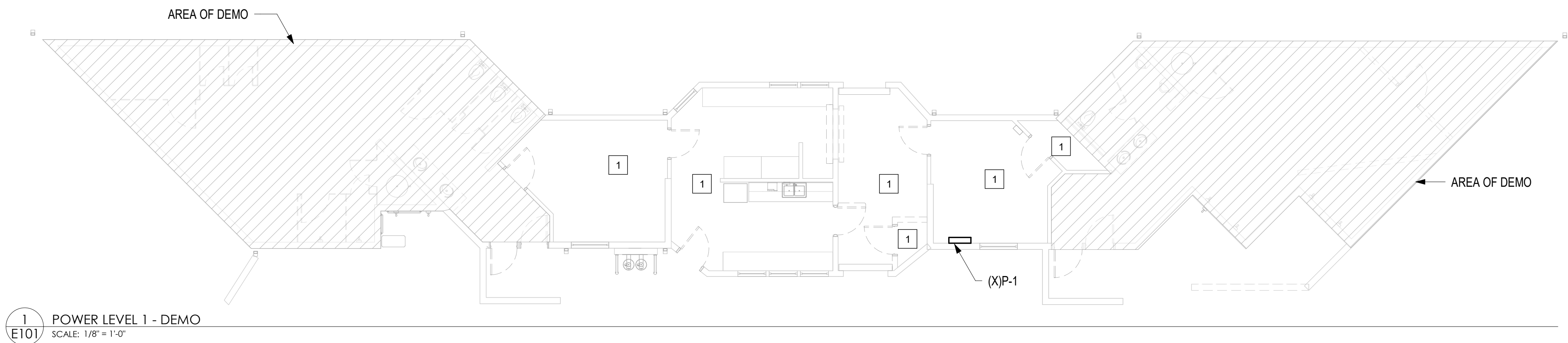
Description: Date:
BUILDING DEPARTMENT SUBMITTAL 08/05/22
BUILDING DEPARTMENT RESUBMITTAL #1 09/16/22
REVISED SCOPE SUBMITTAL 12/14/22

Project Number: 200702
Approved By: AN
Checked By: AN
Drawn By: SP

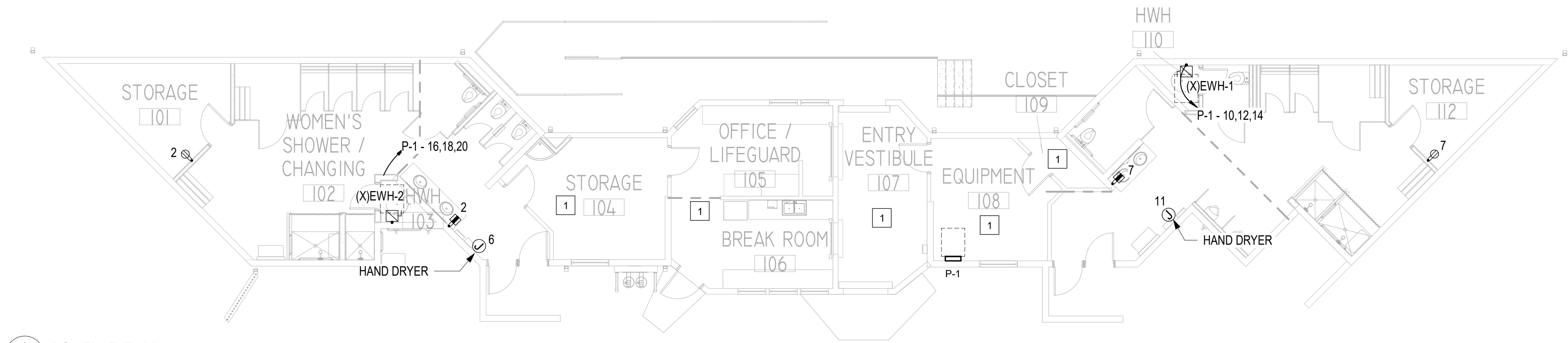
Issue Date:
ELECTRICAL
SINGLE LINE
DIAGRAM

SHEET NUMBER:

E003



1
E101 POWER LEVEL 1 - DEMO
SCALE: 1/8" = 1'-0"



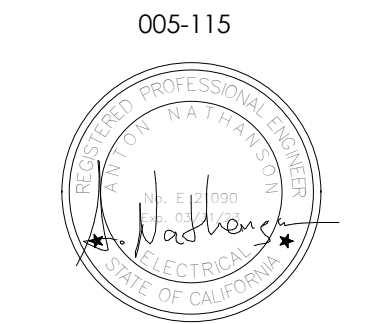
2
E101 POWER LEVEL 1 PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

- A. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO ROUGH-IN.
- B. VERIFY MOUNTING HEIGHTS OF ALL DEVICES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
- C. DEMO ALL WIRING DEVICES AND CIRCUITS BACK TO NEAREST JUNCTION BOX SERVING AREA.
- D. DEMO ALL LIGHTING FIXTURES AND CIRCUITS BACK TO NEAREST JUNCTION BOX SERVING AREA.
- E. ALL RECEPTACLES SHALL BE TAMPER RESISTANCE TYPE.
- F. ALL CIRCUITS GO BACK TO PANEL P-1 UNO.
- G. ELECTRICAL CONTRACTOR SHALL PROVIDE FIELD VERIFIED PANEL SCHEDULE PRIOR TO START OF DEMO. TRACE CIRCUITS OF DEVICES EXISTING TO REMAIN BACK TO PANEL AND PROVIDE AS A SUBMITTAL TO ELECTRICAL ENGINEER PRIOR TO DEMO. CIRCUITS OF DEMOLISHED DEVICES MAY BE LABELED SPARE UNTIL THEY ARE RE-ASSOCIATED IN NEW WORK.

KEYED NOTES - POWER

NUMBER	NOTE
1	ALL EXISTING POWER & DATA DEVICES ARE TO REMAIN UNLESS NOTED OTHERWISE. ELECTRICAL CONTRACTOR TO PROTECT EXISTING DEVICES, CONDUITS AND CIRCUITS DURING CONSTRUCTION. COORDINATE ACCESS REQUIRED FOR NEW CIRCUITS IN RENOVATED AREAS BACK TO PANEL P1 WITH ARCHITECT PRIOR TO START OF DEMO.



PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
UPGRADES

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ROSEVILLE, CA 95678



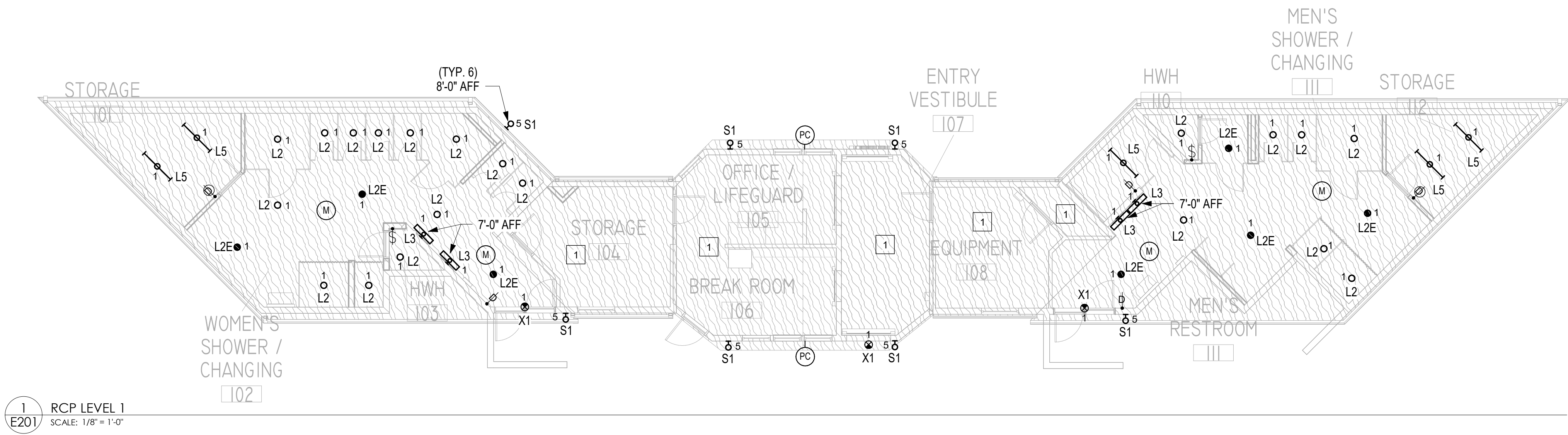
Description:	Date:
BUILDING DEPARTMENT SUBMITTAL	08/05/22
BUILDING DEPARTMENT RESUBMITTAL #1	09/16/22
REVISED SCOPE SUBMITTAL	12/14/22

Project Number:	40,702
Approved By:	AN
Checked By:	AN
Drawn By:	SP

Sheet Title:
ELECTRICAL
POWER PLAN

SHEET NUMBER:
E101

Not for Construction
For Council Approval
Re-Bid



LIGHTING FIXTURE SCHEDULE						
TAG	DESCRIPTION	MANUFACTURER	MODEL	LAMP TYPE	LAMP COLOR TEMP.	VOLTS/PHASE-VA
L2	WET-LISTED, SURFACE MOUNTED 4" DIAMETER ROUND DOWNLIGHT, TRIMLOCK, 1000 NOMINAL LUMENS, 80 CRI, 3500K, DIMMABLE	GOTHAM LIGHTING	IC04-35/10-LSS-50D OR APPROVED EQUAL	LED	3500 K	120 V/1-9 VA
L2E	WET-LISTED, SURFACE MOUNTED 4" DIAMETER ROUND DOWNLIGHT, TRIMLOCK, 1000 NOMINAL LUMENS, 80 CRI, 3500K, DIMMABLE WITH EMERGENCY BATTERY BACK-UP	GOTHAM LIGHTING	IC04-35/10-LSS-50D OR APPROVED EQUAL	LED	3500 K	120 V/1-9 VA
L3	WALL MOUNTED 2' BATHROOM VANITY, 2000 NOMINAL LUMENS, 80CRI, 3500K	BROWNLEE	5165-24-H16-35K OR APPROVED EQUAL	LED	3500 K	120 V/1-16 VA
L5	4' SURFACE MOUNTED LED STRIP, 3000 NOMINAL LUMENS, 3500K, 80CRI	LITHONIA LIGHTING	CLX-L48-3000LM-SFF-RDL-120V-35K-80CRI OR APPROVED EQUAL	LED	3500 K	120 V/1-20 VA
S1	WALL MOUNTED EXTERIOR WALL SCONCE WITH EXTERNAL PHOTOCELL	LITHONIA LIGHTING	WDGE2-LED-P2-40K-80CRI-T1S OR APPROVED EQUAL	LED	4000 K	120 V/1-19 VA
X1	THERMO PLASTIC EXIT SIGN. PROVIDE ARROWS PER LIFE SAFETY PLANS. PROVIDE WITH 90 MINUTE EMERGENCY BATTERY BACK-UP.	LITHONIA LIGHTING	LE-S-2-G-OR-E-EL-N OR APPROVED EQUAL	LED	3500 K	120 V/1-5 VA

GENERAL NOTES

- A. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO ROUGH-IN.
- B. ALL BUILDING MOUNTED EXTERIOR FIXTURES ARE TO BE CONTROLLED VIA TIMECLOCK AND PHOTOCELL.
- C. ALL CIRCUITS GO BACK TO PANEL P-1 UNO.

KEYED NOTES - LIGHTING

NUMBER	NOTE
1	ALL EXISTING LIGHT FIXTURES & DEVICES ARE TO REMAIN UNLESS NOTED OTHERWISE.



PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678



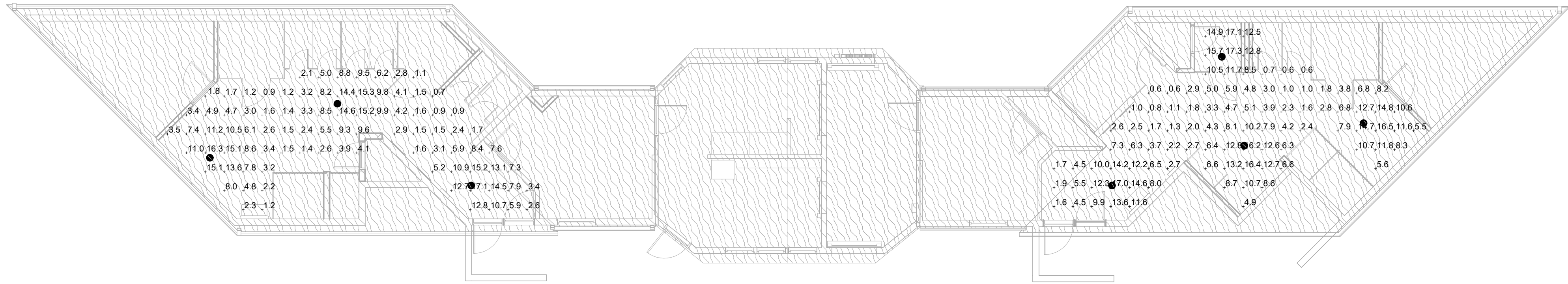
Description: Date:
BUILDING DEPARTMENT 08/05/22
SUBMITTAL
BUILDING DEPARTMENT 09/16/22
RESUBMITTAL #1
REVISED SCOPE 12/14/22
SUBMITTAL

Project Number: 200702
Approved By: AN
Checked By: AN
Drawn By: SP

Issue Date:
LIGHTING
FLOOR PLAN

SHEET NUMBER:
E201

Not for Construction
For Council Approval
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1 RCP LEVEL 1 PHOTOMETRICS
E301 SCALE: 1/8" = 1'-0"

EMERGENCY STATISTICS							TARGET LEVELS	
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg	Max/Min
MEN RESTROOM	+	7.2 fc	17.3 fc	0.6 fc	28.8:1	12.0:1	1.0 fc	40:1
WOMEN RESTROOM	+	6.2 fc	17.1 fc	0.7 fc	24.4:1	8.9:1	1.0 fc	40:1

EMERGENCY INPUT SCHEDULE					
Label	Manufacturer	Catalog Number	Description	Lumens per Lamp	Wattage
L2	Gotham Architectural Lighting	ICO4 35/10 AR LSS 50D	INCITO 4 INCH DOWNLIGHT, ROUND, 3500K, 1000 LUMENS, CLEAR, SEMI-SPECULAR, 50 DEGREE BEAM, CRI80	963	9.84
L4	Lithonia Lighting	BLWP 4 30L ADP LP835	BLWP 4FT 3000 NOMINAL LUMENS, CURVED LINEAR PRISMATIC LENS, 3500K CCT, CRI80	3065	24.99

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PROJECT: CITY OF ROSEVILLE
JOHNSON POOL HOUSE UPGRADES
100 D STREET
ROSEVILLE, CA 95678

005-115

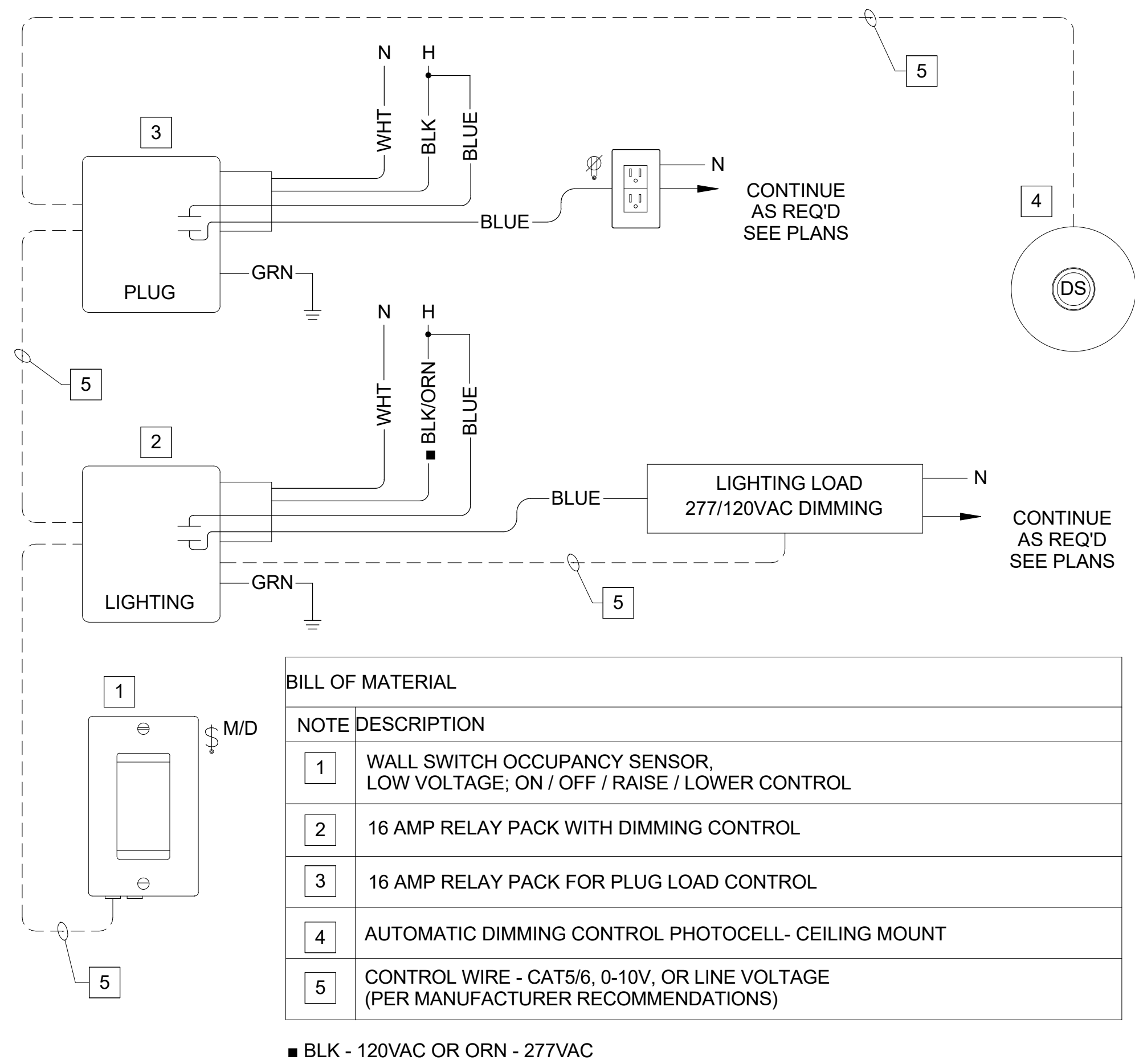
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10/07/22
AN
AN
SP
EM LIGHTING PHOTOMETRICS

SHEET NUMBER:
E301

SCHEMATIC OF TYPICAL WALL-MOUNT MOTION SENSOR - WIRING DIAGRAM



2 E501 SCHEMATIC OF TYPICAL WALL-MOUNT MOTION SENSOR SCALE: NONE

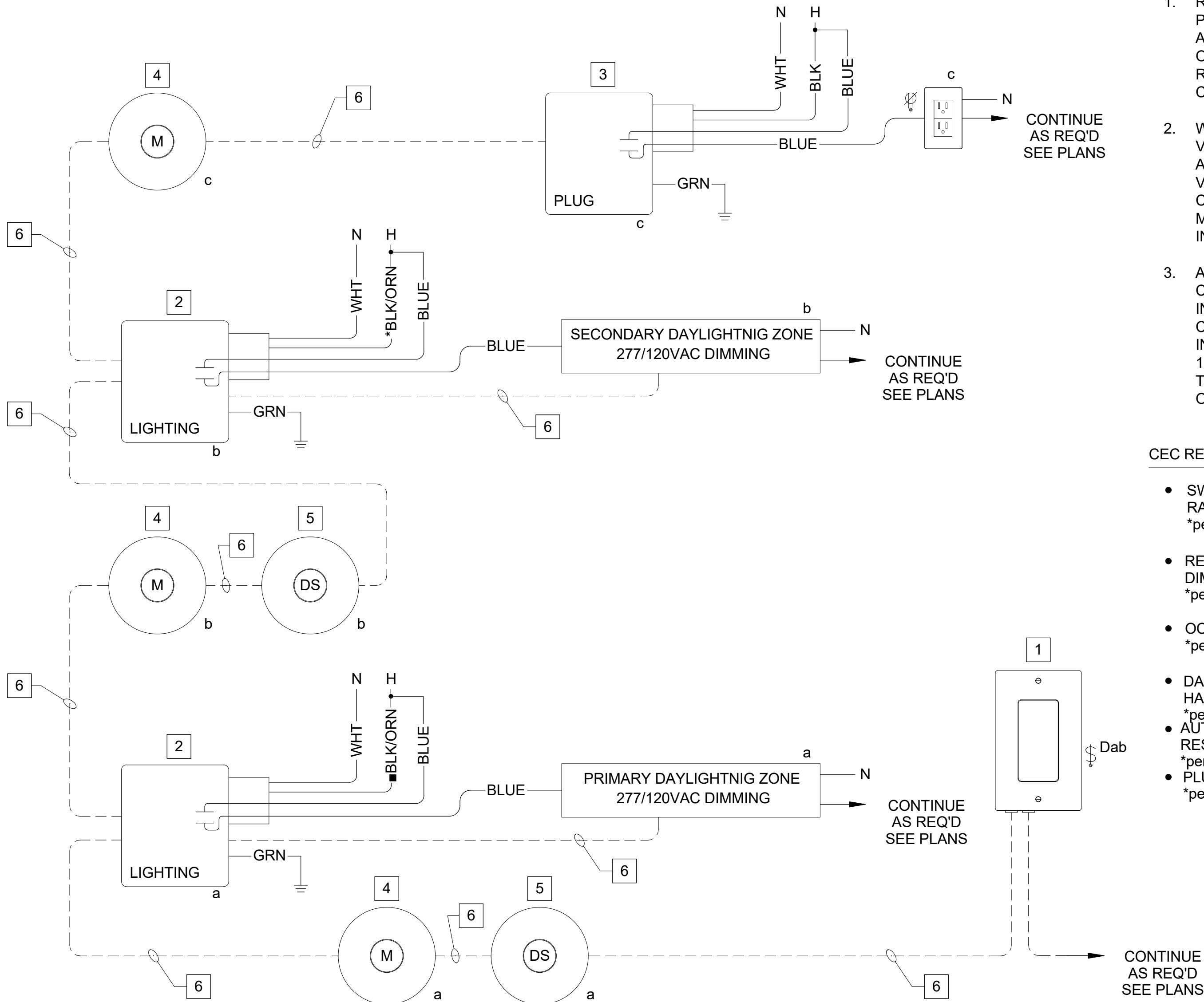
GENERAL NOTES

1. REFER TO LIGHTING AND POWER PLANS FOR QUANTITY AND APPROXIMATE LOCATION OF LIGHTING FIXTURES, RECEPTACLES, DEVICES AND CONTROLS.
2. WIRING CLASS AND TYPE CAN VARY PER MANUFACTURER AND CONTROL SYSTEM. VERIFY ALL WIRING AND CONTROLS WITH MANUFACTURER PRIOR TO INSTALLATION.
3. AUTOMATIC DAYLIGHTING CONTROLS SHALL BE INSTALLED ONLY IF THE TOTAL COMBINED WATTAGE INSTALLED IS GREATER THAN 120 WATTS AND IN ROOMS THAT HAVE MORE THAN 24sq ft OF GLAZING.

CEC REQUIREMENT NOTES

- SWITCH WITH ON/OFF RAISE/LOWER *per section 130.1(A)
- RELAY MODULE WITH ON/OFF DIMMING *per section 130.1(B)
- OCCUPANCY SENSOR *per section 130.1(C)
- DAYLIGHT HARVESTING *per section 130.1(D)
- AUTOMATIC DEMAND RESPONSE *per section 130.1(E)
- PLUG LOAD CONTROL *per section 130.5 (D)

SCHEMATIC OF TYPICAL CEILING-MOUNTED MOTION & DAYLIGHT - WIRING DIAGRAM



BILL OF MATERIAL			
NOTE	DESCRIPTION	NOTE	DESCRIPTION
1	ON/OFF SWITCH WITH DIMMING	4	STANDARD RANGE 360° SENSOR-CEILING MOUNT
2	16 AMP RELAY PACK WITH DIMMING CONTROL	5	AUTOMATIC DIMMING CONTROL PHOTOCELL- CEILING MOUNT
3	16 AMP RELAY PACK FOR PLUG LOAD CONTROL	6	CONTROL WIRE - CAT5/6, 0-10V, OR LINE VOLTAGE (PER MANUFACTURER REQUIREMENTS)

■ BLK - 120VAC OR ORN - 277VAC

1 E501 SCHEMATIC OF TYPICAL CEILING-MOUNTED MOTION & DAYLIGHT SCALE: NONE

GENERAL NOTES

1. REFER TO LIGHTING AND POWER PLANS FOR QUANTITY AND APPROXIMATE LOCATION OF LIGHTING FIXTURES, RECEPTACLES, DEVICES AND CONTROLS.
2. WIRING CLASS AND TYPE CAN VARY PER MANUFACTURER AND CONTROL SYSTEM. VERIFY ALL WIRING AND CONTROLS WITH MANUFACTURER PRIOR TO INSTALLATION.
3. AUTOMATIC DAYLIGHTING CONTROLS SHALL BE INSTALLED ONLY IF THE TOTAL COMBINED WATTAGE INSTALLED IS GREATER THAN 120 WATTS AND IN ROOMS THAT HAVE MORE THAN 24sq ft OF GLAZING.

CEC REQUIREMENT NOTES

- SWITCH WITH ON/OFF RAISE/LOWER *per section 130.1(A)
- RELAY MODULE WITH ON/OFF DIMMING *per section 130.1(B)
- OCCUPANCY SENSOR *per section 130.1(C)
- DAYLIGHT HARVESTING *per section 130.1(D)
- AUTOMATIC DEMAND RESPONSE *per section 130.1(E)
- PLUG LOAD CONTROL *per section 130.5 (D)

005-115

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PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE
UPGRADES

100 D STREET
ROSEVILLE, CA 95678

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Description:

Date:

BUILDING
DEPARTMENT
SUBMITTAL

08/05/22

BUILDING
DEPARTMENT
RESUBMITTAL #1

09/16/22

REVISED SCOPE
SUBMITTAL

12/14/22

Project Number:

400702

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AN

Checked By:

AN

Drawn By:

SP

Issue Time:

ELECTRICAL
DETAILS

SHEET NUMBER:

E501

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C. COMPLIANCE RESULTS										
If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, for guidance.										
Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)2	Allowed Lighting Power per §140.6(b) (Watts)					Adjusted Lighting Power per §140.6(a) (Watts)			Compliance Results	
	01	02	03	04	05	06	07	08	09	
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	Total Allowed (Watts)	Total Designed (Watts)	PAF Lighting Control Credits §140.6(a)2 (-)	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6	
	(See Table I)	(See Table I)	(See Table J)	(See Table K)	=	(See Table F)	(See Table P)	=	COMPLIES	
Conditioned		890.9	0		= 891	≥ 407	0	= 407		
Unconditioned					=			=		
Controls Compliance (See Table H for Details)										COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)										

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE										
This table includes all permanent designed lighting and all portable lighting in offices.										
Designed Wattage: Conditioned Spaces										
01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change ¹	Watts per luminaire ²	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Field Inspector	
L2	L2	No	No	9	Mfr. Spec	27	No	243	Pass	Fail
L3	L3	No	No	16	Mfr. Spec	4	No	64	Pass	Fail
Registration Number: Registration Date/Time: Registration Provider: Energysoft										
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2022-11-29 14:18:15										

J. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS						
Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.						
Conditioned Spaces						
01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Area Category	PAF
RESTROOMS	Restrooms	0.65	1,202	781.3	No	No
STORAGE	All Other Space Types	0.4	274	109.6	No	No
TOTALS:			1,476	890.9	See Tables J, or P for detail	

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

This section does not apply to this project.

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

A. GENERAL INFORMATION				
01 Project Location (city)	ROSEVILLE	04 Total Conditioned Floor Area (ft ²)	1,476	
02 Climate Zone	11	05 Total Unconditioned Floor Area (ft ²)	0	
03 Occupancy Types Within Project (select all that apply):		06 # of Stories (Habitable Above Grade)	1	
☐ Office	☐ Retail	☐ Warehouse	☐ Hotel/Motel	☐ School ☒ Support Areas
☐ Parking Garage	☐ High-Rise Residential	☐ Relocatable	☐ Healthcare	☒ Other (Write in) See Table i

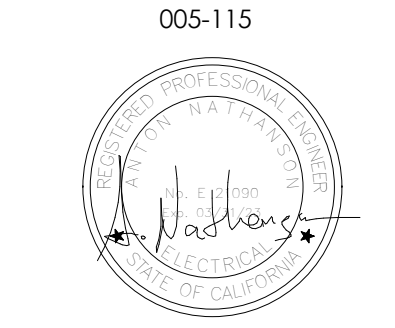
B. PROJECT SCOPE				
This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6, or §141.0(b)2 for alterations.				
Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☐ New Lighting System				
☐ New Lighting System - Parking Garage				
☒ Altered Lighting System	Area Category Method	1476	Area Category Method	0
Total Area of Work (ft²)	1476		0	

F. INDOOR LIGHTING FIXTURE SCHEDULE										
L5	L5	No	No	20	Mfr. Spec	5	No	100	Pass	Fail
Total Designed Watts: CONDITIONED SPACES									407	

¹FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4a is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.

²Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.

G. MODULAR LIGHTING SYSTEMS										
This section does not apply to this project.										
H. INDOOR LIGHTING CONTROLS (Not including PAFs)										
This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.										
Building Level Controls										
01				02				03		
Mandatory Demand Response §110.12(c)				Shut-off controls §130.1(c)				Field Inspector		
Not Required <= 10,000 SF				Whole Building Auto Time Switch				Pass		
								Fail		
☐				☐						
Area Level Controls										
04		05		06	07	08	09	10	11	12
Area Description		Complete Building or Area Category Primary Function Area		Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Sky lit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector
										Pass
										Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.										13
EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2										Plan Sheet Showing Daylit Zones:



PROJECT: CITY OF ROSEVILLE

JOHNSON POOL HOUSE UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: Date:

BUILDING DEPARTMENT SUBMITTAL 08/05/22

BUILDING DEPARTMENT RESUBMITTAL #1 09/16/22

REVISED SCOPE SUBMITTAL 12/14/22

Registration Number: 400702

Approved By: AN

Checked By: AN

Drawn By: SP

Issue Date:

TITLE 24 FORMS

SHEET NUMBER:

E601

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page:	(Page 6 of 7)
Project Address:	100 D STREET	Date Prepared:	11/29/2022

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>

Yes	No	Form/Title	Field Inspector	
			Pass	Fail
☒	☐	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
☐	☒	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
☐	☒	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
☐	☒	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF)	☐	☐

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003
Schema Version: rev 20200601

Report Generated: 2022-11-29 14:18:15

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page:	(Page 1 of 7)
Project Address:	100 D STREET	Date Prepared:	5/24/2022

A. GENERAL INFORMATION

01 - Project Location (city)	ROSEVILLE	04 - Total Illuminated Hardscape Area (ft²)	600
02 - Climate Zone	11		
03 - Outdoor Lighting Zone per Title 24 Part 1 §10.114 or as designated by Authority Having Jurisdiction (AHJ):			
☐ LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Rural Areas	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval	
☐ LZ-1: Low - Developed Parkland	☒ LZ-3: Moderately High - Urban Areas		

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.2 or §141.0(b)(2) for alterations.

My Project Consists of:

01		02			
☐ New Lighting System	Must Comply with Allowances from §140.2				
☒ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?	☒ Yes	☐ No		
03		04		05	
% of Existing Luminaires Being Altered¹		Sum Total of Luminaires Being Added or Altered		Calculation Method	
☐ < 10%	☐ >= 10% and < 50%	☐ >= 50%			

Please proceed to Table F, Outdoor Lighting Fixture Schedule to define the project's luminaires.

¹ FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003
Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page:	(Page 5 of 7)
Project Address:	100 D STREET	Date Prepared:	11/29/2022

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Yes	No	Form/Title	Field Inspector	
			Pass	Fail
☒	☐	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐
☐	☒	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐
☐	☒	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room or a theater to be recognized for compliance.	☐	☐
☐	☒	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐	☐
☐	☒	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐	☐

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003
Schema Version: rev 20200601

Report Generated: 2022-11-29 14:18:15

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page:	(Page 7 of 7)
Project Address:	100 D STREET	Date Prepared:	11/29/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Anton Nathanson	Documentation Author Signature:
Company: ELEN Consulting Inc	Signature Date: 2022-11-29
Address: 9150 Chesapeake Dr Ste 220	CEC/HERS Certification Identification (if applicable): E21090
City/State/Zip: San Diego CA 92123	Phone: 619.550.1085

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Anton Nathanson	Responsible Designer Signature:
Company: Elen Consulting	Date Signed: 2022-11-29
Address: 9150 Chesapeake Dr Ste 220	License: E21090
City/State/Zip: San Diego CA 92123	Phone: 619.550.1085

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003
Schema Version: rev 20200601

Report Generated: 2022-11-29 14:18:15



PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description:

Date:

BUILDING DEPARTMENT SUBMITTAL

08/05/22

BUILDING DEPARTMENT RESUBMITTAL #1

09/16/22

REVISED SCOPE SUBMITTAL

12/14/22

Not for Construction
For Council Approval
Re-Bid

Project Number: 400702

Approved By: AN

Checked By: AN

Drawn By: SP

Issue Date:

TITLE 24 FORMS

SHEET NUMBER:

E602

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-LTO-E

Project Name: JOHNSON POOL HOUSE UPGRADES

Report Page: (Page 3 of 7)

Project Address: 100 D STREET

Date Prepared: 5/24/2022

F. OUTDOOR LIGHTING FIXTURE SCHEDULE										
For new or altered lighting systems demonstrating compliance with §140.7, all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L, only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (i.e., existing luminaires remaining or existing luminaires being moved are not included).										
Designed Wattage:										
01	02		03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description		Watts per luminaire ^{2,3}	How is Wattage determined	Total number luminaires ³	Luminaire Status ³	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 6,200 Initial lumen output §130.2(b) ⁴	Field Inspector
S1	S2	☐ Linear	19	Mfr. Spec	7	New	☐	133	NA: < 6200 lumens	☐ Pass ☐ Fail
Total Design Watts:								133		
* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved. EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(c).										

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-LTO-E

Project Name: JOHNSON POOL HOUSE UPGRADES

Report Page: (Page 5 of 7)

Project Address: 100 D STREET

Date Prepared: 5/24/2022

I. LIGHTING POWER ALLOWANCE (per §140.7)									
This table includes areas using allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.									
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 0, 1 & 4)									
This section does not apply to this project.									
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3)									
02	03	04	05	06	07	08	9	10	
Area Description	Surface Type	Area Wattage Allowance (AWA)			Area Wattage Allowance (AWA)			Total General AWA + LWA (Watts)	
		Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)		
BUILDING EXTERIOR FRONT AREA	Asphalt	330	0.03	8.25	110	0.4	27.5	35.75	
BUILDING EXTERIOR POOL AREA	Asphalt	270	0.03	6.75	125	0.4	31.25	38	
Initial Wattage Allowance for Entire Site (Watts):								350	
Total General Hardscape Allowance (Watts):								423.75	

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-LTO-E

Project Name: JOHNSON POOL HOUSE UPGRADES

Report Page: (Page 2 of 7)

Project Address: 100 D STREET

Date Prepared: 5/24/2022

C. COMPLIANCE RESULTS									
Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.									
Calculations of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L							Compliance Results		
01	02	03	04	05	06	07	08	09	
General Hardscape Allowance §140.7(d)1 (See Table I)	+ Per Application §140.7(d)2 (See Table J)	+ Sales Frontage §140.7(d)2 (See Table K)	+ Ornamental §140.7(d)2 (See Table L)	+ Per Specific Area §140.7(d)2 (See Table M)	OR Existing Power Allowance §141.0(b)2L (See Table N)	= Total Allowed (Watts)	≥ Total Actual (Watts)	07 must be >= 08	
423.75	+	---	+	---	+	---	OR	---	
Cutoff Compliance (See Table G for Details)									N/A
Controls Compliance (See Table H for Details)									COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

NRCC-LTO-E

Project Name: JOHNSON POOL HOUSE UPGRADES

Report Page: (Page 4 of 7)

Project Address: 100 D STREET

Date Prepared: 5/24/2022

H. OUTDOOR LIGHTING CONTROLS				
This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application. When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.				
Mandatory Controls				
01	02	03	04	05
Area Description	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Field Inspector
				Pass ☐ Fail ☐
* NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. EX: Not permitted by health & safety to be turned off. EXCEPTION 1 to §130.2(c).				

Registration Number:

Registration Date/Time:

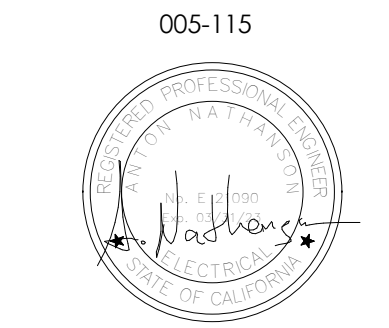
Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45



PROJECT:
CITY OF ROSEVILLE
JOHNSON POOL HOUSE UPGRADES

100 D STREET
ROSEVILLE, CA 95678



Description: Date:
BUILDING DEPARTMENT SUBMITTAL 08/05/22
BUILDING DEPARTMENT RESUBMITTAL #1 09/16/22
REVISED SCOPE SUBMITTAL 12/14/22

Drawn By: AN
Checked By: AN
Drawn By: SP

Issue Date:
TITLE 24 FORMS

SHEET NUMBER:
E603

Not for Construction
For Council Approval
Re-Bid

STATE OF CALIFORNIA

Outdoor Lighting

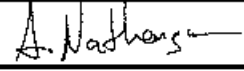
NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page: (Page 6 of 7)
Project Address:	100 D STREET	Date Prepared: 5/24/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Anton Nathanson	Documentation Author Signature: 
Company: ELEN Consulting Inc	Signature Date: 2022-05-24
Address: 9150 Chesapeake Dr Ste 220	CEA/ HERS Certification Identification (if applicable): E21090
City/State/Zip: San Diego CA 92123	Phone: 619-550-1085

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

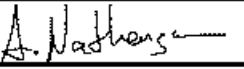
1. The information provided on this Certificate of Compliance is true and correct.

2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)

3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.

4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Anton Nathanson	Responsible Designer Signature: 
Company: Elen Consulting	Date Signed: 2022-05-24
Address: 9150 Chesapeake Dr Ste 220	License: E21090
City/State/Zip: San Diego CA 92123	Phone: 619-550-1085

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name:	JOHNSON POOL HOUSE UPGRADES	Report Page: (Page 6 of 7)
Project Address:	100 D STREET	Date Prepared: 5/24/2022

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Yes	No	Form/Title	Field Inspector	
			Pass	Fail
☒	☐	NRCI-LTO-01-E - Must be submitted for all buildings	☐	☐
☐	☒	NRCI-LTO-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>

Yes	No	Form/Title	Field Inspector	
			Pass	Fail
☐	☒	NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	☐	☐

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Report Version: 2019.1.003

Schema Version: rev 20200601

Report Generated: 2022-05-24 14:39:45

PROJECT:

CITY OF ROSEVILLE

JOHNSON POOL HOUSE UPGRADES

100 D STREET

ROSEVILLE, CA 95678

Description: Date:

BUILDING DEPARTMENT SUBMITTAL 08/05/22

BUILDING DEPARTMENT RESUBMITTAL #1 09/16/22

REVISED SCOPE SUBMITTAL 12/14/22

Project Number: 400702

Approved By: AN

Checked By: AN

Drawn By: SP

Issue Time:

TITLE 24 FORMS

SHEET NUMBER:

E604

Not for Construction

For Council Approval

Re-Bid



Project Manual for the Johnson Poolhouse Renovation Project (Re-bid)

February 2023

The latest edition of the City of Roseville Parks Construction Standards are incorporated by reference as a part of this Project Manual. The Parks Construction Standards are available at www.roseville.ca.us/parksintheworks.

Parks, Recreation & Libraries
316 Vernon Street, Suite 400
Roseville, California 95678
www.roseville.ca.us

CITY OF
ROSEVILLE
CALIFORNIA

Not for Construction
For Council Approval
Re-Bid



Parks, Recreation & Libraries
Park Development
316 Vernon Street, Suite 400
Roseville, California 95678

Notice to Bidders

DATE: February 2, 2023

TO: Prospective Bidders

FROM: Heather Buck, Park Development Project Manager

RE: Johnson Poolhouse Renovation Project (Re-bid)

Project Description: The City of Roseville is now accepting bid proposals for the Johnson Poolhouse Renovation Project (Re-bid). The scope of work for the base bid includes, but is not limited to: accessibility upgrades to the poolhouse and related mechanical, electrical, and plumbing upgrades.

Contract Documents: A Project Manual, including all Contract Documents and the Proposal forms for bidding this project, may be obtained online from the City of Roseville's website at www.roseville.ca.us/business/procurement_services/bids_rfps. All communications relative to this project shall be conducted through Public Purchase.

Potential bidders are advised to obtain all documents and specifications related to this project directly from the City of Roseville. The City of Roseville does not guarantee the accuracy of any forms, plans, or project manuals obtained through outside sources other than the City of Roseville. Furthermore, the City does not guarantee the distribution of any addendums or the accuracy of their content if obtained from a third party.

Bidders expressly assume the risk that their bid will be rejected from the use of project manuals or project plans obtained from third parties other than the City of Roseville.

Engineer's Estimate: The engineer's estimate for construction of the base bid items is \$450,000.00.

Pre-Bid Meeting: A job walk will be held at 10:00 a.m. on Thursday, February 16, 2023 at 100 D Street, Roseville, CA 95678. This is not mandatory, but strongly encouraged to answer any questions. Bidders are expected to be familiar with the existing site conditions however, and may pose questions on any conditions they may discover that are not represented within the bid documents.

Questions: The deadline for submission of questions and clarifications regarding the Contract Documents is February 21, 2023 at 5:00 p.m. In order to meet the required timeline to issue addenda, questions will not be accepted after this date. Only Addenda issued by the City are binding. All questions shall be directed to the attention of Heather Buck via Public Purchase at <https://roseville.ca.us/rfp>.

Bid Deadline: Proposals will be received at the Office of the City Clerk, 311 Vernon Street, Roseville, California, until 3:00 p.m. February 28, 2023. The proposals will be publicly opened and read by the City Clerk or designee of the City of Roseville in the City Clerk's Office at 3:05 p.m. on that same day.

The July 2021 edition of the City of Roseville Parks Construction Standards will be applicable to this project. The successful bidder will be required to use the standards contained in the book for the construction of this project.

Not for Construction
For Council Approval
Re-Bid



Parks, Recreation & Libraries
Park Development
316 Vernon Street, Suite 400
Roseville CA 95678

Notice to the apparent low bidder for the Johnson Poolhouse Renovation Project (Re-bid)

In order to move forward with the award of this project, the City of Roseville requests that you submit the following documents:

1. Agreement (two sets of originals, single-side print) with either:
 - wet signatures from two corporate officers, or
 - wet signature from one corporate office plus the corporate seal
2. Public Works Faithful Performance Bond – fully executed and notarized.
3. Public Works Labor and Materials Payment Bond – fully executed and notarized.
4. Insurance - fully executed and notarized.
5. CDBG Supplement to Contract for Construction Forms

The Agreement, bond forms and insurance requirements are contained in this Project Manual.

We request that all documents be received by March 10, 2023.

Please contact us if you are unable to meet this deadline.

Send completed forms to:

City of Roseville - Parks, Recreation & Libraries Department
Attn: Heather Buck
316 Vernon Street, Suite 400
Roseville CA 95678

The Parks, Recreation & Libraries Department requires submittal of all of the above executed documents prior to City Council bid award.

Not for Construction
For Council Approval
Re-Bid

916.774.5505 phone
916.774.5251 fax
www.roseville.ca.us

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CITY OF ROSEVILLE

DEPARTMENT OF PARKS, RECREATION & LIBRARIES

Name of Project: Johnson Poolhouse Renovation (Re-bid)

NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN THAT sealed Proposal will be received at the Office of the City Clerk, 311 Vernon Street, Roseville, CA 95678, until 3:00 P.M. on February 28, 2023. Late proposals will be rejected. No exceptions.

The Proposals will be publicly opened and read by the City Clerk or designee of the City of Roseville at 3:05 P.M. on February 28, 2023 at the Office of the City Clerk located at 311 Vernon Street, Roseville, CA 95678 for the following project:

Johnson Poolhouse Renovation (Re-bid).

A pre-bid meeting will be held at 10:00 a.m. on February 16, 2023, at Johnson Pool, 100 D. Street, Roseville, CA 95678. This is not mandatory, but strongly encouraged.

A Project Manual, including all Contract Documents and the Proposal forms for bidding this project, may be obtained on-line from the City of Roseville's website at https://www.roseville.ca.us/business/procurement_services/bids_rfps. All communications relative to this project shall be conducted through Public Purchase.

Bids shall be submitted on City's Proposal Forms included in the Project Manual, plainly endorsed with the Bidder's name together with signed acknowledgement of any and all addenda. Proposal Forms shall be securely sealed in a suitable envelope marked with the name and address of the Bidder, and marked in capital letters on the front and back of the envelope as follows:

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[NAME OF PROJECT]

(Name of Bidder)

(Address of Bidder)

Whether mailed or personally delivered, all bids shall be addressed to City of Roseville, Office of the City Clerk, 311 Vernon Street, Roseville, California, 95678.

Each bid must be accompanied by a Bid Guaranty in the form of a Certificate of Deposit, Certified or Cashier's Check, Bidder's Bond or Irrevocable Standby Letter of Credit in an amount equal to at least ten percent (10%) of the Bidder's Grand Total Price. The Bid Guaranty will be retained by the City and applied to any and all damages sustained by the City in the event that the successful Bidder fails or refuses to enter into the Contract awarded to it and to furnish all required bonds and Certificates of Insurance. The City intends to award the Contract to the lowest responsible Bidder based on the Grand Total Bid Price for all components of the Project. To the extent allowed by law, the City reserves the right to reject any and all bids and/or to waive any irregularities or informalities in any bid or in the bidding procedure. The City specifically reserves the right to not award the Contract after the opening of bids.

Any bid may be withdrawn at any time prior to the time fixed in the public notice for the deadline of submission of bids only by written request for the withdrawal of the bid filed with City Clerk. The request shall be executed by the Bidder or his or her duly authorized representative. The withdrawal of a bid does not prejudice the right of the Bidder to file a new bid by the submission deadline. Whether or not bids are opened exactly at the time fixed in the public notice for opening bids, a bid will not be received after the deadline for submission of bids, nor may any bid be withdrawn after the time fixed in the public notice for deadline for

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submission of bids. Immediately following the deadline for submission of bids all bids shall become the property of City of Roseville and the City is under no obligation to return bids.

Bids will be examined and reported to the City Council within sixty (60) business days after the bid opening. Except as permitted by applicable law, no Bidder may withdraw its bid for a period of sixty (60) business days after the date of bid opening. Each Bidder will be notified of any award of the Contract by the City.

The City will affirmatively ensure non-discrimination on the basis of one or more of the following: race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, age, sexual orientation, or military and veteran status in the award and administration of contracts that it awards.

The City will affirmatively ensure that, in any Contract entered into pursuant to this Notice to Contractors, disadvantaged business enterprises will be afforded full opportunity to submit bids and will not be discriminated against on the grounds of sex, race, color, or national origin in consideration for an award.

This project is subject to Section 3 of the Housing and Urban Development Act of 1968 “Economic Opportunities to Low and Very-Low Income Persons and Business Concerns.” This project is also subject to federal Affirmative Action and Equal Opportunity requirements (E.O. 11246). Preference may be given to minority-owned and women-owned firms, and to bidders who subcontract to minority-owned and women-owned firms.

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

At the time of award, the selected contractor shall be properly licensed in accordance with the laws of the State and the City of Roseville. Contractor shall possess a valid Class A or B license prior to award of Contract or other license qualifying the bidder to bid as a prime Contractor. Said license shall be maintained during the contract period. It is the Bidder's and Contractor's responsibility to obtain the correct Contractor's licenses. Bidders shall be skilled and regularly engage in the general class or type of work called for under this contract.

The work is to be done in Placer County. Pursuant to California Labor Code Section 1773, the City has ascertained the General Prevailing Rate of Wages in the County in which the work is to be done to be as determined by the Director of Industrial Relations of the State of California. The Contractor is hereby made aware that information regarding prevailing wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>. The Contractor is required to post a copy of the applicable wage rates at the job site.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at Prevailing Wage questions; please send your inquiries to Statistics@dir.ca.gov

This project shall be subject to monitoring and enforcement by the City and the Department of Industrial Relations (DIR), including the obligation to submit certified payroll

records to the City and or their representing firm and directly to the DIR Compliance Monitoring Unit (CMU) at least monthly using the CMU's eCPR system. Detailed information may be obtained on the State of California's Department of Industrial Relations website, <http://www.dir.ca.gov/publicworks/publicworks.html>.

This project is federally-funded through the Community Development Block Grant program. The project is subject to federal labor standards and Davis-Bacon and Related Acts. The payment of federal prevailing wages will be required. The current federal wage decision is September 2, 2022. The applicable wage decision will be determined ten days prior to bid opening. Should the federal wage for a given classification differ from the state prevailing wage, the higher of the two shall be paid. To document compliance, certified payrolls must be submitted each week and the City must be provided access to workers on site. Federal rules limit the number of apprentices that may be employed. Apprentices must be registered in a federally-recognized program. The effective federal wage decisions and posters informing workers of their rights must be posted at the job site where they are plainly visible and accessible to workers.

All bidders will be required to certify that they are not on the federal Consolidated List of Debarred, Suspended and Negligible Contractors.

All questions prior to the deadline for bid submissions shall be directed to the attention of Heather Buck via Public Purchase at https://www.roseville.ca.us/business/procurement_services/bids_rfps. The deadline for submissions of questions and clarifications regarding the Contract Documents is seven (7) calendar days before the deadline for bid submissions. Only Addenda issued by City are binding.

City Clerk, City of Roseville

Dated: _____

Published: _____

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INSTRUCTIONS TO BIDDERS

SECTION 1. GENERAL

1-1.01 **GENERAL.** These Instructions to Bidders form a part of the Contract Documents. Capitalized terms are defined in the General Conditions Section 1.

1-1.02 **EXAMINATION OF PLANS, CONTRACT DOCUMENTS AND SITE OF THE WORK.** The Bidder shall examine carefully the site of the Work and all the Contract Documents, including these Instructions to Bidders, and shall inform itself of the conditions relating to the execution of the Work. Failure to do so will not relieve the successful Bidder of its obligation to enter into an Agreement and complete the Work in strict accordance with the Contract Documents. Conditions relating to the execution of the Work include the requirements of federal, state, and local laws, statutes and ordinances relative to the execution of Work, including, but not limited to, applicable regulations concerning prevailing wage rates, non-discrimination in the employment of labor, protection of the public, employee health and safety, and environmental protection.

The submission of a bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work to be performed, the quantities of materials to be furnished, and as to the requirements of all the Contract Documents.

1-1.03 **EXISTING INFORMATION.** Where the Department has made investigations of site conditions, including subsurface conditions in areas where Work is to be performed under the Contract, such investigations are made only for the purpose of study and design. City does not represent that such conditions as found in these investigations or inferences or conclusions drawn as a result of these investigations will represent actual site

conditions and hereby disclaims any liability as a result of Contractor's or Bidder's reliance on such investigations. City will presume that all Bidders have conducted their own site investigations, including investigations of subsurface conditions. Where such investigations have been made, Bidders or Contractors may, upon written request, inspect the records of the Department as to such investigations subject to the conditions set forth in these Instructions to Bidders. Such inspection of records may be made only at the location noted above. The records of such investigations are not a part of the Contract Documents and are shown solely for the convenience of the Bidder or Contractor. The City assumes no responsibility whatsoever with respect to the sufficiency or accuracy of the investigations made, the records thereof, or of the interpretations set forth therein or made by the City in its use thereof. The City makes no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records are representative of those existing throughout such areas, or any part thereof, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated, may not be encountered.

No information derived from such inspection of records of investigations or compilation thereof made by the City, the Department or from the Engineer, or his or her assistants, will in any way relieve the Bidder or Contractor from properly examining the site and making such additional investigations as it may elect, or from properly fulfilling the terms of the Contract.

SECTION 2: BID REQUIREMENTS

2-1.01 **PROPOSAL FORMS.** The Department will furnish to each Bidder standard Proposal Forms, which, when filled out and executed may be submitted as the bid. Proposals shall include all pages in the Project Manual with page numbers marked “PROP” plus the Addendum acknowledgment form (front sheet) from all Addenda received by the Bidder. Proposals shall be removed from the Project Manual. The full Project Manual shall not be submitted with the proposal. Bids not presented on forms so furnished will be disregarded.

The Proposal and one (1) copy thereof shall be submitted as directed in the “Notice to Contractors” under sealed cover plainly marked as a Proposal, and identifying the project to which the Proposal relates and the date of the bid opening therefor. Proposals which are not properly marked may be disregarded.

All blank spaces in the Proposal must be completed, as required, in ink. All price information shall be shown, clearly legible, in figures where required.

The Bidder shall sign the Proposal in the blank space provided therefor. If the Bidder is the sole owner, the Proposal shall be signed by the owner. If the Bidder is a corporation, the legal name of the corporation and its State of incorporation shall be set forth and the Proposal shall be signed by at least two officers authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, the true name of the firm shall be set forth, the names and addresses of all partners shall be given and the Proposal shall be signed by a partner in the firm authorized to sign contracts on behalf of the partnership. If the Bidder is a joint venture, the Proposal shall be signed on behalf of each participating company by officers or other individuals who have the full and proper authorization to do so. If the Proposal is signed by an agent of the Bidder other than an officer of a corporation or a member of a partnership, a notarized Power of

Attorney must be on file with the City prior to opening of bids or must be submitted with the Proposal. If requested by the City, the Bidder shall promptly submit evidence satisfactory to the City of the authority of the person signing the Proposal.

2-1.02 **SUBMISSION OF BIDS.** Bids must be submitted at the prescribed time and location specified in the Notice to Contractors. Any submission received after the prescribed time shall be rejected, regardless of whether or not bids are opened exactly at the prescribed time.

Any unauthorized conditions or qualifications entered on, or changes made to, the Proposal may render it invalid and may cause its rejection.

No telegraphic, telephonic, or facsimile or other electronically transmitted bids will be considered.

2-1.03 **REQUIRED LISTING OF PROPOSED SUBCONTRACTORS.** Each Proposal shall list the name, address and Contractor license number of each Subcontractor to whom the Bidder proposes to subcontract portions of the Work in an amount in excess of one-half of one percent (0.5%) of its total bid, in accordance with Section 4100 to 4114, inclusive, of the Public Contract Code for the State of California. The Bidder shall list the Subcontractor's license number and the portion of the Work that will be done by each Subcontractor. If the Bidder fails to specify a Subcontractor for any portion of the Work, the Bidder agrees to perform that portion of the Work itself, and represents that it is qualified to perform that portion of the Work itself. The Bidder's attention is invited to other provisions of the Public Contract Code related to the imposition of penalties for a failure to observe its provisions by using unauthorized Subcontractors or by making unauthorized substitutions.

2-1.04 **CONTRACTOR'S LICENSING LAWS.** Attention is directed to the

provisions of Business and Professions Code Chapter 9 of Division 3 concerning the licensing of Contractors.

All Bidders at the time of bid submittal shall be licensed as Contractors in accordance with the laws of this State. Any Bidder or Contractor not so licensed is subject to the penalties imposed by such laws. The form of Contractor's license required is stated in the Notice to Contractors, provided that the City makes no representation as to whether the State may require other or additional licenses. It is the Bidder's and Contractor's responsibility to obtain the correct Contractor's licenses. Bidders shall be skilled and regularly engaged in the general class or type of Work called for under this Contract.

All Bidders and Contractors, including Subcontractors, shall have a current City business license before undertaking any Work.

2-1.05 **NONCOLLUSION DECLARATION.** By submitting a bid, the Bidder represents and warrants that such bid is genuine and not a sham or collusive or made in the interest or on the behalf of any person therein named, and that the Bidder has not, directly or indirectly, included or solicited any other Bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the Bidder has not in any manner sought collusion to secure the Bidder an advantage over any other Bidder.

Bidders shall submit a properly completed and executed "Noncollusion Declaration" in the form required by Public Contract Code Section 7106 and provided with the Proposal (PROP-11).

2-1.06 **DISQUALIFICATION, REMOVAL OR OTHER PREVENTION OF BIDDING.** A bid may be rejected on the basis of a Bidder, any officer of such Bidder, or any employee of such Bidder who has a proprietary interest in such Bidder, having been disqualified,

removed, or otherwise prevented from bidding on, or completing a federal, state, or local project because of a violation of law or a safety regulation.

2-1.07 **PROPOSAL GUARANTY.** All bids shall be accompanied by one of the following forms of Bidder's security: Cash, a cashier's check, a certified check, or a Bidder's bond executed by an admitted California surety insurer, made payable to the City of Roseville, or any other form of security deemed acceptable by the City Attorney. The security shall be in an amount equal to at least ten percent (10%) of the amount bid. A bid will not be considered unless one of the form of Bidder's security is enclosed with it.

A Bidder's bond shall conform to the City's bond form in the Proposal and shall be properly filled out and executed.

2-1.08 **SCHEDULE OF BID PRICES.** Bidders are directed to submit unit and lump sum prices for all Work set forth in the Contract Documents on the Proposal Form entitled "Schedule of Bid Prices."

Unit prices and lump sum prices, as indicated, must be entered in the appropriate spaces provided in the Schedule of Bid Prices. If applicable, unit prices shall be multiplied by the quantities shown, and the total shall be inserted in the Amount column. In the event of any error or discrepancy between the unit price and the calculated amount, the unit prices shall govern.

The City may correct any mathematical errors apparent on the face of the bid.

The amounts shown in the Amount column must be added together in arriving at the Grand Total Bid Price.

Amounts for Allowance bid items must be entered in the exact amount in the Amount column.

The prices included within the Schedule of Bid Prices shall include all costs for labor

materials, tools, equipment, services, Subcontractors, suppliers, taxes, insurance, shipment, delivery, overhead, profit, and all other costs necessary to perform the Work in accordance with the Contract Documents.

The Grand Total Bid Price shall be indicated in the Summary table form included with the Schedule of Bid Prices. The Grand Total Bid Price shall be the sum of the amounts bid for each of the designated portions of the Work, as more specifically described on the Schedule of Bid Prices form itself.

Full compensation for complying with the Contract Documents, including requirements of the Standard Specifications, the General Conditions, Supplemental Conditions, and all warranties, shall be considered included in the bid items and no additional compensation shall be allowed therefor.

Full compensation for completion of all work as shown on the plans, as specified in the Specifications, and as directed by the City, shall be considered included in the bid items and no additional compensation shall be allowed.

Bidders are strongly discouraged from submitting unbalanced bids. As used herein, the term “unbalanced bid” is defined as any bid that does not include a reasonable proportionate allocation of indirect costs and profit of each bid item indicated in the Schedule of Bid Prices. The City reserves the right to reject any unbalanced bid if the City determines that there is a reasonable doubt that an acceptance of the bid will not result in the lowest ultimate cost to the City with regard to the work or a disproportionate distribution of contract funds.

The City reserves the right to delete any bid item in its entirety and/or significantly reduce the quantity of Work under a bid item. The City makes no representation that any Work under a bid item will be performed during the course of the Project or that the Work will be

performed at the quantities included in the Schedule of Bid Prices. As provided in the General Conditions, for any deleted Work, Contractor shall not be entitled to payment of the indirect costs and profit included for said bid item. All bid items shall be considered distinct and severable from the remaining bid items, and each Bidder acts at its peril if its bid is unbalanced.

The City shall compare bids on the basis of the Grand Total Bid Price, which includes the base bid and any alternates designated on the Schedule of Bid Prices. Alternates may or may not be awarded, or may be awarded in any combination, at the City's discretion.

2-1.09 **WITHDRAWAL OF PROPOSALS.** Any bid may be withdrawn at any time prior to the time fixed in the Notice to Contractors for the opening of bids, provided that a request in writing, executed by the Bidder or its duly authorized representative, for the withdrawal of such bid is filed with the City Clerk. Facsimile and electronic mail requests are not acceptable. The withdrawal of a bid shall not prejudice the right of a Bidder to file a new bid. The withdrawal of any bid after the time fixed in the Notice to Contractors for the opening of bids will not be permitted.

2-1.10 **ADDENDUM.** Proposals shall include all costs and account for all Addenda issued prior to opening of bids. The Bidder is responsible for verifying that all issued Addenda have been received. An Addendum acknowledgment form for each Addendum shall be included as part of the Proposal submittal.

2-1.11 **PUBLIC OPENING OF PROPOSALS.** Proposals will be publicly opened and read at the time and place indicated in the Notice to Contractors. Bidders or their authorized agents are invited to be present.

2-1.12 **TRENCHING AND EXCAVATION WORK.** In accordance with the provisions of California Labor Code Section 6707, if the Work involves construction of a

pipeline, sewer, sewage disposal system, boring or jacking pits, or similar trenches or open excavations, which are five feet (5') or deeper, each bid submitted shall contain, as a bid item, adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which shall conform to all applicable safety orders.

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SECTION 3: EVALUATION OF BIDS

3-1.01 **BID EVALUATION PROCESS.** Bids will be evaluated to determine the apparent low Bidder. The apparent low Bidder will be determined on the basis of the Grand Total Bid Price, as shown in the Schedule of Bid Prices. If additive or deductive alternates are used in the Schedule of Bid Prices, the apparent low Bidder will be the Bidder with the lowest total of the bid prices for base contract items plus the alternates designated by the City as those that will be used for determining the lowest bid price. However, the City reserves the right to (1) not award any alternates or (2) award any combination of alternates.

In case of discrepancy between the total of the base contract items and any specified alternates and the stated Grand Total Bid Price, the total of the base contract items plus specified alternates shall prevail. Any mathematical errors that appear on the face of the bid will be corrected by the City and the City will use the mathematically corrected addition. For example, if the mathematical total of Bidder's base contract items plus specified alternates equals \$1,000,000, but the Bidder has written \$1,250,000 as the Grand Total Bid Price, the City will consider \$1,000,000 to be the Bidder's Grand Total Bid Price for purposes of comparison to other Bidders and actual bid award. The City reserves its rights to reject or accept bids based on discrepancies between the stated Grand Total Bid Price and the actual mathematical total of the base contract bid items, plus specified alternates.

3-1.02 **REJECTION OF IRREGULAR PROPOSALS.** Proposals may be rejected in the City's sole discretion if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind. However, the City reserves the right to waive any minor irregularities and informalities in any bid or in the bid procedure for any reason.

3-1.03 **COMPETITIVE BIDDING.** If more than one proposal is offered by any individual, firm, partnership, corporation, association, or any combination thereof, under the same or different names, all such proposals may be rejected. A party who has quoted prices on materials or Work to a Bidder is not thereby disqualified from quoting prices to other Bidders, or from submitting a bid directly for the materials or Work.

All Bidders are put on notice that any collusive agreement to control or affect the awarding of this Contract is in violation of the competitive bidding requirements of the City Charter, State Contract Act and the Business and Professions Code and may render void any Contract let under such circumstances.

3-1.04 **RELIEF OF BIDDERS.** If the Bidder claims a mistake was made in its bid, the Bidder shall give the Department written notice within five (5) Days after the opening of the bids of the alleged mistake, specifying in the notice in detail how the mistake occurred. No relief from a claimed mistaken bid shall be granted unless such mistake clearly appears on the face of the bid submitted to the City. Claimed mistakes on backup worksheets, spreadsheets, computerized bidding programs, or any other similar calculative bidding mistake which is not apparent on the face of the bid shall not under any circumstance be considered as a basis for relief. The burden of proving the occurrence of a mistake entitling a Bidder to relief from its bid rests entirely on the Bidder. Relief from bids shall be in the City's sole discretion.

SECTION 4: AWARD AND EXECUTION OF CONTRACT

4-1.01 **AWARD OF CONTRACT.** The City reserves the right to reject any and all proposals and to award (or not award) any combination of bid items at its option. Any such award will be to the lowest responsible Bidder whose proposal complies with the requirements prescribed for the bid items awarded. Such award, if made, will be made within sixty (60) business days after the opening of the proposals. If the lowest responsible Bidder refuses or fails to execute the Contract, or provide an acceptable Performance Bond, Payment Bond, and insurance certificate(s), the City may award the Contract to the second lowest responsible Bidder. Such award, if made, will be made within eighty-two (82) business days after the opening of proposals. If the second lowest responsible Bidder refuses or fails to execute the Contract, or provide an acceptable Performance Bond, Payment Bond, and insurance certificate(s), the City may award the Contract to the third lowest responsible Bidder. Such award, if made, will be made within one hundred four (104) business days after the opening of the proposals. The above time periods within which the award of Contract may be made are subject to extension for such further period as may be agreed upon in writing between the City and the Bidder concerned.

4-1.02 **RETURN OF BIDDER'S SECURITIES.** Within ten (10) Days after the award of the Contract, the City Clerk will return all Bidders' securities, other than Bidders' bonds, accompanying the proposals that are not to be further considered in making the award. Retained Bidders' securities will be held until the Contract has been fully executed, after which all Bidders' securities, except Bidders' bonds and any Bidders' securities that have been forfeited, will be returned.

4-1.03 **CONTRACT BONDS.** The successful Bidder shall furnish two (2)

bonds in the form contained in the section entitled Insurance Broker Information Packet and Bonds. One (1) bond shall secure the payment of the claims of laborers, mechanics or materialmen employed on the Work under the Contract, and the other bond shall guarantee the faithful performance of the Contract.

Each of the two (2) bonds shall be in a sum equal to one hundred percent (100%) of the Contract Price. If the Contract Price increases by the issuance of Change Orders, the penal amounts of the bonds required shall increase accordingly. Sureties on each of said bonds shall be satisfactory to the City.

All alterations, extensions of time, extra and additional Work, and other changes authorized by the Standard Specifications, the General Conditions, the Supplemental Conditions or any part of the Contract may be made without securing the consent of the surety or sureties on the Contract bonds.

Furthermore, the successful Bidder shall furnish a certificate from the County Clerk as required by California Civil Code of Procedure Section 995.660(a)(3).

4-1.04 **INSURANCE.** At the time of the execution of the Contract, the Contractor shall, at its own expense, procure, and at all times during the prosecution of the Work maintain in full force and effect Worker's Compensation Insurance, and Liability Insurance as specified in the General Conditions. The Contractor shall provide a Certificate of Insurance in the form contained in the section entitled Insurance Broker Information Packet.

4-1.05 **EXECUTION OF CONTRACT.** The Contract shall be signed by the successful Bidder and returned, together with all the required Contract bonds and insurance certificates, within fifteen (15) Days after the Contract has been awarded, or as otherwise directed, in writing, by the City.

If the Bidder is an individual, the Contract shall be executed personally by the Bidder. If the Bidder is a partnership, it is desirable that the Contract be executed by all of the partners, but it may be executed by one of them. If the Bidder is a corporation, it must be executed by two officers of the corporation consisting of (1) the chairman of the board, president or vice president; and (2) the secretary, assistant secretary, chief financial officer, treasurer or assistant treasurer, or by a person authorized by the corporation to execute written contracts on its behalf, and the corporate seal affixed thereto. In the alternative, a person other than an officer may sign the Contract, provided evidence satisfactory to the City is provided indicating the individual's authority to bind the corporation. If the corporate seal is not affixed to the Contract, or if it is executed by a person other than officers, or only by one officer, there must be attached to the Contract a certified copy of a resolution of the corporation authorizing such officer or person to execute written contracts for and on behalf of the corporation. If the Bidder is a joint venture, the Contract must be executed on behalf of each participating firm by officers or other individuals who have the full and proper authorization to do so.

4-1.06 **FAILURE TO EXECUTE CONTRACT.** Failure of the lowest responsible Bidder, the second lowest responsible Bidder, or the third lowest responsible Bidder to execute the Contract and file acceptable bonds and insurance as provided within fifteen (15) Days after the Contract has been awarded, or as otherwise directed, in writing, by the City, shall be just cause for annulment of the award and forfeiture of the Bidder's security. The successful Bidder may file with the City Clerk a written notice, signed by the Bidder or Bidder's authorized representative, specifying that the Bidder will refuse to execute the Contract if presented to Bidder. The filing of such notice shall have the same force and effect as the failure of the Bidder to execute the Contract and furnish acceptable bonds within the time prescribed.

SECTION 5: BID PROTEST PROCEDURES

5-1.01 **POLICY/PROCEDURES.** It is the policy of the City to consider fully and adjudicate promptly protests filed by prospective Bidders relating to the City's bidding procedure or award of the Contract. Protests shall be filed and processed in accordance with Section 4.12.150 of the Roseville Municipal Code. A Bidder's failure to follow the bid protest procedures may result in rejection of the protest by the City.

PROPOSAL TO THE DEPARTMENT OF _____

Project:_____

Name of Bidder _____ Business Phone _____

Business Address _____

Place of Business _____

Contractor's License No. _____

License Expiration Date_____

License Classification Type _____

DIR Registration No. _____

Type of business organization: _____

*If a Corporation, incorporated under the laws of the State of: _____

City of Roseville Business License No._____

The undersigned Bidder herewith submits this Proposal and binds itself on award by the City of Roseville under this bid to execute a Contract in accordance with its bid and the Contract Documents.

The Notice to Contractors, Instructions to Bidders, Form of Agreement, Specifications, General Conditions, Supplemental Conditions, Contract Drawings, and Addenda, if any, are made part of this bid and all provisions thereof are hereby accepted, and all representations and warranties are required thereby are hereby affirmed.

The work to be done is described in the Bidding Documents entitled _____
_____, City of Roseville, California.

This offer shall be irrevocable for a period of sixty (60) Days after the date on which bids are opened.

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Re-Bid

The undersigned Bidder understands that any clarification made to the above or any new and different conditions or information submitted on or with its Proposal, other than that requested, may render the bid non-responsive.

The undersigned, as Bidder, declares that the only persons or parties interested in this Proposal as principals are those named herein; that this Proposal is made without collusion with any other person, firm, or corporation; that the Bidder has carefully examined the location of the proposed Work, the attached Form of Agreement, and the plans, Specifications, and other Contract Documents; and agrees if this Proposal is accepted, that it will contract with the City of Roseville, in the form of a copy of the Agreement contained in the Project Manual, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the Contract Documents, in the manner and time therein prescribed, and according to the requirements of the Director, as therein set forth, and that the Bidder will take in full payment therefore prices indicated in the Schedule of Bid Items, including all work modified by addendum numbers _____. (IF NONE, STATE NONE).

Bids are required for all Bid Items. The amount of the Bid for comparison purposes will be the total of all items awarded.

The Bidder shall set forth for each item of work, in clearly legible figures, an item ("unit") price and a total for the item in the respective spaces provided for this purpose in the Schedule of Bid Items.

The prices included within the Schedule of Bid Items include all costs for labor, materials, tools, equipment, services, Subcontractors, suppliers, taxes, insurance, shipment, delivery, overhead, profit, and for all other costs necessary to perform the Work in accordance

with the Contract Documents.

Accompanying this Proposal is _____.

(Notice: Insert the words "Cash \$_____", "Cashier's Check," "Certified Check," or "Bidder's Bond," as the case may be, in an amount equal to at least ten percent (10%) of the total of the Bid.)

The names of all persons interested in the foregoing Proposal as Principals, are as follows: _____

If SOLE OWNER, execute here:

I sign as sole owner of the business named above:

If PARTNERSHIP, one or more partners sign here:

The undersigned certify that we are partners in the business named above and that we sign this bid with the full authority to do so:

If CORPORATION, execute here:

Corporate Name: _____

Not for Construction
For Council Approval
Re-Bid

Incorporated under the laws of the State of _____

The undersigned certify that they sign this bid with the full and proper authorization so to do:

By _____
*Signature of Authorized Official**

By _____
*Signature of Authorized Official**

Title

Title

Typewritten or Printed Name

Typewritten or Printed Name

If JOINT VENTURE, execute here:

Joint Venture name composed of: _____

The undersigned certify that they sign this bid with the full and proper authorization so to do:

*Signature of Authorized Official**

*Signature of Authorized Official**

Title

Title

Typewritten or Printed Name

Typewritten or Printed Name

*If Bidder is a partnership or Joint Venture, give the full names of all partners and/or Joint Ventures in the space provided (use additional sheet if required). If Bidder is a corporation, two signatures are required as follows: (1) the Chairman, President, or Vice-President and (2) the Secretary, Assistant Secretary, Chief Financial Officer, Treasurer, or Assistant Treasurer. In the alternative, this Agreement may be executed by a single officer or a person other than an officer provided that evidence satisfactory to City is provided demonstrating that such individual is authorized to bind the corporation (example, a copy of a certified resolution from the corporation's board or a copy of the corporation's bylaws).

[LIST OF SUBCONTRACTORS FOLLOWS ON NEXT PAGE.]

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LIST OF SUBCONTRACTORS

Contractor's Name: _____

The Bidder is required to furnish the following information in accordance with the provisions of Section 4100 and 4114, inclusive, of the Public Contract Code of the State of California. This list and information shall include all Subcontractors that perform work, provide labor or render services to the Bidder in connection with the Project in an amount in excess of one-half of one percent (0.5%) of the total amount of the Bidder Grand Total Price.

PORTION/ TYPE OF WORK	% OF CONTRACT	SUB- CONTRACTOR'S NAME	CONTRACTOR LICENSE NO.	DIR REG NO.	BUSINESS ADDRESS (CITY, STATE)

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Re-Bid

SECURITY FOR COMPENSATION CERTIFICATE

(Required by California Labor Code Section 1861)

TO: City Council
City of Roseville

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

(Signature of Bidder)

Business Address

Telephone

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BIDDER'S BOND

City Council of the City of Roseville

KNOW ALL MEN BY THESE PRESENTS:

That we _____
_____, as PRINCIPAL, and

a, _____ and duly authorized to transact business
under the laws of the State of California, as SURETY, are held and firmly bound unto the City of
Roseville in the penal sum of _____ dollars
(\$_____), being at least TEN PERCENT (10%) OF THE TOTAL AMOUNT OF
THE BID of the Principal above named, submitted by said Principal to the City of Roseville,
acting by and through the Public Works Director, for the work described below, for the payment
of which sum in lawful money of the United States, well and truly to be made, to the Director of
the Department to which said Bid was submitted, we bind ourselves, our heirs, executors,
administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned Bid to the City Council of
the City of Roseville, as aforesaid, for certain construction specifically described as follows, for
which Bids are to be opened at the Office of the City Clerk located at 311 Vernon Street,
Roseville, California, on _____, 20__ FOR

(Copy here the exact title of work as it appears on the Proposal.)

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NOW, THEREFORE, IF THE AFORESAID PRINCIPAL is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented for signature, enters into a written Contract, in the prescribed form, in accordance with the Bid, and files all insurance and two (2) Bonds with the Department, one (1) to guarantee Faithful Performance and the other to guarantee Payment for Labor and Materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this ____ day of _____, 20__.

_____(Seal)

_____(Seal)

_____(Seal)

Principal

_____(Seal)

_____(Seal)

_____(Seal)

Surety

Business Address

NOTE: To be considered complete, both the Principal and the Surety must sign this Bidder's Bond. In addition, signatures of those executing for the Surety must be properly acknowledged.

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Contractor _____

SCHEDULE OF BID ITEMS

The bidder, in compliance with the published Notice to Contractors for the construction of **accessibility upgrades to the poolhouse and related mechanical, electrical, and plumbing upgrades**, and any other items necessary as shown on the Plans and Specifications; having examined the Plans and Specifications, any and all addenda, any related documents, and all of the sites of the proposed work, and being familiar with all the conditions surrounding the construction of the proposed project, including the availability of material, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time period set forth therein, and at the prices stated. This is a “Lump Sum Bid” project. These prices are to include all labor, materials, supplies, and all other expenditures incidental to complete compliance to the Contract Documents.

The work to be included in the Contract shall be determined by the City prior to award of Contract. **The amount of the bid for comparison and award purposes shall be the total amount set forth in the “Total Lump Sum Bid,” which includes the base bid and any alternates designated on the Schedule of Bid Items.** The City reserves the right to award none, all or selected add alternates as the budget permits.

BASE BID:

Base bid includes all work as shown on the plans, project manual, and addenda to construct the **Johnson Poolhouse Renovation Project**.

Numerical Total **Base Bid**: \$ _____

Written Total **Base Bid**: _____ dollars and _____

ADD ALTERNATES:

ADD ALTERNATE #1 – Removal and replacement of two overhead doors at entry vestibule as indicated on the Plans and in the Project Manual.

Numerical Total **Additive Alternate #1 Bid**:

\$ _____

Written Total **Additive Alternate #1 Bid**: _____ dollars and _____

TOTAL LUMP SUM BID:

Total lump sum bid includes Lump Sum Base Bid plus Additive Alternate #1.

Numerical **Total Lump Sum Bid:** \$ _____

Written **Total Lump Sum Bid:** _____ dollars and _____

The additions or deletions sheets (PROP 10 C-D) are required to be submitted with the proposal and shall be completed in their entirety. Failure to do so may be interpreted as incomplete/non-responsive bid. This breakdown will not be considered for bid award but will be used during the contract in case of change orders.

Contractor Name (print or type): _____

Signature (by authorized representative): _____

Date: _____ License No.: _____ Class: _____

Johnson Poolhouse Renovation Project (Re-bid)

For Additions and Deletions Only

Contractor shall provide itemized costs as shown below for use during construction for additions or deletions only. Unit costs to be listed are based on the project plans, specifications, Parks Construction Standards and the Design & Construction Standards, unless otherwise noted. Items listed are not necessarily shown on the plans or identified in the Technical Specifications.

Item	Description	Unit	Unit Cost
1	EC-2 Preservation of Existing Vegetation	sf	
2	EC-3 Hydraulic Mulch	sf	
3	EC-4 Hydroseeding	sf	
4	EC-6 Straw Mulch	sf	
5	EC-7 Geotextiles and Mats	sf	
6	EC-8 Wood Mulching	sf	
7	EC-10 Velocity dissipation device	ea	
8	EC-11 Slope Drains	ea	
9	EC-14 Compost Blanket	sf	
10	EC-16 Non-Vegetative Stabilization	sf	
11	SE-1 Silt Fence	lf	
12	SE-5 Fiber Rolls	lf	
13	SE-6 Gravel Bag Berm	ea	
14	SE-7 Street Sweeping and Vacuuming	ea	
15	SE-8 Sandbag Barrier	lf	
16	SE-9 Straw Bale Barrier	lf	
17	SE-10 Storm Drain Inlet Protection	ea	
18	TC-1 Stabilized construction entrance/exit	ea	
19	TC-3 Entrance/outlet tire wash	ea	
20	Site security fencing	lf	
21	Concrete walk	sf	
22	Remove and replace interior concrete slab	sf	
23	Steel picket fence	ea	

Items 1 through 19 are to be consistent with requirements detailed in California Stormwater Quality Association Stormwater Best Management Practice Handbook, latest edition. If not applicable to the Project, list n/a under unit cost column.

Not for Construction
For Council Approval
Re-Bid

Johnson Poolhouse Renovation Project (Re-bid)

For Additions and Deletions Only (continued)

Item	Description	Unit	Unit Cost
24	Sink	ea	
25	Lavatory	ea	
26	Shower	ea	
27	Toilet/water closet	ea	
28	Urinal	lf	
29	Remove and replace hot water heater	ea	
30	Floor mounted bench	ea	
31	Soap dish	ea	
32	Soap dispenser	ea	
33	Mirror	sf	
34	Toilet paper dispenser	sf	
35	Paper towel dispenser/receptacle	sf	
36	Remove plywood finish	sf	
37	Gypsum wallboard finish	ea	
38	Paint	sf	
39	FRP wainscot	sf	
40	Epoxy coating	ea	
41	L2 light	ea	
42	L3 light	ea	
43	L4 light	ea	
44	L5 light	ea	
45	S1 light	ea	
46	Exit sign	ea	
47	Electrical outlet	ea	
48			
49			
50			

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PROJECT QUALIFICATIONS/EXPERIENCE SHEET

Project Name: _____ Company Name: _____ License Type: _____

The following shall be fully completed by the Contractor detailing previous experience which satisfies the project prerequisite. This prerequisite includes park/aquatic projects of similar size and scope to that of the current project and which has been completed by your company within the last three (3) years. This form shall be fully completed and submitted as a part of the Proposal/Bid Schedule. Failure to do so could be interpreted as an incomplete/non-responsive bid.

1. Project Name: _____ Acres _____ Location: _____
Owner: _____ Contact Person: _____
Phone: (____) _____ Contract Amount: \$ _____ Year Completed _____
Landscape Architect/Architect: _____ Phone: (____) _____

Scope of Work (check all those that apply):

___ Grading	___ Drainage	___ Irrigation	___ Asphalt Concrete Work	___ Concrete Forming
___ Concrete Flatwork	___ Special Concrete Finishing	___ Decomposed Granite Paving	___ Doors & Hardware	___ Fencing
___ Plumbing	___ HVAC	___ Framing/Drywall	___ Cabinetry	___ Lighting
___ Drinking Fountains	___ Masonry Block Work	___ Epoxy Coating	___ Restroom Facilities	___ Landscaping
___ Other (specify) _____				

2. Project Name: _____ Acres _____ Location: _____
Owner: _____ Contact Person: _____
Phone: (____) _____ Contract Amount: \$ _____ Year Completed _____
Landscape Architect/Architect: _____ Phone: (____) _____

Scope of Work (check all those that apply):

___ Grading	___ Drainage	___ Irrigation	___ Asphalt Concrete Work	___ Concrete Forming
___ Concrete Flatwork	___ Special Concrete Finishing	___ Decomposed Granite Paving	___ Doors & Hardware	___ Fencing
___ Plumbing	___ HVAC	___ Framing/Drywall	___ Cabinetry	___ Lighting
___ Drinking Fountains	___ Masonry Block Work	___ Epoxy Coating	___ Restroom Facilities	___ Landscaping
___ Other (specify) _____				

3. Project Name: _____ Acres _____ Location: _____
Owner: _____ Contact Person: _____
Phone: (____) _____ Contract Amount: \$ _____ Year Completed _____
Landscape Architect/Architect: _____ Phone: (____) _____

Scope of Work (check all those that apply):

___ Grading	___ Drainage	___ Irrigation	___ Asphalt Concrete Work	___ Concrete Forming
___ Concrete Flatwork	___ Special Concrete Finishing	___ Decomposed Granite Paving	___ Doors & Hardware	___ Fencing
___ Plumbing	___ HVAC	___ Framing/Drywall	___ Cabinetry	___ Lighting
___ Drinking Fountains	___ Masonry Block Work	___ Epoxy Coating	___ Restroom Facilities	___ Landscaping
___ Other (specify) _____				

For Bidding
Not for Construction
For Council Approval
Re-Bid

NONCOLLUSION DECLARATION TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham bid. The Bidder has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, or to refrain from bidding. The Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the Bidder or any other Bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other Bidder. All statements contained in the bid are true. The Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a Bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [city], _____ [state].

(Signature of Declarant)

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DISQUALIFICATION QUESTIONNAIRE

The Bidder shall complete, under the penalty of perjury, the following questionnaire:

Has the Bidder, any officer of the Bidder, or any employee of the Bidder who has proprietary interest in the Bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes_____

No_____

If the answer is yes, explain the circumstances in the following space.

NAME OF BIDDER: _____

SIGNATURE OF BIDDER: _____

TITLE OF BIDDER: _____

DATE: _____

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ACKNOWLEDGEMENT OF INSURANCE AND BOND REQUIREMENTS

Included in the Bid Price is full compensation for the requirements set forth in the
INSURANCE BROKER INFORMATION PACKET of the Project Manual.

NAME OF BIDDER: _____

SIGNATURE OF BIDDER: _____

TITLE OF BIDDER: _____

DATE: _____

DISCLAIMER OF WARRANTIES AND ACCURACY OF DATA

Although soil and site investigation reports have been obtained from sources believed to be reliable, no warranty expressed or implied is made regarding accuracy, adequacy, completeness, legality, reliability or usefulness of any information contained therein. These reports are subject to change at any time, may be incomplete, and/or may contain errors. This information is provided for informational purposes only. The City of Roseville provides this information on an "as is" basis. Warranties of any kind, express or implied, or statutory, including but not limited to the implied warranties of merchantability, and fitness for a particular purpose ARE DISCLAIMED to any party viewing these documents or to any third party.

The City of Roseville does not accept and expressly disclaims liability to any party viewing such information, or to any third party whatsoever, for any loss, damage, or injury (including incidental or consequential damages) whether such loss, damage, or injury is the result of negligence, willful or intentional misconduct, or any other cause.

I have read and acknowledged the above disclaimer and agree to hold harmless the City of Roseville on any theory of liability for any loss, damage or injury whether in contract, strict liability or tort arising in any way out of the use or contents of the released information or documents described above or the performance of the work called for herein.

Print Name

Signature

Name of Business/Company/Corporation

Date

Address

Phone

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END OF PROPOSAL

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For Council Approval
Re-Bid**

A G R E E M E N T

THIS AGREEMENT, is made and entered into this ____ day of _____,
20____, by and between the City of Roseville, a municipal corporation, ("CITY"), and
_____, a _____,
("CONTRACTOR"); and

W I T N E S E T H:

WHEREAS, the City Council of the CITY, at a meeting held on the ____ day of
_____, 20____, approved plans and specifications for the

and directed the City Clerk to advertise for sealed proposals for doing said work and providing
that bids be submitted on the ____ day of _____, 20____; and

WHEREAS, the City Clerk, thereafter duly and regularly caused a notice to be published
in the manner and for the time prescribed by law; and

WHEREAS, CONTRACTOR, pursuant to the provisions of said notice duly filed a bid
with the City Clerk, a true copy of which bid is now on file in the office of the City Clerk, and is
hereby referred to and by this reference made a part hereof as fully as if set forth at length herein;
and

WHEREAS, all bids received pursuant to said notice were opened and examined and
publicly declared at the time specified in said advertisement for bids and at a meeting of the City
Council held on the ____ day of _____, 20____, the Council found and

Not for Construction
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declared the bid of CONTRACTOR to be the lowest responsible bid and thereupon awarded a contract to CONTRACTOR to do the work referred to in the aforementioned specifications.

NOW, THEREFORE, the parties agree as follows:

1. THE WORK. CONTRACTOR agrees:

a. To do the work and furnish all the labor, materials, tools, supplies, equipment, superintendence, insurance, and bonds required for the _____

_____ in accordance with the Contract Documents (the Work).

b. To do and perform the Work contemplated hereby in a good and workmanlike manner under the direction of and to the satisfaction of the Director of Public Works of the City of Roseville.

2. PAYMENT. CITY shall pay CONTRACTOR _____ dollars (\$_____) for the Work to be done under this Agreement in accordance with the Contract Documents.

3. CONTRACT DOCUMENTS. The complete Agreement between the parties hereto consists of the following documents:

- a. The advertisement for bids (including the notice to bidders, instructions to bidders and proposals);
- b. The accepted bid;
- c. Plans and specifications (including general conditions, supplemental conditions, special provisions and construction details);
- d. Bonds and insurance required by the specifications; and

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e. This contract.

All documents specified above are intended to operate so that any work called for in any one and not mentioned in the other, or vice versa, is to be executed the same as if mentioned in all said documents.

4. LIQUIDATED DAMAGES. In the event CONTRACTOR does not complete the Work within the time specified, CONTRACTOR agrees that CITY will suffer damages. Inasmuch as the actual damages which would result from such breach by CONTRACTOR under this Agreement are uncertain, and would be impractical or extremely difficult to fix, CONTRACTOR agrees that it shall pay, or CITY shall deduct from CONTRACTOR's fee, the amount of \$_____ per day as liquidated damages, in the event of such delay.

5. TIME OF COMPLETION. Time is of the essence of this Agreement. CONTRACTOR shall complete all Work under the Contract Documents within _____ Days of the date of this Contract. CONTRACTOR shall begin work by the date specified in the "Notice to Proceed" letter and shall diligently prosecute all of the Work under this Contract in all parts and requirements as defined in the Contract Documents.

6. SERVICE OF NOTICE. Any notice required or permitted to be given under this Agreement shall be deemed given when (a) personally delivered to the recipient identified below; (b) mailed by registered or certified mail, return receipt requested, postage pre-paid, to the address specified below; or (c) sent by facsimile, with confirmation of receipt, to the facsimile number identified below.

CITY OF ROSEVILLE

CONTRACTOR

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CITY may also act through either its architect or construction manager if CITY expressly gives notice to CONTRACTOR, in writing, that CITY's designee has authority to act for CITY in a specific capacity.

7. DISPUTES. Disputes arising from this Agreement will be determined in accordance with the Contract Documents and Public Contract Code Sections 10240-10240.13.

8. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

9. INDEPENDENT CONTRACTOR. CONTRACTOR shall act as an independent contractor, and covenants and agrees that it will conduct itself consistent with such status, that it will neither hold itself out as, nor claim to be, an officer or employee of CITY by reason of this Agreement.

10. SUCCESSORS IN INTEREST. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.

11. MODIFICATION. This Agreement and each provision contained herein may be waived, amended, supplemented or eliminated only by mutual written agreement of the parties.

12. SEVERABILITY. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.

13. INTEGRATED AGREEMENT. This is an integrated agreement and contains all of the terms, considerations, understanding and promises of the parties. It shall be read as a whole.

14. CONTRACTORS LICENSE LAW. CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE

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BOARD WHICH HAS JURISDICTION TO INVESTIGATE COMPLAINTS AGAINST CONTRACTORS IF A COMPLAINT REGARDING A PATENT ACT OR OMISSION IS FILED WITHIN FOUR (4) YEARS OF THE DATE OF THE ALLEGED VIOLATION. A COMPLAINT REGARDING A LATENT ACT OR OMISISON PERTAINING TO STRUCUTRAL DEFECTS MUST BE FILED WITHIN TEN (10) YEARS OF THE DATE OF THE ALLEGED VIOLATION. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR, CONTRACTORS' STATE LICENSE BOARD, P.O. BOX 26000, SACRAMENTO, CALIFORNIA 95826.

IN WITNESS WHEREOF, the City of Roseville, a municipal corporation, has authorized the execution of this Agreement in duplicate by its City Manager and attestation by its City Clerk under authority of Resolution No. _____, adopted by the Council of the City of Roseville on the ____ day of _____, 20____, and CONTRACTOR has caused this Agreement to be duly executed.

CITY OF ROSEVILLE, a
municipal corporation

_____, a

BY: _____
DOMINICK CASEY
City Manager

BY: _____
its: _____

and

ATTEST:

BY: _____
its: _____

BY: _____
CARMEN AVALOS
City Clerk

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APPROVED AS TO FORM:

BY: _____
MICHELLE SHEIDENBERGER
City Attorney

APPROVED AS TO SUBSTANCE:

BY: _____

Print Name: _____

Title: _____

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INSURANCE BROKER INFORMATION PACKET

Project: Johnson Poolhouse Renovation (Re-bid)

NOTICE TO CONTRACTOR:

For your convenience, this package contains the Requirements for Insurance and Bonds for this project, including the necessary City forms. You are required to return these forms in addition to the executed Contract within fifteen (15) calendar days after the award of the Bid, unless otherwise directed by City in writing. (See the Instructions to Bidders.)

Please insert the dollar amount of your accepted Bid into the blank on page INS-1 and present this entire package to your insurance broker if you are awarded the Bid.

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Insurance Requirements	INS 2
Public Works Faithful Performance Bond	INS 10
Public Works Payment Bond	INS 13

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NOTICE TO INSURANCE BROKER

Your client has been awarded a bid by the City Council of the City of Roseville to perform a public works project known as Johnson Poolhouse Renovation (Re-bid). The Contract Conditions for that project require your client (“the Contractor”) to return certain evidence of insurance and bonds to the City Attorney of the City within fifteen (15) days after the Bid award, unless otherwise directed by the City in writing, or else the Bid award may be terminated and awarded to another company.

This package contains the information you will need as an insurance broker to provide the appropriate insurance and bonds to the City. The insurance coverages the Contractor needs are specified in the section entitled “Insurance Requirements.” Please note that, in addition to the insurance certificate itself, copies of several endorsements must be actually furnished.

Please refer to the Supplemental Conditions for modifications of the General Conditions, if any, and the requirements of this insurance packet.

Please use the standard City of Roseville Bond Forms provided in this package.

The Bonds required must each be in the penal amount of: \$_____.

Bonds must be sent to the following staff person: Heather Buck

City of Roseville, Parks, Recreation & Libraries

316 Vernon Street, Suite 400

Roseville, CA 95678

Insurance documents must be provided using one of the following methods:

- a. By email to roseville@ebix.com and riskmanagement@roseville.ca.us
- b. By fax to (770) 335-5727 and (916) 774-5461

After using one of these methods, please **DO NOT** send the insurance certificate(s) by mail.

When forwarding the documents, please refer to the project name so that the documents can be matched with the Contract for which they are submitted.

Thank you.

INS - 1

**Not for Construction
For Council Approval
Re-Bid**

INSURANCE REQUIREMENTS

The following sections are quoted from the General Conditions:

5-1.23 **INSURANCE COVERAGE.**

A. **Evidence of Maintenance Required.** The Contractor shall, at its expense, procure and at all times maintain in full force and effect at a minimum the insurance required by this section on all of its operations; and the Contractor shall not allow any Subcontractor to commence work until similar insurance required of the Subcontractor has been obtained and filed. An original Certificate of Insurance, and copies of all required endorsements, all in a form approved by the Risk Manager, evidencing all required coverage or policies shall be filed after the award of the bid and prior to approval of the Contract by the City Council. Contractor shall provide ten (10) days prior written notice to the City of any reduction of coverage limits or cancellation of the coverage or policies shall be given to the City of Roseville as Certificate holder.

B. **Qualifying Insurers.** With the exception of the State Compensation Insurance Fund, all required insurance policies shall be issued by companies acceptable to the City and licensed to do business in the State of California and who hold a current policy holders alphabetic and financial size category rating of not less than AVII according to the most recent issue of Best's Insurance Reports.

C. **Insurance Required.**

1. **Commercial General Liability (CGL):** Insurance Services Office Form CG 00 01 covering CGL on an “occurrence” basis, including products and completed operations with limits of no less than Two Million Dollars (\$2,000,000) per occurrence for bodily injury, personal injury and property damage for projects under One Million Dollars (\$1,000,000) and

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limits of no less than Five Million Dollars (\$5,000,000) per occurrence for bodily injury, personal injury and property damage for projects over One Million Dollars (\$1,000,000). If a general aggregate limit applies, either the aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

The Commercial General Liability insurance shall include the following, copies of which shall be provided:

- a. Inclusion of the City of Roseville, and its officers, agents, employees, and volunteers, as additional insureds (except for workers' compensation) as respects services or operations under the Contract. The additional insured endorsement for the general liability policy shall be at least as broad as the ISO CG 2010 10 01 combined with ISO CGL Endorsement CG 2037 10 01. Any other endorsement must be approved in writing by the City. Endorsements must include coverage for on-going and completed operations, which coverage shall be maintained for four (4) years following completion of the Project. Endorsements shall cover the City of Roseville, its officers, agents, employees, and volunteers.
- b. The insurance shall provide coverage for claims by one insured against another insured and the policies shall not contain any cross-suits exclusions, cross-liability exclusions, or insured versus insured exclusions. The policies shall not contain any classification exclusions purporting to deny coverage for any work to be performed by Contractor or any of its Subcontractors.
- c. Stipulation that the insurance is primary and noncontributory, as evidenced by a separate endorsement (CG 20 01 04 13 or an equivalent) or section of the policy, and that neither the City nor its insurers will be called upon to contribute to a loss.
- d. Such insurance shall specifically cover the contractual liability.

the Contractor.

e. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

f. Waiver of subrogation endorsement.

g. The Contractor shall furnish a certificate for the period covered.

2. **Automobile Liability:** Insurance Services Office Form Number CA 0001 covering Code 1 (any auto), or if Contractor has no owned autos, Code 8 (hired) and Code 9 (non-owned), with limits of no less than One Million Dollars (\$1,000,000) per accident for bodily injury and property damage.

3. **Workers' Compensation:** In accordance with the provisions of the California Labor Code, Contractor is required to be insured against liability for Workers' Compensation or to undertake self-insurance. Statutory Workers' Compensation and Employers' Liability of at least One Million Dollars (\$1,000,000) shall cover all Contractors staff while performing any work incidental to the performance of this Agreement.

4. **Professional Liability:** Professional Liability (Errors and Omission) Insurance appropriate to Contractor's profession, with a limit of liability not less than One Million Dollars (\$1,000,000) per occurrence or claim and Two Million Dollars (\$2,000,000) aggregate to cover all design and engineering services rendered by Contractor pursuant to the Agreement. Coverage must commence from the first day that Contractor or any of its Subcontractors provided any design or engineering services in connection with the Project.

5. **Builder's Risk/Course of Construction Insurance Is ____ OR Is Not**

x **Required by Risk Management:** The Contractor shall be responsible for all loss, damage or destruction whatsoever to the work called for by this Contract until the approval of a Notice of Completion or acceptance of the Work if no Notice of Completion is to be recorded.

The Contractor shall secure "All Risk" type of builder's Risk Insurance of the type covering one hundred percent (100%) of the value of the work performed under this Contract (the value is presumed to be the Contract amount unless otherwise stated in Supplemental Conditions) and all materials, equipment, or other items to be incorporated therein while the same are located at the construction site, a bonded warehouse, or its place of manufacture. At any time, the policy shall cover the value of the work completed. The policy shall cover hazards including the losses due to fire, explosion, hail, rain, lightning, flood (separate insurance as needed), vandalism, malicious mischief, wind, collapse, aircraft, and smoke.

The policies providing such insurance shall name the City as a loss payee as its respective interests may appear, and certified copies of such policies shall be filed with the City. The maximum deductible allowable under the Builder's All Risk policy shall be five percent (5%) of the Contract amount.

Builder's Risk Insurance is not required for coverage of losses in excess of five percent (5%) of the Contract amount for damages resulting from earthquake in excess of a magnitude of 3.5 on the Richter scale, or tidal waves. Coverage in the amount of five percent (5%) of the Contract amount for such losses is required.

6. **Pollution Coverage:** Contractor shall procure pollution liability coverage or other insurance covering claims for bodily injury or property damage arising out of the abatement, removal, storage, transportation, or other exposure to hazardous materials or

pollutants, in limits not less than Two Million Dollars (\$2,000,000). Contractor shall add the City and all parties required to be indemnified by Contractor as additional insured on all pollution liability policies.

7. **Higher Coverage Limits:** If Contractor maintains higher coverage limits than the amounts shown above, then the City requires and shall be entitled to coverage for the higher coverage limits maintained by Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

8. **Claims Made Coverage:** Liability insurance coverage may not be written on a “claims made” or modified occurrence basis. The Certificate of Insurance must clearly provide that the coverage is on an “occurrence” basis.

5-1.24 **OTHER INSURANCE PROVISIONS.**

A. The requirements of the Standard Specifications as to types and limits of insurance coverage to be maintained by the Contractor, and any approval of insurance by the City, are not intended to, and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification, nor preclude the City from taking any other action available to it under any other provision of the Contract or law.

B. The City acknowledges that some insurance requirements contained in these Standard Specifications may be fulfilled by self-insurance on the part of the Contractor. However, this shall not in any way limit liabilities assumed by Contractor under the Contract. Any self-insurance must be approved in writing by the City, in its sole discretion and shall not reduce the limits of liability. Any deductibles or self-insured retentions (“SIR”) must be declared on the certificate of insurance and approved by City in writing. Policies containing any

SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

C. The Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Contract, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor's work. Furthermore, the Contractor shall require its subcontractors to agree to be bound to the Contractor and the City in the same manner and to the same extent as the Contractor is bound to the City under this Contract. Additionally, the Contractor shall obligate its subcontractors to comply with these same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of the City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request. Alternatively, the Contractor may insure subcontractor(s) under its own policy.

D. The City, its officers, agents, employees, and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under California Insurance Code Section 11580.04.

E. The limits of insurance required in this Contract may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be

endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of the City (if agreed to in a written contract) before the City's own insurance shall be called upon to protect it as a named insured.

F. The insurance procured by Contractor shall be subject to the approval of the City, but any acceptance of insurance certificates by the City shall in no way limit or relieve Contractor of its duties and responsibilities under the Agreement.

G. Contractor shall be responsible for all premiums, deductibles, and self-insured retention applicable to the insurance it is required to procure under the Contract. All deductibles or self-insured retentions over five hundred thousand dollars (\$500,000) must be approved by the City, in writing. Contractor shall be responsible for all deductibles, self-insured retention payments, and/or increased premiums incurred if the City's policies of insurance are forced to cover damages or respond to claims for which Contractor or its Subcontractors were obligated to provide insurance under the Contract.

H. Failure of the City to enforce in a timely manner any of the requirements of these insurance provisions shall not act as a waiver to enforcement of any of these provisions at a later date.

I. Contractor's indemnity obligations shall not be limited by these insurance provisions and shall survive the expiration of the Contract and the insurance provisions of the Contract shall likewise not be limited by the indemnity provisions of the Contract.

J. THE CITY RESERVES THE RIGHT TO WITHHOLD ANY PROGRESS PAYMENTS TO THE CONTRACTOR IN THE EVENT OF NONCOMPLIANCE WITH ANY INSURANCE REQUIREMENTS.

Bond No. _____
Premium \$ _____

**PUBLIC WORKS
FAITHFUL PERFORMANCE BOND**

(Project: Johnson Poolhouse Renovation Re-bid)

WHEREAS, the City of Roseville ("CITY") has awarded a bid and contract to _____ as contractor ("PRINCIPAL") for the public work described as _____ (the "WORK"). The contract ("AGREEMENT"), for the public work described above, and all of its terms and conditions are incorporated by reference and made a part hereof; and

WHEREAS, the PRINCIPAL is required to furnish a bond in connection with the AGREEMENT guaranteeing its faithful performance; and

NOW, THEREFORE, we the undersigned PRINCIPAL and _____, a _____, admitted and duly authorized to transact business under the laws of the State of California, as SURETY ("SURETY"), are held and firmly bound unto the CITY or its successors and assigns in the sum of _____ dollars (\$ _____) (which amount is not less than 100% of the AGREEMENT price) to be paid to the CITY or its successors and assigns; and for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns jointly and severally, firmly by these presents.

The condition of this obligation is such that if the PRINCIPAL, or its heirs, executors, administrators, successors or assigns, shall abide by, and in all respects promptly and faithfully perform the covenants, conditions and provisions in said AGREEMENT and any alteration thereof made as therein provided, notice of which alterations to Surety being hereby waived, on its part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless CITY, its officers, agents, employees, volunteers as therein stipulated, then this obligation shall be null and void; otherwise, this obligation shall be and remain in full force and effect.

As condition precedent to the satisfactory completion of the contract, the obligation of the PRINCIPAL and SURETY under this Bond shall remain in effect for a period of one (1) year after the completion and acceptance of the WORK. During that time, if the PRINCIPAL, its heirs, executors, administrators, successors or assigns fails to make full, complete and satisfactory repair and replacement or totally protect the CITY from any loss or damage made evident during that year which results from or is caused by either defective materials or faulty workmanship in the prosecution of the WORK, then the obligation shall remain in full force and effect. However, anything in

Not for Construction
For Council Approval
Re-Bid

this paragraph to the contrary notwithstanding, the obligation of the SURETY shall continue so long as any obligation of the PRINCIPAL remains.

No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the AGREEMENT or in the specifications agreed to between the PRINCIPAL and the CITY, or any forbearance on the part of the CITY shall operate to relieve the SURETY. The SURETY hereby waives the provisions of Section 2819 of the California Civil Code. The SURETY waives all rights of subrogation against the CITY or any person employed by the CITY. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

Whenever PRINCIPAL shall be and declared by CITY to be in default under the AGREEMENT, SURETY shall promptly remedy the default, or shall promptly do one of the follow at CITY's election:

1. Undertake through its agents or independent contractors, reasonably acceptable to CITY, to complete the AGREEMENT in accordance with its terms and conditions and to pay and perform all obligations of PRINCIPAL under the AGREEMENT, including without limitation, all obligations with respect to warranties, guarantees, and the payment of liquidated damages.
2. Reimburse CITY for all costs CITY incurs in completing the AGREEMENT, and in correcting, repairing or replacing defects in materials or workmanship and/or materials and workmanship which do not conform to the specifications in the AGREEMENT.

SURETY's obligations hereunder are independent of the obligations of any other surety for the performance of the AGREEMENT, and suit may be brought against SURETY and such other sureties, jointly and severally, or against any one or more of them, or against less than all of them without impairing CITY's rights against the others.

No right of action shall accrue on this bond to or for the use of any person or corporation other than CITY or its successors or assigns.

As part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by CITY in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

[SIGNATURES NEXT PAGE]

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IN WITNESS WHEREOF, this instrument has been duly executed by the
PRINCIPAL and SURETY above-named, on the ____ day of _____,
20____.

PRINCIPAL:

SURETY:

BY: _____

BY: _____

PRINT NAME: _____

PRINT NAME: _____

PRINT TITLE: _____

PRINT TITLE: _____

AND

MAILING ADDRESS:

BY: _____

PRINT NAME: _____

PRINT TITLE: _____

*(Notarization by Surety and copy of
Power of Attorney required.)*

APPROVED AS TO FORM:

BY: _____
City Attorney

**Not for Construction
For Council Approval
Re-Bid**

Bond No. _____
Premium \$ _____

**PUBLIC WORKS
LABOR AND MATERIALS PAYMENT BOND**
(Project: Johnson Poolhouse Renovation (Re-bid))

WHEREAS, the City of Roseville ("CITY"), has awarded a bid and contract to _____
as contractor ("PRINCIPAL"), for the public work described as _____
_____ (the "WORK"). The
contract ("AGREEMENT"), for the public work described above, and all of its terms and
conditions are incorporated by reference and made a part hereof; and

WHEREAS, the PRINCIPAL is required to furnish a bond in connection with the
AGREEMENT guaranteeing payment of persons who provide labor and material; and

NOW, THEREFORE, we the undersigned PRINCIPAL and _____
_____, a _____, admitted
and duly authorized to transact business under the laws of the State of California, as
SURETY ("SURETY"), are held and firmly bound unto the CITY or its successors and
assigns in the sum of _____
dollars (\$_____) (which amount is not less than 100% of the
AGREEMENT price) to be paid to the CITY or its successors and assigns; and for which
payment, well and truly to be made, we bind ourselves, our heirs, executors and
administrators, successors or assigns jointly and severally, firmly by these presents.

The condition of the obligation is such that if the PRINCIPAL, its subcontractors,
heirs, executors, administrators, successors or assigns fails to pay any of the persons
named in Section 8004 or 9100 of the Civil Code of the State of California, or the
amounts due under the Unemployment Insurance Code of the State of California, or any
amounts required to be deducted, withheld and paid over to the Employment
Development Department from the wages of employees of the PRINCIPAL and its
subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with
respect to work or labor performed by any such claimant, that the SURETY will pay for
the same, in an amount not exceeding the sum specified in this bond, and also, in case
suit is brought upon the bond, shall pay reasonable attorneys' fees, to be fixed by the
Court.

This bond shall inure to the benefit of any and all persons, companies, and
corporations entitled to file a Stop Payment Notice pursuant to the provisions of Section
9350 et seq. of the Civil Code of the State of California, so as to give a right of action to
them or their assigns in any suit brought upon this bond.

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No prepayment or delay in payments, and no change, extension, addition or alteration of any provision of the AGREEMENT or in the specifications agreed to between the PRINCIPAL and the CITY, or any forbearance on the part of the CITY shall operate to relieve the SURETY. The SURETY hereby waives the provisions of Section 2819 of the California Civil Code. The SURETY waives all rights of subrogation against the CITY or any person employed by the CITY. If the contract price increases by the issuance of change orders, the amount specified in this bond shall increase by the same amount.

As part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees, including reasonable attorneys' fees, incurred by CITY in successfully enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

IN WITNESS WHEREOF, this instrument has been duly executed by the PRINCIPAL and SURETY above-named, on the _____ day of _____, 20__.

PRINCIPAL:

SURETY:

BY: _____

BY: _____

PRINT NAME: _____

PRINT NAME: _____

PRINT TITLE: _____

PRINT TITLE: _____

AND

MAILING ADDRESS:

BY: _____

PRINT NAME: _____

PRINT TITLE: _____

*(Notarization by Surety and copy of
Power of Attorney required.)*

APPROVED AS TO FORM:

BY: _____
City Attorney

**Not for Construction
For Council Approval
Re-Bid**

CITY OF ROSEVILLE

GENERAL CONDITIONS

FOR

BUILDINGS AND GROUNDS

GC

Not for Construction
For Council Approval
Re-Bid

**CITY OF ROSEVILLE
GENERAL CONDITIONS
FOR
BUILDINGS AND GROUNDS**

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SECTION 1

DEFINITIONS AND TERMS

1-1.01 **GENERAL.** When the following abbreviations and terms or pronouns in place of them appear in the Contract Documents, the intent and meaning shall be interpreted as provided in this Section 1.

1-1.02 **ACCEPTANCE.** Formal Acceptance by resolution by the Roseville City Council of the Contract when completed in all respects in accordance with the Contract Documents and any modifications previously approved.

1-1.03 **ADDENDUM.** Written interpretation or revision to any of the Contract Documents issued by the City before the bid opening.

1-1.04 **AS-BUILT DOCUMENTS, AS-BUILT DRAWINGS AND RECORD DOCUMENTS.** As-Built Documents, As-Built Drawings and Record Documents are all contract documents modified to reflect changes during the construction phase. Specifically, As-Built Documents/Drawings are a revised set of drawings submitted by the Contractor upon Final Completion of a project. They reflect changes made in the Specifications and Working Drawings during the construction process, and show the exact dimensions, geometry, and location of all elements of the work completed under the Contract. Record Documents, on the other hand, are compiled by the Engineer or Architect based on the As-Built Documents/Drawings submitted by the Contractor. They reflect the Engineer or Architect's concurring review of what changes were denoted, why they were made and where they occurred and create a record set of drawings.

1-1.05 **ASSESSMENT.** A cost imposed on the Contractor for non-compliance

with certain contractual requirements.

1-1.06 **BENEFICIAL OCCUPANCY.** The taking possession of a portion of the Work by the City for its use and/or occupancy on other than a temporary or emergency basis.

1-1.07 **BID GUARANTY.** The cashier's, certified check, irrevocable standby letter of credit, deposit of securities, or Bidder's Bond, accompanying the bid submitted by the Bidder, as a guaranty that the Bidder will enter into an agreement with the City for the performance of the Work, if the Agreement is awarded to Bidder, and the Bidder will submit the required Contract Bonds and Certificate of Insurance. Also referred to as the Bidder's Security.

1-1.08 **BIDDER.** Individual, firm, partnership, limited liability company, corporation, joint venture, or any combination thereof, submitting a Proposal for the Work, acting directly, or through a duly authorized representative.

1-1.09 **BIDDING DOCUMENTS.** Includes the Notice to Bidders, Bidding Requirements, Contract Conditions, Drawings, and Addenda.

1-1.10 **CHANGE ORDER.** Any written order to the Contractor directing an addition, deletion, or modification of the Work, or an adjustment in the Contract Price or Contract Time provided in the Contract Documents and issued after the Agreement has been signed.

1-1.11 **CITY.** The City of Roseville.

1-1.12 **CITY ATTORNEY.** The City Attorney of the City.

1-1.13 **CITY CLERK.** The City Clerk of the City.

1-1.14 **CLAIM.** A separate demand by Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following: (a) a time extension, including, without limitation, for relief for damages or penalties for delay assessed by

the City; (b) payment by the City of money or damages arising from work done by, or on behalf of, Contractor pursuant to the Contract Documents and payment for which is not otherwise expressly provided or to which Contractor is not otherwise entitled; and (c) payment of an amount that is disputed by the City.

1-1.15 **CONSTRUCTION SCHEDULE.** A list or graphic display of construction activities required for completing the Work, in a format required by the Contract Documents. The duration, start and finish date, and sequence of significant activities, critical path, float and milestones must be indicated in the Construction Schedule.

1-1.16 **CONTRACT OR AGREEMENT.** The written agreement relating to the Work to be performed, the labor, materials, and equipment to be furnished, and the payment to be made therefor. The Agreement/Contract is part of and incorporates all of the Contract Documents.

1-1.17 **CONTRACT CONDITIONS.** Includes the General Conditions, Supplemental Conditions, and Specifications.

1-1.18 **CONTRACT DOCUMENTS.** Includes those documents that form the basis of the Contract, including but not limited to, Bidding Documents, the Bid or Proposal, Contract Bonds, the Contract, all required insurance certificates or endorsements, all bonds, all required certifications or statements, Change Orders, any Contract Amendment, any City Standard which is incorporated by reference and these City of Roseville General Conditions for Buildings and Grounds.

1-1.19 **CONTRACT DRAWINGS.** The official drawings including plans, elevations, sections, detail drawings, diagrams, plated, General Notes, information and schedules thereon, or exact reproductions thereof, showing the location, character, dimension, and details

of the Work. The Contract Drawings include any drawings or plates bound within the Supplemental Conditions.

1-1.20 **CONTRACT PRICE.** The total compensation to be paid to the Contractor in accordance with the terms of the Agreement.

1-1.21 **CONTRACT TIME.** The number of Days, or portion thereof, allowed for completion of the Work, including all authorized time extensions. The effective date for commencement of the Work specified in the Notice to Proceed shall define the beginning of the Contract Time.

1-1.22 **CONTRACTOR.** Individual, firm, partnership, limited liability company, corporation, joint venture, or any combination thereof, who has entered into the Agreement with City.

1-1.23 **DAY OR DAYS.** Unless otherwise designated, Day or Days as used in the Contract Documents will be understood to mean calendar Day or Days.

1-1.24 **DEPARTMENT.** The Department for Contract Administration, as identified in the Supplemental Conditions.

1-1.25 **DIRECT COSTS.** Those cost items (including labor, materials, equipment and any subcontractor's work) that are used in the actual performance of, and are specifically and uniquely attributable to the Work or changed Work. Direct Costs do not include Overhead. Direct Costs only include the following:

A. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by City and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include salaries and

wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, sick leave, vacation and holiday pay applicable thereto. Such employees may include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Saturday, Sunday or legal holidays shall be included in the above only to the extent authorized by City in writing.

B. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and suppliers' field services required in connection therewith. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to City, and Contractor shall make provisions so that they may be obtained.

C. Payments made by Contractor to the subcontractors for work performed by subcontractors. If required by City, Contractor shall obtain competitive bids from subcontractors acceptable to Contractor and shall deliver such bids to City who will then determine which bids will be accepted. If a subcontract provides that the subcontractor is to be paid on the basis of cost of the work plus a fee, the subcontractor's cost of the work shall be determined in the same manner as Contractor's cost of the work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

D. Costs of special consultants (including engineers, architects, testing laboratories, surveyors, and accountants) employed for services specifically, and only, related to the Work.

E. Supplemental costs including the following:

1. The proportion of necessary transportation, travel and subsistence

expenses of Contractor's employees incurred in discharge of duties connected with the Work.

2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value of such items used but not consumed which remain the property of Contractor.

3. Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by City, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof, all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

4. Sales, consumer, use or similar taxes related to the Work, and for which Contractor is liable, imposed by laws and regulations.

5. The cost of utilities (including the meter and all associated installation costs), fuel and sanitary facilities at the site.

6. Cost of premiums for additional bonds and insurance required because of changes in the Work.

1-1-26 **DIRECTOR.** Director of the Department for Contract Administration or his or her designee.

1-1.27 **EMERGENCY.** Any sudden generally unforeseen occurrence (such as a fire, flood, storm, earthquake, civil disorder, or other natural and/or man-made disaster) that has the potential to adversely affect the safety of life, the Work, and/or adjacent property; to interrupt contracts essential to the performance of the Work; and/or to cause catastrophic failure of City

equipment and/or facilities.

1-1.28 **ENGINEER OR ARCHITECT.** Professional Engineer or Architect designated for a particular project responsible for signing and sealing the permit drawings, interpretation of the drawings where ambiguities exist, review of requests for information, design Change requests and Shop Drawings, resolution of errors and omissions, and finalization of Record Documents.

1-1.29 **FINAL COMPLETION.** When the project has been completed according to the terms and conditions set forth in the Contract Documents. Final Completion is not the same as Acceptance.

1-1.30 **FORCE ACCOUNT.** Payment by force account shall mean payment on the basis of the Contractor's time and materials.

1-1.31 **GENERAL NOTES.** The written instructions, provisions, conditions or other requirements appearing on the Contract Drawings and so identified thereon, which pertain to the performance of the Work.

1-1.32 **INSTALLATION, INSTALL.** Completely assembling, erecting, and/or connecting materials, parts, components, supplies, and related equipment specified or required for the completion of the Work.

1-1.33 **LABORATORY.** Established professional laboratories authorized by the City to test materials and Work involved in the Contract.

1-1.34 **LEGAL HOLIDAYS.** Those days designated as Federal holidays or declared by the City, or otherwise specified in the Contract Documents.

1-1.35 **LIQUIDATED DAMAGES.** The amount prescribed in the Contract Documents to be paid to the City or to be deducted from any payments due or to become due to the

Contractor for each day's delay in completing the whole or any specified portion of the Work beyond the time allowed in the Supplemental Conditions.

1-1.36 **NOTICE OF COMPLETION.** A legal notice filed by the City with the Placer County Recorder's Office stating that construction has been completed and accepted by the City.

1-1.37 **NOTICE TO PROCEED.** A written notice given by the City to the Contractor fixing the date on which the Contract Time will commence to run.

1-1.38 **NOTICE OF TERMINATION.** Written notice from the City to the Contractor and/or its Surety terminating the Agreement, or a portion thereof, either for convenience of the City or for default due to the Contractor's failure to perform its contractual obligations.

1-1.39 **OVERHEAD.** Business or administrative expenses (including but not limited to office expenses, administrative staff, rent, insurance, utilities) not chargeable to a particular part of the Work. The term "Overhead" shall include all of the following:

A. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor whether at the Work Site or in Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications, all of which are to be considered administrative costs covered by the Contractor's fee.

B. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

C. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

D. Cost of premiums for all bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same, except as provided in section 1-1.25.

E. Other overhead or general expense costs of any kind.

1-1.40 **PREMISES.** Shall mean the area within construction easements, easements, rights of entry and City owned property which surrounds the Work Site, limited by the property lines thereof. In some cases Premises may coincide with the Work Site.

1-1.41 **PROFESSIONAL ENGINEER.** An engineer licensed by the Board of Registration for Professional Engineers, State of California.

1-1.42 **PROJECT MANUAL.** A book containing all Contract Documents.

1-1.43 **PROPOSAL FORMS.** The approved forms upon which the City requires that each Bidder submit its bid with regard to the Agreement.

1-1.44 **REQUEST FOR INFORMATION (RFI).** A document issued by the Contractor requesting information concerning the Contract Documents.

1-1.45 **SAFETY.** Includes the practice of identifying potential hazards, assessing their risk, taking corrective action where possible, including and providing control measures such as engineering design, written procedures, and the personal protective equipment for workers in order to eliminate or reduce the risk for exposure in the workplace.

1-1.46 **SCHEDULE OF VALUES.** The breakdown of the Contract Price that will serve as the basis for Contractor's Applications of Payment. Any lump sum bid item

included within the Contract Price will be apportioned among values relating to specific components of the Work covered by said lump sum.

1-1.47 **SHOP DRAWINGS.** Drawings, plans, diagrams, schedules, and other data specifically prepared and submitted to the City by the Contractor, showing in detail: (a) the proposed fabrication and assembly of a special component of the Work; and (b) the Installation (form, fit and attachment details) of a special component of the Work. Shop Drawings shall be deemed to include Working Drawings, Product Data, literature, and applicable performance and test data.

1-1.48 **SPECIFICATIONS.** The technical Specifications for the Work prepared by the Director or an Engineer or Architect describing in detail the nature of the Work, its components, any performance standards, and how the Work is to be constructed.

1-1.49 **SUBCONTRACTOR.** Any individual, firm, partnership, limited liability company, corporation, joint venture, or combination thereof, other than employees of the Contractor, engaged by the Contractor to furnish services, labor, equipment and materials for a portion of the Work.

1-1.50 **SUBMITTALS.** Those documents required to be submitted by the Contractor for review by the City in accordance with the Contract Documents.

1-1.51 **SUPPLEMENTAL CONDITIONS.** The Supplemental Conditions are specific clauses modifying or supplementing these General Conditions.

1-1.52 **SUPPLIER.** Any individual, firm, partnership, limited liability company, corporation, joint venture, or combination thereof, other than employees of the Contractor, that supplies a tangible product as a portion of the Work, with services usually limited to delivery and/or required testing, and with manufacturing, fabrication, or production facilities located on

the Work Site.

1-1.53 **WORK.** The furnishing of all labor, and the furnishing and Installing of all materials, articles, supplies and equipment as specified, designated, or required by the Contract Documents.

1-1.54 **WORK SITE.** All or portion of the Premises that the Work is limited to as shown on the Contract Drawings or designated by the Director. Public streets are not included unless Work is being done within the street right-of-way.

1-1.55 **WORKING DRAWINGS.** Original drawings prepared by the Contractor and/or its Subcontractors or Suppliers, of any tier, illustrating Work required for construction that will not become an integral part of the completed Work. This includes, but is not limited to, drawings for temporary structures such as decking, bulkheads, excavation supports, utility support, groundwater control, forming, falsework, access roads, staging areas, staging plans, and diversion plans. A Working Drawing is one type of a Shop Drawing.

SECTION 2

CONTROL AND SCOPE OF THE WORK

2-1.01 **AUTHORITY OF DIRECTOR.** The Contract shall be performed in a manner satisfactory to the Director who shall decide all questions which may arise as to the quality or acceptability of materials furnished and Work performed and as to the manner of performance and rate of progress of the Work; all questions which may arise as to the interpretation of the Contract Documents; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation. The Director shall have authority to enforce and make effective such decisions and orders in the event the Contractor fails to promptly carry out the same.

2-1.02 **INTENT OF CONTRACT DOCUMENTS.** The Contract Documents are complementary, and what is called for by one shall be as binding as if called for by all. The intent of the Contract Documents is to describe the details for the construction and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, it is understood that only the best general practice shall be followed and that only materials and workmanship of the best quality are to be used. Any Work, materials, or equipment that are customarily provided, or that are reasonably inferable from the Contract Documents as being required to produce the intended result, shall be supplied, whether or not specifically called for. When words, which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and do all the Work involved in executing the Contract in a

satisfactory and workmanlike manner.

Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws, or regulations in effect on the first published date of the Notice to Contractors, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of City or Contractor, or any of their consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to City, or City's designated representative, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to other provisions of the Contract Documents.

The Contract Documents are divided into parts, divisions, sections and articles for convenience, organization and reference. Generally, there has been no attempt to divide the Specifications sections into work performed by the various building trades, work by separate Subcontractors, or work required for separate facilities in the project.

2-1.03 **EXAMINATION AND VERIFICATION OF CONTRACT**

DOCUMENTS. The Contractor shall thoroughly examine and become familiar with all of the various parts of the Contract Documents and shall determine the nature and location of the Work, the general and local conditions (including applicable laws) and all other matters which can in any way affect the cost, progress or performance of the Work under this Agreement. Failure to make an examination necessary for this determination shall not release the Contractor from the obligations of the Agreement. No oral agreement or conversation with any officer, or employee

of the City, or with the City's designated representative either before or after the execution of the Agreement, shall affect or modify any of the terms or obligations contained in the Contract Documents.

2-1.04 **CONTRACT DRAWINGS.** The Contract Drawings consist of general drawings and show such plans, elevations, sections, details and schedules as are necessary to give a graphic and pictorial description of the contemplated construction. All authorized alterations affecting the requirements and information given on the Contract Drawings shall be in writing.

2-1.05 **COORDINATION AND INTERPRETATION OF CONTRACT DOCUMENTS.** All Contract Documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary, and to describe and provide for a complete Work.

In the event of inconsistencies between requirements contained in different components of the Contract Documents, the precedence of the Contract Documents shall be as follows to resolve conflicts:

1. Change Orders
2. The Contract (including Addenda)
3. The Supplemental Conditions
4. Specifications
5. Contract Drawings
6. The General Conditions

Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall submit a

Request for Information (“RFI”) to the Director for such further explanations as may be necessary and shall conform to the written explanation given as if part of the Contract Documents. The decisions of the Director shall be final.

Contractor shall anticipate that it will be necessary to prepare and submit RFIs regarding the Contract Documents. The City will respond to each RFI by no later than fourteen (14) Days after receipt of the RFI, unless the RFI is of significant complexity. Furthermore, in the event that there are numerous RFIs pending, Contractor shall cooperate with the City in establishing a priority for responding to the RFIs, and potentially some RFIs may be responded to beyond the fourteen (14) Day period.

Each RFI prepared by Contractor shall be full and complete. Contractor shall prepare RFIs so as to not cause any delay to the progress of the Work and to not cause any impact to Contractor’s labor productivity in the field. Contractor shall not assert any Claims for delay or interference against the City if Contractor fails to timely submit any RFI to the City, after consideration of the response period allowed for by the City.

The response to an RFI shall not, by itself, constitute a writing that authorizes Contractor to perform any Work that causes an adjustment to either the Contract Price or the Contract Time. If Contractor believes that any response to any RFI should constitute a compensable change, Contractor shall provide a Notice of Potential Claim as provided in Section 7-1.03, below. Contractor’s failure to provide the required written notice shall constitute a waiver of the Contractor’s right to seek a compensable change based on the RFI response.

The Contractor shall examine all Contract Documents; shall verify all figures in the Contract Documents before laying out the Work; shall promptly notify the City of all errors, inconsistencies, and/or omissions that it discovers; and, in instances where such non-

conformities are discovered, shall obtain specific instructions in writing from the City before proceeding with the Work. Contractor's performance of any Work affected by such non-conformities prior to the City's decision shall be at the Contractor's risk. Any Work that is customarily provided or that is reasonably inferable shall not relieve the Contractor from performing such work at no additional expense and/or delay, and such Work shall be performed as if fully set forth in the Contract Documents.

2-1.06 **INDEPENDENT CONTRACTOR STATUS.** The Contractor shall independently perform all Work required by the Contract Documents and shall not be considered as an agent or employee of the City, nor shall the Contractor's Subcontractors or employees be considered as subagents of the City.

The Contractor and Contractor's Subcontractors shall be licensed in accordance with the laws of the State of California and as more particularly described in the bidding documents or elsewhere in the Contract Documents.

2-1.07 **ORDER OF WORK.** When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of work, and no additional compensation will be allowed therefor.

2-1.08 **SUBMITTALS.** It shall be the Contractor's responsibility to timely submit, so as to cause no delay in the Work, all Shop Drawings, descriptive data, manuals, instructions, affidavits, samples for the various trades as required by the Supplemental Conditions and Specifications, and offers of alternatives, if any. Such Submittals shall be checked and coordinated by the Contractor with the Work of other trades involved before they are submitted to the Director for examination.

The Contractor shall deliver at least one (1) electronic copy of the Submittals to the Director, and one (1) hard copy if requested. Work requiring the submittal of working drawings, descriptive data or samples shall not begin prior to approval of said Submittal by the Director.

The time allowed for review of each Submittal will be as indicated in the Supplemental Conditions. Review time will start upon receipt of the Submittal by the Director and will end upon the Director's mailing of the Submittals to the Contractor. Defective, incomplete or partial Submittals will be returned to the Contractor unreviewed.

Submittals shall be made by a letter of transmittal that shall contain a list of all matter submitted and identification of all variations from the Contract Documents contained in the Submittal. The letter and all items accompanying the same shall be fully identified as to project name and location, Contractor's name, district, county, and Contract number, with ample cross-references to the Contract Documents, to facilitate identification of items and their location in the Work.

All Shop Drawings and supporting data, catalogs, schedules, shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy and completeness. These Submittals may be prepared by the Contractor, Subcontractors, or Suppliers, but the Contractor shall ascertain that Submittals meet all of the requirements of the Contract Documents, while conforming to structural, space, and access conditions at the point of Installation. The Contractor shall check all Submittals before submitting them to the Director.

2-1.08A **SHOP DRAWINGS.** The Contractor shall submit an electronic copy (searchable PDF) of all Shop Drawings required by the Supplemental Conditions or Specifications, and one (1) hard copy, if requested by the Director. Shop Drawings shall also be provided separately in AutoCAD format using the latest version of AutoCAD. An electronic

copy will be returned to the Contractor either approved for use, as demonstrated by a stamp, or returned for correction and resubmittal. Materials, colors and/or samples will not be returned to the Contractor. Shop Drawings include any drawing, which requires execution by a draftsman as distinguished from printed matter. The size of Shop Drawings shall not exceed twenty-four inches (24”) by thirty-six inches (36”).

2-1.08B **DESCRIPTIVE DATA.** The Contractor shall submit an electronic copy (searchable PDF) of each set of manufacturer's brochures or other data required by the Supplemental Conditions or Specifications, and one (1) hard copy, if requested by the Director. The City will examine such Submittals and return either an electronic copy or a hard copy approved for use or returned for correction and resubmittal.

2-1.08C **SAMPLES.** The Contractor shall submit samples of articles, materials or equipment as required by the Supplemental Conditions or Specifications. The Work shall be in accordance with the approved samples. Samples shall be removed from City property when directed or may be incorporated in the Work if approved by the Director. Samples not removed by the Contractor will become the property of the City or, at the City's option, will be removed or disposed of by the City at the Contractor's expense.

2-1.08D **MANUALS, INSTRUCTIONS AND AFFIDAVIT.**

A. **Manuals and Instructions.** Where operation and maintenance manuals are required by the Supplemental Conditions, the Contractor shall submit two (2) sets of manuals, suitably bound, along with two (2) electronic copies in an approved format, to the Director within forty-five (45) Days after favorable review of the equipment or facilities. If operation and maintenance manuals are approved to be provided in PDF format, text shall be provided in searchable PDF format, making proper use of PDF for headings and heading levels,

paragraphs, tables, and lists. Submitted operation and maintenance manuals shall be a collected, organized, and indexed set of bookmarked PDF documents comprising each operation and maintenance manual that corresponds to a hardcopy binder. All manuals shall be marked to indicate the specific equipment furnished for this project and shall include at a minimum:

1. Equipment summary form
2. Cover/Title page
3. Table of contents
4. Operating procedures including start-up, shutdown, normal operation, all operating modes, emergency shutdown, and safety precautions
5. Lubrication instructions (if required)
6. Preventative maintenance procedures
7. Troubleshooting and corrective maintenance procedures
8. Reinstallation instructions
9. Overhaul instructions (if applicable)
10. Parts identification list with exploded view and associated cross references
11. Recommended spare parts list
12. Operator safety requirements
13. Electrical and control system wiring drawings, including panel wiring control (ladder) diagrams, logic diagrams, loop diagrams, and interconnection diagrams
14. Panel layout and assembly drawings

15. Mechanical drawings
16. Printouts of all software programs and configuration files
17. Factory and field test procedures and results

Operation and maintenance manuals for complex equipment shall also include:

18. Alternate specified operating modes
19. Emergency shutdown instructions
20. Normal shutdown instructions
21. Long term shutdown instructions

Operation and maintenance manuals for systems comprised of separate pieces of equipment shall include a system explanation of items 4, 7, 18, 19, 20, and 21 as well as the instructions for the separate pieces of equipment.

B. Affidavits. Where required in the Supplemental Conditions or Specifications, manufacturers of equipment shall provide field service as a part of this project. Equipment shall not be considered ready for full time operation until after the authorized factory-trained and qualified manufacturer's representative for the specific equipment has checked and adjusted the equipment and certified by written affidavit that the equipment has been properly Installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. Acceptable affidavits shall be submitted prior to completion of the Work. Affidavits shall contain the following specific wording:

“The (Name of Equipment) has been properly installed, tested, adjusted, lubricated, and calibrated, and is ready for full time operation. The installation has been inspected and has been found to be in conformance with our (the manufacturer's) standards and requirements.”

No amplification, dilution, or modification of this specific wording will be permitted.

2-1.08E **ALTERNATIVES.** For convenience in designation in the Contract Documents, certain materials, articles, or equipment may be designated by a brand or a trade name or the name of the manufacturer together with catalog designation or other identifying information, hereinafter referred to generically as “designated by brand name.” Except in those instances where the product is designated to match others in use in a particular improvement, either completed or in the course of completion, an alternative material, article, or equipment which is of equal quality and of the required characteristics for the purpose intended may be proposed for use provided the Contractor complies with the following requirements:

A. The Contractor shall submit its proposal for an alternative in writing. Such request shall be made in ample time to permit review and approval without delaying the Work. The Contractor shall not be entitled to an adjustment of the Contract Time or an increase in the Contract Price based on any Contractor-proposed substitution.

B. No such proposal will be considered unless accompanied by complete information and descriptive data, necessary to determine the equality of the offered materials. The Contractor shall satisfy the Director as to the comparative quality, suitability, or performance of the offered material, articles, or equipment. In the event that the Director rejects the use of such alternative materials, articles, or equipment, then one of the particular products designated by brand name shall be furnished.

C. The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and it shall furnish all information necessary as required by the Director. The Director shall be the sole judge as to the quality and suitability of alternative articles or materials and such decisions shall be final. Where use of an alternative material

involves redesign of, or changes to, other parts of the Work, the cost and time required to effect such redesign or changes will be considered in evaluating the suitability of the alternative material. Cost of redesign by the City will be borne by the Contractor.

D. Whenever classification, rating or other certification by a body such as Underwriters Laboratories (UL) or the National Electrical Manufacturers Association (NEMA) is a part of the specification for any material, Contractor's request for use of alternative articles or materials shall be accompanied by reports from the listed or equivalent independent testing Laboratory indicating compliance with the Contract Documents. The cost of all testing required to prove equality of the material proposed shall be borne by the Contractor. Approval of an alternative shall be only for the characteristics or use named in such approval, and shall not be used to change or modify any requirement of the Contract Documents.

E. At its election, the City reserves the right to consider any Contractor proposed substitution as a Cost Reduction Proposal under Section 3-1.07 of these General Conditions in the event that there is a significant savings resulting from the substitution.

The Director will examine, with reasonable promptness, such Submittals, and return of Submittals to the Contractor shall not relieve the Contractor from responsibility for deviations and alternatives from the Contract Documents, nor shall it relieve the Contractor from responsibility for errors in the Submittals. A failure by the Contractor to identify in its letter of transmittal material deviations from the Contract Documents shall void the Submittal and any action taken thereon by the Director. When specifically requested by the Director, the Contractor shall resubmit such Shop Drawings, descriptive data and samples as may be required.

If any mechanical, electrical, structural, or other changes are required for the proper Installation and fit of alternative materials, articles, or equipment, or because of deviations from

the Contract, such changes shall not be made without the approval of the Director and shall be made without additional cost to the City.

2-1.09 **DISPOSAL OF MATERIAL OUTSIDE THE WORK SITE.** Unless otherwise stated elsewhere in the Contract Documents, the Contractor shall, at its own cost and expense, make its own arrangements for disposing of materials outside the Work Site.

Except when material is to be disposed of at a landfill or recycling center, when any material is to be disposed of outside the Work Site, the Contractor shall first obtain written permission from the City to dispose of the material at the intended location. The City's approval will be contingent upon the Contractor obtaining a written permit from the property owner on whose property the disposal is to be made. Prior to the disposal of any material at the intended location, the Contractor shall submit such permit or a certified copy thereof to the City, together with a written release from the property owner absolving the City from any and all responsibility related to the disposal of material on said property.

Disposal of Hazardous Materials must be done in accordance with all laws and regulations. Copies of all required regulatory documentation including copies of final manifests shall be supplied to the City.

2-1.10 **ACCESS TO THE WORK.** The Contractor shall satisfy itself that the jurisdictions through which its operations and haul routes pass will permit such operations with respect to the type of vehicle, laden weights, frequency and dimensions of loads, hours of operation and required traffic control. All necessary permits, licenses or bonds shall be obtained and paid for by the Contractor.

2-1.11 **TEMPORARY UTILITIES.** The Contractor shall make its own arrangements with utility companies for any temporary services it may require in performance of

the Work and shall pay all costs of these services directly to these utility organizations.

2-1.12 **UTILITY FACILITIES.** The Contractor shall protect from damage those utility facilities that are to remain in place, be Installed, relocated or otherwise arranged.

The Contractor's attention is directed to the possible existence of facilities not shown, and of facilities in a location different from that, which is indicated. The Contractor shall take steps to ascertain the exact location of all facilities prior to doing any Work, which may damage such facilities or interfere with their service. Where the location of a facility is indicated or inferred from the presence of visible facilities such as buildings, meters, and junction boxes, the Contractor shall make such excavations and explorations as are necessary to ascertain the correct location. Unless provided for elsewhere in the Contract Documents, the cost of such excavations and explorations will be considered as a part of the cost of other items of Work and no additional payment will be made. Such excavations and exploratory Work shall not entitle the Contractor to an extension of time.

If the Contractor discovers underground facilities not indicated or inferred from the Contract Documents, the Contractor shall immediately give the Director written notification of the existence of those facilities. The Contractor shall determine the exact location of the underground facilities and the cost of the work will be paid for in accordance with the Contract Documents. The underground facilities shall be protected from damage as directed by the Director and the cost of that work will be paid for as extra work. The Contractor shall, if directed by the Director, repair any damage, which may occur to the underground facilities. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

Where it is determined by the City that the rearrangement of an underground facility, the existence of which is not shown on the Contract Drawings, is essential in order to accommodate the Work, the City will provide for the rearrangement of such facility by other forces or, when so ordered by Change Order, such rearrangement shall be performed by the Contractor and will be paid for as provided under a Change Order.

The Contractor shall be responsible for the maintenance of all utility facilities placed by the Contractor in temporary locations, and all utilities within the construction area not required to be relocated but which are required to be shored or supported during the construction period. The cost of such maintenance shall be borne by the Contractor, and no other compensation shall be due the Contractor for this Work.

The cost of providing and maintaining all necessary or required temporary structures, of making any necessary repairs, replacements, or similar operations, or furnishing indemnity or other bonds, if required, and all costs required by this Section shall be paid by the Contractor and shall be included in the prices bid in the schedule for other items of work.

2-1.13 **PRESERVATION AND CLEANING.** The Contractor shall clean up the Work at frequent intervals and at other times when directed by the Director. While finish Work is being accomplished, floors, Work areas and finished areas shall be kept clean, free of dust, construction debris and trash. Upon completion of the Work, the Contractor shall remove from the Premises its construction equipment and any waste materials not previously disposed of, leaving the Premises thoroughly clean and ready for final inspection.

2-1.14 **LIMITATIONS ON WORK SITE AND PREMISES.** The Contractor shall limit its construction operations to the Work Site unless otherwise shown on the Contract Drawings or specified. The Contractor shall perform no operation of any nature over or on the

Premises except such operations as are authorized by the Contract Documents or as authorized by the Director.

2-1.15 **DUST CONTROL.** During the performance of all Work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent the operations from producing dust damage and nuisance to persons and property. Any claims resulting from dust damage or nuisance shall be borne solely by the Contractor. The Contractor shall comply with all applicable Air Quality Act requirements.

2-1.16 **SANITATION.** The Contractor shall provide sanitary facilities for all persons working on the Work.

2-1.17 **NIGHT WORK AND NORMAL WORKING HOURS.** Normal working hours at the construction site shall be between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. Legal holidays are excluded. Certain utility connections and street operations are anticipated to require night Work by the Contractor during low usage periods. The Contractor may also be required to prosecute the Work at night if, at any time, the Director shall deem it necessary for the progress of the Work, or if emergencies arise. The Contractor shall promptly comply with any such requirements made in writing by the Director. The Contractor will also be permitted to Work at night if Contractor satisfies the Director of the need therefor, in order to maintain the required progress or protect the Work from the elements. Certain activities are required to be performed at night for nominal progress of the Work and/or are specified to be performed at night by other portions of the Supplemental Conditions. When required, ordered, or permitted to Work at night, the Contractor shall provide sufficient and

satisfactory lighting and other facilities therefor. The Contractor shall receive no extra payment for night Work, if specified or if required to be performed during the normal progress of the Work, but compensation shall be considered as having been included in the price stipulated for the Work.

If Contractor performs work during weekends, holidays or any non-normal work hours, Contractor shall pay for required City Inspectors.

2-1.18 **LINES AND GRADES.** Unless otherwise provided in the Supplemental Conditions, the Contractor shall lay out all Work, including structures and pipelines, and shall be responsible for any errors resulting therefrom. In all questions arising as to proper location of lines and grades, the Director's decision will be final.

As part of the bid price for the construction of the improvements, the Contractor shall provide and be responsible for the layout of all Work on this project. The Contractor shall provide all necessary surveys, field staking, and positioning for the construction of all components at the proper alignment, elevations, grades, and positions, as indicated on the Contract Drawings and as required for the proper operation and function. The Contractor shall stake its Work area limits. Contractor shall perform all construction staking using a land surveyor licensed in the State of California. Contractor shall provide a staking plan prior to commencement of Work for the City's review and maintain monuments, stakes, and marks, and shall update the plan as necessary. Director, or Director's designated representative, may verify the field condition. Errors or inconsistencies in the Contract Documents discovered by the Contractor shall be reported to the Director within twenty-four (24) hours and prior to constructive forms or related improvements. Any work Installed with this requirement shall be subject to removal and replacement at the Contractor's expense.

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The Contractor's lay-out shall be based on existing structures, property lines, survey control, and bench marks established by the City. All structures and pipeline connections shall be Installed based on actual elevation of existing structures to which connections are made.

The Contractor shall supply such labor as required, at no extra charge, to aid and assist the Director in checking location and grades of the Work as set by the Contractor if the Director desires to perform this checking. This shall include moving materials and equipment located between monuments and the construction Work.

2-1.19 **ARCHEOLOGICAL DISCOVERIES.** Upon discovery of prehistoric or historic artifacts, or other indicators or examples of cultural resources discovered during the course of site preparation, grading, excavation, construction or other development activities, all operations within fifty feet (50') of the find shall cease until such time as the City provides the services of a qualified archeologist to evaluate the finds and recommend appropriate action.

Prehistoric materials can include flaked stone tools (e.g., projectile points, knives and choppers) or tool making debris of obsidian, chert, quartzite and other materials, culturally darkened soil (i.e., midden, which often contains heat affected rock, ash and charcoal, shellfish remains, and cultural materials), and stone milling equipment such as mortars, pestles and hand stones. Historic material may include wood, stone, concrete or adobe footings, walls and other structural remains; debris filled wells or privies; and deposits of wood, metal, glass, ceramics and other refuse.

2-1.20 **PRESERVATION OF MONUMENTS.** Any monuments or bench marks disturbed by construction operations shall be repaired per the City's standard and promptly re-established by a registered land surveyor or civil engineer. A plat for each monument shall be furnished to the Director after the plat has been recorded with the Placer

County Recorder's Office at no additional cost to the City. The recorded plat shall serve as a record of the re-establishment of said existing survey points.

2-1.21 **CONFORMITY WITH CONTRACT DOCUMENTS.** Work and materials shall conform to the lines, grades, cross sections, dimensions and material requirements, including tolerances, required by the Contract Documents. Although measurement, sampling and testing may be considered evidence as to such conformity, the City shall be the sole judge as to whether the Work or materials deviate from the Contract Documents. At its option, the City may elect to accept deviations from the Contract Documents with appropriate backcharge Assessments against the Contractor, and, if such an election is made, the City will provide written notice to the Contractor of such acceptance.

2-1.22 **FINAL CLEANUP.** Prior to final Acceptance of the Work, the Contractor shall thoroughly clean the Premises, remove all temporary structures built by or for the Contractor, and remove all equipment and surplus construction material and debris from the area. The entire project, before Acceptance by the City, shall be left in a neat and clean condition. All Work areas and temporary construction areas shall be returned to essentially the same conditions existing before the commencing of project construction.

2-1.23 **AS-BUILT DOCUMENTS AND DRAWINGS.** The Contractor shall maintain one set of the full size prints furnished by the City and mark thereon in color any deviations from plan dimensions, elevations, or orientations. Also, the Contractor shall locate on said prints, all underground facilities, such as piping, conduits and tanks by accurate field measurement from structure walls, corners, etc. The Contractor shall submit the prints and an electronic CD (searchable PDF or source file format such as AutoCAD) in good condition to the Director upon completion of the job as a condition of Acceptance of the project. Marked prints

shall be updated at least once each week and shall be available to the Director for review as to currency prior to developing partial payment estimates. After the completion of testing, but prior to Acceptance, the Contractor shall submit As-Built electrical drawings in color and an electronic CD showing all components and their wiring, and as specified in the Supplemental Conditions.

2-1.24 **SUPERINTENDENCE.** The Contractor shall supervise and direct the Work, which shall be performed in accordance with the requirements of the Contract Documents. The Contractor shall be solely responsible for implementation of all construction means, methods, techniques, sequences, and procedures and for coordination of all portions of the Work under the Agreement. The Contractor shall be solely responsible for the safety of its employees, Subcontractors of any tier, Suppliers, visitors to the Contractor, and other third parties associated with the Contractor.

The Contractor shall designate in writing before starting Work, an authorized representative who shall have the authority to represent and act for the Contractor.

When the Contractor is comprised of two (2) or more persons, firms, partnerships, or corporations functioning on a joint venture basis, said Contractor shall designate in writing before starting Work, the name of one authorized representative who shall have the authority to represent and act for the Contractor. Instances of misconduct, contract non-compliance, unsatisfactory performance, or incompetence by these personnel shall be grounds for the City to direct Contractor to dismiss them from the Project. Contractor shall immediately comply with the City's request for dismissal, at no cost to the City, and shall designate a replacement, which shall be subject to approval by the City.

Said authorized representative shall be present at the site of the Work at all times while Work is actually in progress on the Contract. When Work is not in progress and during periods

when Work is suspended, arrangements acceptable to the Director shall be made for any Emergency Work that may be required.

Whenever the Contractor or its authorized representative is not present on any particular part of the Work where it may be desired to give direction, orders will be given by the Director, which shall be received and obeyed by the superintendent or foremen who may have charge of the particular Work in reference to which the orders are given.

Any order given by the Director, not otherwise required by the Supplemental Conditions to be in writing, will on request of the Contractor, be given or confirmed by the Director in writing.

2-1.25 **CHARACTER OF WORKER.** If any Subcontractor or person employed by the Contractor shall appear to the Director to be incompetent or to act in a disorderly or improper manner, he or she shall be removed immediately on the requisition of the Director, and such person shall not again be employed on the Work.

2-1.26 **INSPECTION.** The Contractor shall at all times permit the Director to inspect the Work or any part thereof. The Contractor shall maintain proper facilities and provide safe access for such inspection by the Director to all parts of the Work, and to the shops where the Work is in preparation. Work shall not be covered up until authorized by the Director and the Contractor shall be solely responsible for notifying the Director where and when such Work is in readiness for inspection and testing. Should any such Work be covered without authorization, it shall, if so ordered, be uncovered at the Contractor's expense.

Unless otherwise designated as normal working hours, whenever the Contractor intends to perform Work on Saturday, Sunday, or a Legal Holiday, the Contractor shall give notice to the Director of such intention forty-eight (48) hours prior to performing such Work, or such longer

period as may be specified so that the Director may make necessary arrangements.

The observation and/or approval of the workmanship or materials by the City shall not relieve the Contractor of any obligations to fulfill the requirements of the Contract Documents. Workmanship and materials not meeting such requirements shall be corrected and unsuitable Work or material may be rejected, notwithstanding that such Work or materials have been previously observed and/or approved by the City, or payment therefor has been included in a progress estimate.

The City may order re-examination of questioned Work at any time before final Acceptance. If so ordered, the Contractor shall uncover the Work. If such work is found to be in accordance with the Contract Documents, the City will pay for the cost of uncovering, removing, recovering and replacing the parts removed; but if such Work so exposed or examined is not in accordance with the Contract Documents, the uncovering, removal, recovering and replacement shall be at the Contractor's expense. Work that has been covered prior to observation by the City does not qualify as re-examined work; the City may order such work uncovered for observation without payment of any costs.

2-1.27 **REMOVAL OF REJECTED AND UNAUTHORIZED WORK.** All Work which has been rejected shall be remedied, or removed and replaced by the Contractor in a manner acceptable to the Director and no compensation will be allowed the Contractor for such removal, replacement, or remedial Work.

Any Work done beyond the lines shown on the Contract Drawings or established by the Director, or any Work done without written authority will be considered as unauthorized Work and will not be paid for. Upon order of the Director, unauthorized Work shall be remedied, removed, or replaced at the Contractor's expense.

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Upon failure of the Contractor to comply promptly with any order of the Director made under this section, the Director may cause rejected or unauthorized Work to be remedied, removed, or replaced, and the costs thereof will be deducted from any moneys due or to become due the Contractor.

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SECTION 3

CHANGES IN THE WORK

3-1.01 **CHANGES.** The Director, without invalidating this Agreement and without notice to Contractor's surety, may order changes in the Work, consisting of additions or deletions, or other revisions. The Contract Price and the Contract Time shall be adjusted accordingly. All such changes in the Work, including in the Contract Price and the Contract Time, shall be authorized only by Contract Change Order, signed by the Director.

If Contractor claims that performance of any work entitles it to additional compensation or to an extension of time for performance of the Work, Contractor shall provide written notice to the City of any such claim prior to undertaking such work. Contractor shall provide written notice of any anticipated impacts to the Contract Price or Contract Time within three (3) Days of discovering such impact, by submitting a Notice of Potential Claim described in Section 7-1.03 below, or notice of delay as described in Section 6-1.09 below. If the Director refuses to issue a Change Order for such work, Contractor shall perform that work if directed or obligated to do so and shall submit a complete and specific Claim for additional compensation and/or extension of time for performance within fifteen (15) Days after such work is performed, as described in Section 7-1.03 below. Failure to provide written notice of claims prior to undertaking such work, failure to provide a timely Notice of Potential Claim, or failure to submit timely a complete and specific Claim for additional compensation and/or extension of the time for performance, shall be deemed a waiver and abandonment of any such Claim. No Claim, dispute or controversy shall interfere with the progress or performance of the Work and the Contractor shall proceed with the Work as directed by the Director. Failure to so proceed shall amount to a

default under this Agreement.

3-1.02 **PROPOSED CHANGE ORDERS.** The Contractor will be notified in writing of a proposed Change Order describing the intended change. Within fifteen (15) Days after receipt of a written request, the Contractor shall submit its proposed price to be added or deducted from the Contract Price due to the change and its estimate of the extent of the adjustment in the Contract Time, if any. The Contractor's proposed price to be added to or deducted from the Contract Price shall be supported by a detailed estimate of cost prepared by the Contractor, vendor or Supplier. The Contractor's proposed price submittal shall be accompanied by a statement of the time necessary for the changed Work, together with a description of how this time will be incorporated into the current Construction Schedule. The Contractor shall upon request by the Director permit inspection of its original Contract estimate, subcontract agreements or purchase orders relating to the change.

If agreement is reached on the adjustment in compensation as provided in Section 3-1.05, "Contract Price Adjustment," of these General Conditions, the Contractor shall proceed with the Work as changed at the agreed price.

If the Contractor and the Director fail to agree as to the adjustment in compensation for the performance of the changed Work, the Contractor, upon written order from the Director, shall proceed immediately with the changed Work and the Contract Price shall be adjusted in accordance with Section 3-1.06, "Force Account Payment," of these General Conditions.

If the Contractor fails to submit its cost estimate within such fifteen (15) Day period, the Contractor shall commence the Work as changed immediately upon receipt of written order of the Director, and the Contract Price will be adjusted in accordance with the Director's cost estimate for the changed Work.

3-1.03

EMERGENCY AND INDETERMINATE TYPE CHANGE

ORDERS. Changes in the Work made necessary by an Emergency, as determined by the Director, or changes of a kind where the extent of the Work cannot be determined until completed, may be authorized by the Director in writing. The Change Order shall state that it is issued pursuant to this Section 3-1.03. Upon receipt of an authorized Change Order or other written order of the Director, the Contractor shall proceed with the ordered Work and the Director will maintain a daily job record containing a detailed summary of all labor, materials and equipment required for the changed Work.

Within fifteen (15) Days after receiving a written request, the Contractor shall submit a detailed estimate of cost for the change and any requested change in Contract Time in the same manner as required for proposed Change Orders in Section 3-1.02 of these General Conditions.

3-1.04

EXECUTED CHANGE ORDER.

A Contract Change Order signed by both the Director and the Contractor is an “executed Contract Change Order.” By signing the Contract Change Order, the Contractor agrees that the specified compensation constitutes full compensation for the changed Work, including payment for interruption, disruption, acceleration, extended Overhead, delay or any other “impact” claim or “ripple effect” claim. The Contractor specifically understands and agrees that its execution of the Contract Change Order shall constitute a waiver of any right for the Contractor to claim any additional compensation with respect to the subject matter of the Contract Change Order.

3-1.05

CONTRACT PRICE ADJUSTMENT.

If a Contract Change Order provides for an adjustment to the Contract Price, the amount of such adjustment shall be determined by one of the following methods, or a combination thereof, as determined by the City and in its sole discretion:

A. Lump sum. The Contractor and the City may agree on a lump sum amount for the Change Order. At the City's request, the Contractor will provide pricing for the work. Maximum markups for Contract Change Orders paid for using lump sum pricing shall be paid for in the same manner and in the same amounts as markups for Force Account work, as described in Section 3-1.06 below.

B. Unit Prices. The unit prices set forth in the Contractor's Schedule of Bid Prices will be utilized where they are applicable and acceptable to the City. The Contractor's unit prices shall remain firm and shall not be subject to adjustment unless and until the actual quantity of work is increased or decreased by Contract Change Order in an amount greater than twenty-five percent (25%) from the estimated quantity indicated for such item. No markups will be given for Contract Change Orders paid for using unit prices.

Unit prices for new items included in the Contract Change Order but not included in the original bid shall be as mutually agreed upon or, in the absence of agreement, as determined by the City in the same manner as if the work were to be paid for on a Force Account basis, as described in Section 3-1.06 below.

C. Force Account. Where the City and the Contractor are unable to agree on lump sum pricing and if the City does not elect to utilize the unit prices in Contractor's bid, or such unit prices are not applicable, the changed work will be performed and tracked by the Contractor as Force Account work, as described in Section 3-1.06 below. The City will pay for such work, including markups, properly attributable to the change in accordance with those Force Account provisions.

D. Eliminated Items. The City reserves the right to delete any bid item of Work in its entirety. The City makes no representation that any work under a bid item of Work

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will be performed, and all work may be subject to a Contract Change Order that deletes such work. Bid items are distinct and severable from the other bid items, and the Contractor shall not be entitled to any anticipated profit, unabsorbed Overhead, or other indirect expense attributable to the deleted item, except as provided immediately below with regard to Force Account mark-ups on the direct and verifiable costs incurred prior to the City's order that deletes the work.

Should any bid item of Work be eliminated in its entirety and not accounted for as described immediately above and, in the absence of an executed Contract Change Order covering such elimination, payment will be made to the Contractor for actual direct and verifiable costs incurred in connection with such eliminated bid item if incurred prior to the date of notification in writing by the City of such elimination. If acceptable material is ordered by the Contractor for the eliminated item prior to the date of notification of such elimination by the City, and if orders for such material cannot be canceled, it will be paid for at the actual direct and verifiable cost to the Contractor. Actual direct costs shall include documented vendor shipping fees, Supplier restocking fees, if applicable, and Contractor handling costs directly related to the eliminated item(s). In such case, the material paid for shall become the property of the City and the actual cost of any further handling will be paid for by the City. If the material is returnable to the vendor and if the City so directs, the material shall be returned and the Contractor will be paid for the actual direct cost of charges made by the vendor for returning the material. The actual direct cost of handling returned materials will also be paid for by the City. The actual direct and verifiable costs to be paid by the City as provided herein will be computed in the same manner as if the work were to be paid for on a Force Account basis, including the application of Force Account mark-ups to said costs.

3-1.06 **FORCE ACCOUNT PAYMENT.** When Work performed pursuant to a

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Change Order is to be paid for on a Force Account basis, the Contractor's labor, materials and equipment used in the performance of such Work shall be subject to the approval of the City, and the compensation will be determined as set forth below in this section.

3-1.06A **LABOR.** The Contractor will be paid an amount based on the actual cost for the workers (including foremen when authorized by the Director) used in the actual and direct performance of the Work. All labor costs associated with Overhead, whether field or home office, are specifically excluded herein, as those labor costs are covered by the below mark-ups. The cost of labor, whether the employer is the Contractor, Subcontractor or other forces, shall include employer payments; assessment of benefits required by lawful labor union collective bargaining agreements; compensation insurance payments; contributions made to the State pursuant to the Unemployment Insurance Code; and for taxes paid to the Federal Government pursuant to the Social Security Act of August 14, 1935, as amended. No labor cost will be recognized at a rate in excess of the wages prevailing in the locality at the time the Work is performed, nor will the use of a labor classification, which would increase the cost, be permitted unless the Contractor establishes to the complete satisfaction of the Director the necessity for payment at a higher rate.

3-1.06B **MATERIALS.** Only materials furnished by the Contractor and necessarily used in the performance of the Work will be paid for. Such cost of materials may include the costs of procurement, transportation and delivery if necessarily incurred. If a cash or trade discount by the actual supplier is available to the Contractor, it shall be credited to the City. If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier plus the actual costs, if any, incurred in the

handling of such materials. If the materials are obtained from a supply or source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on Bid items or the current wholesale price for such materials delivered to the job site, less any discounts as provided herein, whichever is lower. If, in the opinion of the Director, the cost of materials is excessive, or if the Contractor fails to furnish satisfactory evidence of the cost to it from the actual supplier within sixty (60) Days after the date of delivery of the materials or within fifteen (15) Days after Acceptance of the Agreement, whichever occurs first, the cost of the materials shall be deemed to be the lowest current wholesale price at which similar materials are available in the quantities required, less any discounts provided herein. The Department reserves the right to furnish such materials required by the Change Order as it deems advisable, and the Contractor shall have no claim for cost or markups on material furnished by the Department.

3-1.06C **EQUIPMENT.** The Contractor will be paid an amount based on the actual cost for the use of equipment directly required and approved by the Director in the performance of the changed Work. No payment will be made for time while equipment is inoperative due to breakdowns or on Days when no Work is performed. In addition, the rental time shall include the time required to move the equipment to the Work from the nearest available source of such equipment, and to return it to the source. If such equipment is not moved by its own power, then loading and transportation costs will be paid. Moving time, loading and transportation costs will only be paid if the equipment is used exclusively on the changed Work during the time between move in and move out. Individual pieces of equipment having a replacement value of One Thousand Dollars (\$1000) or less shall be considered to be tools or small equipment, and no payment will be made therefore. For equipment owned,

furnished, or rented by the Contractor, no cost therefore shall be recognized in excess of the equipment rental rates published by Caltrans at the following website address:

<http://www.dot.ca.gov/hq/construc/equipmnt.html>. Equipment located at a Work Site and utilized on non-Force Account work shall not be eligible for standby payment, and shall be charged on a Force Account basis only when solely performing pre-approved Force Account work tasks.

3-1.06D **MARKUPS.** When a Change Order increases the cost of the Work, the Contractor may add the following maximum markups to its actual costs of labor, materials, or equipment rental:

15 percent for labor;

10 percent for materials; and

5 percent for equipment rental.

The above markups include full compensation, covering the costs of all supervision, bonds, profit, Overhead, and other general expenses not specifically designated as a direct cost in Sections 3-1.06A through 3-1.06C above. The total payment (i.e., direct cost plus applicable markups) shall be deemed to be the actual cost of such work and shall constitute full compensation therefor. The Contractor specifically understands and agrees that such payment shall include any Contractor costs for interruption, disruption, and acceleration, extended Overhead, Change Order management, delay or other “impact” claim or “ripple effect” claim.

When work paid for on a Force Account basis is performed by forces other than the Contractor’s own forces, the maximum allowable mark-ups for the Subcontractors’ costs shall be fifteen percent (15%) for the cost of labor, ten percent (10%) for the cost of materials, and five percent (5%) for the cost of rented equipment. In these situations where the work is being performed by Subcontractors, the Contractor will only be entitled to an additional five percent

(5%) mark-up and will not be entitled to receive the additional mark-ups specified in this section.

When a Change Order decreases the cost of the Work, the reduction in cost shall include a five percent (5%) markup on the estimated cost for furnishing the labor, materials and equipment, which would have been used on such Work, had the Change Order not been issued.

When a Change Order involves both added Work and deleted Work, the markup or markups to be used shall be as follows:

The actual costs of labor, materials, and equipment rental for added and deleted Work shall be calculated separately without adding markups. If the difference between the calculated costs for labor results in an increased cost, a markup of fifteen percent (15%) shall be applied to the increased cost. If the difference between the calculated costs of materials or equipment rental results in an increased cost, a markup of ten percent (10%) and five percent (5%) respectively, shall be applied to the increased costs of materials or equipment rental, as the case may be. If the difference between the calculated costs for labor, materials or equipment rental results in a decreased cost, a markup of five percent (5%) shall be applied to the decreased costs of labor, materials or equipment rental, as the case may be.

Contractor shall not add mark-ups on work performed and billed by City staff nor add mark-ups to successive iterations of proposed Change Order cost proposals returned to Contractor by the City due to incomplete or inaccurate information being originally submitted by the Contractor. If the Contract Price increases by the issuance of Change Orders, the penal amounts of the bonds required shall increase accordingly.

3-1.06E **RECORDS.** The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of extra work paid for on a Force Account basis and the costs of other operations.

From the above records, the Contractor shall furnish the City completed daily extra work reports, on forms acceptable to the City, for each Day's extra work to be paid for on a Force Account basis. The daily extra work reports shall itemize the materials used, and shall cover the direct cost of labor and the charges for equipment rental, whether furnished by the Contractor, Subcontractor, or other forces. The daily extra work reports shall provide names and identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment, and hours operated. Daily extra work and Force Account reports (actual or claimed) shall be signed by both the City's and the Contractor's representatives within twenty-four (24) hours of the performance of the work.

Valid copies of vendor's invoices shall substantiate material charges. Such invoices shall be submitted with the daily extra work reports, or if not available, they shall be submitted with subsequent daily extra work reports. Should said vendor's invoices not be submitted within sixty (60) Days after the date of delivery of the material or within fifteen (15) Days after the Acceptance of the Agreement, whichever occurs first, the City reserves the right to establish the cost of such materials at the lowest current wholesale prices at which said materials were available in the quantities, less any discounts.

The City will compare its records with the completed daily extra work reports furnished by the Contractor and make any necessary adjustments. When these daily extra work reports are agreed upon and signed by both parties, said reports shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit by the City.

The Contractor's cost records pertaining to Work paid for on a Force Account basis shall be open to inspection or audit by representatives of the City during the life of the Agreement and for a period of not less than three (3) years after the date of Agreement completion and the

Contractor shall retain such records for that period. Where payment for materials or labor is based on the cost thereof to forces other than the Contractor, the Contractor shall make every reasonable effort to insure that the cost records of such other forces will be open to inspection and audit by representatives of the City on the same terms and conditions as the cost records of the Contractor. If an audit is to be commenced more than sixty (60) Days after the date of Acceptance of the Agreement, the Contractor will be given fifteen (15) Days' notice of the time when such audit is to begin.

3-1.07 **COST REDUCTION PROPOSALS.** The City encourages the Contractor to submit Cost Reduction Proposals whenever the Contractor identifies areas and/or instances in which there can be savings to the Work. Contractor may submit to the City, in writing, proposals for modifying the plans, Specifications or other requirements of the Agreement for the sole purpose of reducing the total cost of construction, including the time for completion of the Work. The City may consider such Cost Reduction Proposals and, if accepted, the Agreement will be equitably adjusted. The City has no obligation to consider or accept Cost Reduction Proposals.

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SECTION 4

CONTROL OF MATERIALS

4-1.01 **MATERIALS.** The Contractor shall furnish all materials required to complete the Work, except materials that are designated in the Supplemental Conditions to be furnished by the City and materials furnished by the City in accordance with Section 3, “Changes in the Work,” of these General Conditions.

Unless otherwise specified in the Supplemental Conditions, materials furnished by the Contractor for incorporation into the Work shall be new. When the quality or kind of materials, articles, or equipment is not particularly indicated, then the quality or kind thereof shall be similar to those that are indicated.

Articles or materials to be incorporated in the Work shall be stored in such a manner as to insure the preservation of their quality and fitness for the Work, and to facilitate inspection.

All materials which do not conform to the requirements of the Contract Documents as determined by the Director, will be rejected whether in place or not. Rejected material shall be removed immediately from the site of the Work, unless otherwise permitted by the Director. No rejected material, the defects of which have been subsequently corrected, shall be used in the Work, unless approval in writing has been given by the Director. Upon failure of the Contractor to comply promptly with any order of the Director made under these provisions, the Director shall have the authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

Manufacturer's warranties, guaranties, instruction sheets and parts lists, which are furnished with certain materials incorporated in the Work, shall be delivered to the Director

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before Acceptance of the Contract.

Unless otherwise designated in the Supplemental Conditions or Specifications, materials furnished by the City will be delivered to the job site. Materials furnished by the City that are designated in the Supplemental Conditions as available at locations other than the job site shall be hauled to the site of the Work by the Contractor at its expense, including any necessary loading and unloading that may be involved.

The Contractor will be held responsible for all materials furnished to it, and shall pay all demurrage and storage charges. City-furnished materials lost or damaged from any cause whatsoever shall be replaced by the Contractor. The Contractor will be liable to the Department for the cost of replacing City-furnished material and such costs may be deducted from any moneys due or to become due the Contractor.

4-1.02 **PRODUCT AND REFERENCE STANDARDS.** When descriptive catalog designations, including manufacturer's name, product brand name, or model number are referred to in the Contract Documents, such designations shall be considered as being those found in industry publications in effect on the day the Notice to Contractors for the Work is dated, except as may be otherwise stated.

When standards or test designations of the Federal Government, trade societies, or trade associations are referred to in the Contract Documents by specific date of issue, these shall be considered as part of the Contract. When such references do not bear a date of issue, the edition in effect on the day the Notice to Contractors for the Work is dated shall be considered as part of the Contract.

4-1.03 **SAMPLING AND TESTING OF MATERIALS.** Unless otherwise specified, all tests shall be performed in accordance with the methods used by the State

Department of Transportation (Caltrans) and shall be made by the Director or his or her designated representative.

The State Department of Transportation has developed test methods for testing the quality of materials and Work. These test methods are identified by a California Test followed by the serial number. Copies of individual tests are available at the State Department of Transportation Laboratory, Sacramento, California, and will be furnished to interested persons upon request.

Whenever a reference is made in the Supplemental Conditions to a California Test by number, it shall mean the California test in effect on the day the Notice to Contractors for the Work is dated.

Whenever the Supplemental Conditions provide an option between two (2) or more test methods, the Director will determine the test method to be used.

Whenever a Supplemental Condition, manual, or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of material, shall be furnished to the Director. The manufacturer's test reports shall supplement the inspection, sampling and testing provisions of this Section 4-1.03 and shall not constitute a waiver of the City's right to inspect. When material which cannot be identified with specific test reports is proposed for use, the Director may at his or her discretion, select random samples from the lot for testing. Testing specimens from the random samples, including those required for retest, shall be prepared in accordance with the referenced Supplemental Conditions and furnished by the Contractor at its expense. The number of such samples and test specimens shall be entirely at the discretion of the Director.

When requested by the Director, the Contractor shall furnish, without charge, samples of

all material entering into the Work, and no material shall be used prior to approval by the Director, except as provided in Section 4-1.04, "Certificates of Compliance," of these General Conditions.

A. Inspection and Access for Testing. The Contractor shall provide safe access for the Director and his or her inspectors to adequately inspect the quality of Work and conformance with the General and Supplemental Conditions. The Contractor shall provide adequate lighting, ventilation, ladders and other protective facilities as may be necessary for the safe performance of inspections.

The Contractor shall submit samples or specimens of such materials to be furnished or used in the Work as the Director may require. The Contractor shall furnish the Director all necessary labor and facilities for such things as excavation in the compacted fill to depths required to take samples.

Inspections, tests, or favorable review by the Director or others shall not relieve the Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Documents.

Work covered without the favorable review or consent of the Director shall, if required by the Director, be uncovered for examination at the Contractor's expense.

If the Engineer, Architect, or Director considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Director's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Director may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of

satisfactory reconstruction. If, however, such Work is not found to be defective and the Work was not covered without favorable review of the Director, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to cover its costs directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction and an appropriate Change Order shall be issued.

Whenever the Contractor varies the period during which Work is carried on each Day, the Contractor shall give due notice to the Director so that proper inspection may be provided. Any Work done in the absence of the Director may be subject to rejection. Proper facilities for safe access for inspection to all parts of the Work shall at all times be maintained for the necessary use of the Director and other agents of the City. Authorized representatives and agents of the Director shall be permitted access to inspect all Work and materials wherever it is required for preparation of progress reports, and the Contractor shall provide proper facilities for such access and inspection.

It is the Contractor's responsibility to supervise the Work and complete the project in accordance with the Contract Documents. In the course of managing that effort, the Contractor shall generate its own punch lists as deemed necessary. The Director may prepare punch lists for the Director's own use in communicating with the Contractor; however, the Director shall be under no obligation to prepare punch lists for the Contractor. In general, the Director will prepare punch lists only after the Contractor has given the Director written notice that the subject Work is completed and tested in accordance with the Contract Documents and is ready for operation and/or use and/or occupancy. Failure of the Director to include an item in a punch list shall not relieve the Contractor of its duty to satisfactorily complete all Work required by the Contract Documents.

Upon Final Completion of the construction Work and request by the Contractor, the Director will conduct a final inspection as a basis for recommending to the City that the Work be accepted.

B. Field and Materials Testing. Where the Supplemental Conditions require Work to be specially field tested or approved, it shall be tested only in the presence of the Director after timely notice of its readiness for inspection and test, and the Work after testing shall be covered up only upon the consent thereto of the Director.

The results of any tests made are for the information of the Director. Regardless of any test results, the Contractor is solely responsible for the quality of workmanship and materials and for compliance with the requirements of the Contract Drawings and Supplemental Conditions.

Except as specifically required under the Supplemental Conditions, all tests by the Director of materials furnished by the Contractor will be done in accordance with commonly recognized standards of national organizations. The Contractor shall furnish such samples of all materials as required by the Director without charge. No material shall be used unless it has been favorably reviewed by the Director.

Where such inspection and testing are to be conducted by an independent Laboratory or agency, the sample or samples of materials to be tested shall be selected by such Laboratory or agency, or the Director, and not by the Contractor.

C. Costs of Testing.

1. Initial Services: The City shall furnish and pay for all initial testing services required by the Contract Documents. When initial tests indicate non-compliance with the Contract Documents, the cost of initial tests associated with that non-compliance will be

deducted by the City from the balance owed the Contractor. The Contractor shall furnish samples of materials for testing as may be required by the Director. Such samples shall be furnished without cost to the City.

2. Retesting: When initial tests indicate non-compliance with the Contract Documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same testing Laboratory and the cost thereof will be deducted by the City from the balance owed the Contractor. Contractor shall be billed for each additional test.

3. Contractor Convenience Testing: Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

4. Additional Tests and Inspections: When in the opinion of the Director additional tests or inspections are required because of the manner in which the Contractor executes its Work, such tests and inspections shall be paid for by the City, but will be deducted from the Contract Price. Examples of such tests and inspections are tests of materials substituted for previously accepted materials or substituted for specified materials, retests made necessary by failure of material to comply with the requirements of the Specifications, load tests made necessary because of portions of the structure not fully meeting Specifications or plan requirements, etc.

4-1.04 **CERTIFICATES OF COMPLIANCE.** A Certificate of Compliance shall be furnished prior to the use of any materials for which the Supplemental Conditions require that such a Certificate be furnished. In addition, the Director may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all

respects with the requirements of the Supplemental Conditions. A Certificate of Compliance shall be furnished with each lot of such materials delivered to the Work and the lot so certified shall be clearly identified in the Certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents and any such material not conforming to such requirements will be subject to rejection whether in place or not.

The Department reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition shall be as directed by the Director.

SECTION 5

LEGAL RELATIONS AND RESPONSIBILITY

5-1.01 **LAWS TO BE OBSERVED.** The Contractor shall keep informed of and observe, and comply with and cause all of its agents and employees to observe and comply with, all prevailing Federal and State laws, and rules and regulations made pursuant to said Federal and State laws, and county and municipal ordinances, and regulations, which in any way affect the conduct of the Contract. If any conflict arises between provisions of the Contract and any such law above referred to, the Contractor shall notify the Director at once in writing. To the fullest extent allowed by law, the Contractor shall defend, indemnify, and save and hold harmless the City or any of its officers, agents, employees, and volunteers against any claim or liability arising from or based on the violation of any such law, rule, or regulation, whether by itself or its agents or employees.

5-1.02 **HOURS OF LABOR.** Eight (8) hours labor constitutes a legal Day's work. The Contractor or Subcontractor shall, as a penalty to City, forfeit Twenty-five Dollars (\$25) for each worker employed in the execution of the contract by the respective Contractor or Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one (1) calendar day and forty (40) hours in any one (1) calendar week in violation of the provisions of the Labor Code, and in particular, Section 1810 to Section 1815, thereof, inclusive, except that Work performed by employees of Contractors in excess of eight (8) hours per day, and forty (40) hours during any one (1) week, shall be permitted upon public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay, as provided in said

Section 1815. In addition, Contractor and/or its Subcontractors may be required to pay double the basic rate of pay for all hours worked in excess of twelve (12) hours in any workday and under other circumstances. (See California Code of Regulations, Title 8, Sections 16100(c)(6) and (16200(a)(3)(F) and applicable Department of Industrial Relations prevailing wage determinations.)

5-1.03 **NONDISCRIMINATION.**

A. Attention is directed to Labor Code Section 1735, which reads as follows:

“A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every Contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter.”

B. During the performance of this Contract, Contractor and its Subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status. The Contractor and Subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. The Contractor and Subcontractors shall comply with the provisions of the California Fair Employment and Housing Act (Government Code §12900, et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, §7285.0 et seq.) and other applicable State and Federal regulations and City

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policies pertaining to nondiscrimination and affirmative action which are incorporated into this Agreement by reference and made a part hereof as if set forth in full. The Contractor and its Subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

C. Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform Work under the agreement.

5-1.04 **PREVAILING WAGE.** The Contractor and any Subcontractor shall comply with Labor Code Sections 1770 et seq. In accordance with said Section 1775 the Contractor and any Subcontractor under the Contractor shall, as a penalty, forfeit to the state or City not more than \$200 for each calendar day or portion thereof, for each worker paid less than the prevailing rate as determined by the Director of Industrial Relations for the work or craft in which such worker is employed for under the Contract by the Contractor or by any Subcontractor under the Contractor.

The amount of the penalty shall be determined by the Labor Commissioner based on consideration of both of the following: (a) whether the failure to pay the correct rate of per diem wages was a good-faith mistake and, if so, whether the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor; and (b) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations.

The penalty may not be less than forty dollars (\$40) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the Contractor or Subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the Contractor or Subcontractor.

The penalty may not be less than eighty dollars (\$80) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Contractor or Subcontractor has been assessed penalties within the previous three (3) years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned.

The penalty may not be less than one hundred twenty dollars (\$120) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1 of the Labor Code.

If the amount due under this section is collected from the Contractor or Subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 of the Labor Code against the Contractor or Subcontractor shall be satisfied before applying that amount to the penalty imposed on that Contractor or Subcontractor pursuant to this section.

The determination of the Labor Commissioner as to the amount of the penalty shall be reviewable only for an abuse of discretion.

In addition to said penalty, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage shall be paid to each worker by the Contractor or Subcontractor.

If a worker employed by a Subcontractor on a public works project is not paid the general prevailing per diem wages by the Subcontractor, the Contractor is not liable for any penalties described above unless the Contractor had knowledge of that failure of the Subcontractor to pay

the specified prevailing rate of wages to those workers or unless the Contractor fails to comply with all of the following requirements:

1. The contract executed between the Contractor and the Subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1776, 177.5, 1813, and 1815 of the Labor Code.
2. The Contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the Subcontractor to the employees, by periodic review of the certified payroll records of the Subcontractor.
3. Upon become aware of the Subcontractor's failure to pay its workers the specified prevailing rate of wages, the Contractor shall diligently take corrective action to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the Subcontractor for work performed on the public works project.
4. Prior to making final payment to the Subcontractor for work performed on the public works project, the Contractor shall obtain an affidavit signed under penalty of perjury from the Subcontractor that the Subcontractor has paid the specified general prevailing rate of per diem wages to its employees on the public works project and any amount due pursuant to 1813 of the Labor Code.

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement shall notify the Contractor on a public works project within fifteen (15) Days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a Subcontractor on that public works project to pay workers the general prevailing rate per diem wages.

Pursuant to the provisions of California Labor Code Section 1773, the City has obtained

the general prevailing rate of wages applicable to the categories of workers the City anticipates will be utilized for this project for straight time, overtime, Saturday, Sunday, and holiday Work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of worker concerned or, if no collective bargaining applies, those holidays identified in Government Code Section 6700. These wage rates may be obtained from the State Department of Industrial Relations and/or the following website address: <http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>, which is incorporated herein as a part of this Contract.

Pursuant to Labor Code Section 1773.2, the general prevailing wage rates set forth above, which forms a part of this Contract, shall be posted by the Contractor at a prominent place at the site of the Work.

Pursuant to Labor Code Section 1773.6 and California Code of Regulations Section 16204, Title 8, changes in general prevailing wage determinations shall apply to the project only if issued by the Director of Industrial Relations prior to the City's bid issuance date.

The City will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the Contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining its Bid, and will not under any circumstances be considered as the basis of a claim against the City or Contract.

When both California and Federal prevailing wage rates apply, the Contractor and any Subcontractors shall pay their workers the higher of the two rates. The Contractor and any Subcontractors shall insert this clause in any lower tier contract.

5-1.05 **REGISTRATION REQUIRED AS QUALIFICATION TO BID.**

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Pursuant to Labor Code Section 1771.1(b), notice is hereby given that a Contractor or Subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contractor for public work, as defined in Labor Code Sections 1720, et seq., unless currently registered and qualified to perform public work pursuant to Labor Code Section 1725.5. It is not a violation of Labor Code Section 1771.1 for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5.

5-1.06 **PAYROLL RECORDS.** The Contractor's attention is directed to the following provisions of Labor Code Section 1776. The Contractor shall be responsible for the compliance with these provisions by its Subcontractors.

A. The Contractor and each Subcontractor shall keep accurate and current payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by it in connection with the public work. Each payroll record shall contain or be verified by a written declaration that is made under penalty of perjury, stating both of the following:

1. The information contained in the payroll record is true and correct.
2. The employer has complied with the requirements of Section 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

B. The payroll records enumerated under subdivision (A) shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following

basis:

1. A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or his or her authorized representative on request.

2. A certified copy of all payroll records enumerated in subdivision (A) shall be made available for inspection or furnished upon request to a representative of the City, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations. The City reserves the right to withhold any progress payments to the Contractor in the event of noncompliance with the subsection.

3. A certified copy of all payroll records enumerated in subdivision (A) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the City, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. The public shall not be given access to such records at the principal office of the Contractor.

C. The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division.

D. Each Contractor shall file a certified copy of the records enumerated in subdivision (A) with the entity that requested the records within ten (10) Days after receipt of a written request.

E. Any copy of the records made available for inspection as copies and furnished upon request to the public or any public agency by the City, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or

obliterated to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or Subcontractor performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) shall be marked or obliterated only to prevent the disclosure of an individual's name and social security number. A joint labor-management committee may maintain an action in a court of competent jurisdiction against an employer who fails to comply with Section 1774. The court may award restitution to an employee for unpaid wages and may award the joint labor-management committee reasonable attorneys' fees and costs incurred in maintaining the action. An action under this subdivision may not be based on the employer's misclassification of the craft of a worker on its certified payroll records. Nothing in this subdivision limits any other available remedies for a violation of this section.

F. The Contractor shall inform the City of the location of the records enumerated under subdivision (A), including the street address, city and county, and shall, within five (5) business days, provide a notice of a change of location and address.

G. The Contractor shall have ten (10) Days in which to comply subsequent to receipt of written notice requesting the records enumerated in subdivision (A). In the event that the Contractor or Subcontractor fails to comply within the ten (10) Day period, the Contractor shall, as a penalty to the State or City, forfeit twenty-five (\$25) Dollars for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from any progress payment or final payment then due. A contractor

is not subject to a penalty assessment pursuant to this section due to the failure of a Subcontractor to comply with this section.

5-1.07 **SAFETY REQUIREMENTS.** It is the intent of the parties that the City is not an exposing, creating, controlling, or correcting employer under California Labor Code Section 6400. In accordance with generally accepted construction practices and State law, the Contractor shall have the authority and be solely and completely responsible for conditions on the Work Site, including safety of all persons and property during performance of the Work. Moreover, the Contractor shall be the controlling employer and has the authority and responsibility to enforce Work Site safety. The Contractor shall be responsible for conducting daily safety inspections and assuring all hazards and violations are abated. The Contractor is responsible for assuring that all Subcontractors adhere to the minimum Cal/OSHA safety requirements and that each Subcontractor has an effective Cal/OSHA IIPP (Illness and Injury Prevention Program) in place that specifically addresses all potential exposures, such as, but not limited to, fall protection, confined space, and trenching/shoring. These requirements shall apply continuously and not be limited to normal working hours. The Contractor shall be responsible for any delay costs or damages in the event the progress of Work is slowed or stopped due to a safety violation.

The Contractor shall designate a safety officer and have in place a health and safety plan in accordance with the laws of State of California and conduct safety meetings and document them in accordance with the law. The Contractor shall have the safety record available for inspection during working hours and shall submit job site safety meeting reports with each Application for Payment.

Prior to Contractor commencing construction project work on City property, Contractor

shall make available copies of its Health and Safety Plan (HASP) that meets or exceeds applicable Cal/OSHA regulations. The Contractor's HASP shall also meet or exceed the requirements of any applicable City-wide or departmental specific Injury and Illness Prevention Programs (IIPP) and other HASP programs, procedures, and plans. Potentially applicable HASP programs, procedures, and plans include, but are not limited to, the following:

1. Bloodborne Pathogens Exposure Control Plan;
2. Confined Space Entry Procedure;
3. Electrical Safety Program (Lockout/Tagout);
4. Emergency Action Plans (Site Specific);
5. Fire Prevention Plans (Site Specific);
6. Hazardous Waste Operations Emergency Response Plan (or Equivalent);
7. Hazard Communication Program (SDS's and Right-to-Know training);
8. Heat Illness & Prevention Plan;
9. Hearing Conservation Program;
10. Hot Work/Welding Procedure;
11. Job Hazard Analyses/Standard Operating Procedures;
12. Traffic Control & Flagging;
13. Excavation/Dig Safe Procedure;
14. Fall Protection Plan;
15. Personal Protective Equipment Plan;
16. Respirable Crystalline Silica Exposure Control Plan;
17. Respirator Program;
18. Soils Management Plan (for contaminated soils); and

19. Transite (Asbestos) Pipe Work Procedure.

Additionally, Contractor shall be responsible for complying with all City-wide and departmental specific safety requirements as identified in the Supplemental Conditions or presented at a pre-construction meeting.

Contractor shall inform City in advance of the quantity of chemical(s) to be used for the project and the total quantity of chemical(s) that will be brought onto City property. In addition, Contractor shall provide City with one copy of the Safety Data Sheet (SDS) for each chemical expected to be used to complete the project and for each chemical brought to the Work Site, regardless of whether such chemicals are ultimately used for the project.

The services of the Director in conducting construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's Work methods, equipment, bracing or scaffolding, or safety measures, in, on, or near the construction site. If a City employee observes a safety violation, the City employee will report the violation to the Contractor who is then responsible for assuring the violation is abated.

The Contractor is hereby informed that Work on this project could be hazardous. The Contractor shall carefully instruct all personnel working in potentially hazardous Work areas as to potential dangers and shall provide such necessary safety equipment and instructions as are necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to Work underground.

All Work and materials shall be in strict accordance with all applicable State, City, County, and Federal Rules, Regulations, and Codes, and attention is drawn to the requirements of Cal/OSHA. The Contractor shall be solely responsible for compliance with all City, County and State blasting requirements and for any damages caused by its operations.

To ensure compliance with California Labor Code Section 6705, the Contractor shall submit to the City, at least five (5) Days in advance of excavation of any trench five feet (5') or more in depth, Working Drawings to the Director showing the design of shoring, bracing, sloping and other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such Working Drawings vary from the shoring system standards established by the Cal/OSHA Construction Safety Orders of the Division of Industrial Safety, the plan shall be prepared and signed by a registered civil or structural engineer in the State of California. This in no way relieves the Contractor from the requirement of maintaining safety in all operations performed by the Contractor or the Contractor's Subcontractors and nothing in this section shall be deemed to allow the use of a shoring, sloping or protective system less effective than that required by the Cal/OSHA Construction Safety Orders of the Division of Industrial Safety Contractor's Working Drawings shall be subject to approval insofar as the details affect the character of the finished Work and for compliance with design requirements applicable to the construction when specified or called for, but details of the design will be left to Contractor who shall be responsible for the successful construction of the Work. The City shall approve Working Drawings before any Work involving such drawings is performed. Approval and/or acceptance by the City or its designated agent only constitutes acknowledgment of the submission and does not constitute review or approval of the designs, design assumptions or criteria, completeness of submissions, applicability to areas of intended use, nor implementation of the plans, which are solely the responsibility of the Contractor and its registered engineer.

The Contractor shall perform its Work as not to expose personnel to, or to discharge into the atmosphere from any source whatever, smoke, dust, asbestos, toxic chemicals or other air

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contaminants in violation of the laws, rules, and regulations of the governmental entities having jurisdiction and shall bear full and exclusive responsibility for any release of hazardous or non-hazardous chemicals or substances during the course of the Work. The Contractor shall immediately report any such release to the City. The Contractor shall be solely responsible for all claims and expenses associated with the response to, removal and remediation of the release, including, without limitation, payment of any fines or penalties levied against the City by any agency as a result of such release and shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees, and volunteers from any claims arising from such release. For purposes of this section only, the term “claims” shall include:

1. All notices, orders, directives, administrative or judicial proceedings, fines, penalties, fees, or charges imposed by any governmental agency with jurisdiction; and
2. Any claim, cause of action, or administrative or judicial proceeding brought against the City, its officers, agents, employees, and volunteers for any loss, cost (including reasonable attorneys’ fees), damage or liability, sustained or suffered by any person or entity, including the City.

If the performance of the Work creates any hazardous wastes, those wastes shall be properly disposed of according to federal, state, and local laws, at the expense of the Contractor. The Contractor shall dispose of the wastes under its own EPA Generator Number. In no event shall the City be identified as the generator. The Contractor shall notify the City of any such hazardous wastes and the City reserves the right to a copy of the results of any tests conducted on the wastes, and, at its cost, to perform additional tests or examine those wastes, prior to disposition. The Contractor shall defend, indemnify, and save and hold harmless the City, its

officers, agents, employees, and volunteers from any claims arising from the disposal of the hazardous wastes, regardless of the absence of negligence or other malfeasance by the Contractor. Disposal of all Hazardous Materials must be done in accordance with all laws and regulations. Copies of required regulatory documentation including copies of final manifests shall be supplied to the City.

Contractors or Subcontractors removing one hundred or more square feet (100') of asbestos must be "Certified" in accordance with State law. All Work involving exposure to asbestos and all other hazardous materials shall be performed with protection of personnel in compliance with all applicable regulations and safety requirements including, but not limited to, California Code of Regulations Section 1529, Title 8.

Nothing in these General Conditions is to be construed to permit Work not conforming to governing codes. When Contract Documents differ from governing codes, the Contractor shall furnish and Install the higher standards called for without extra charge.

5-1.08 **SUBSURFACE EXCAVATIONS, NOTIFICATION.** The Contractor shall contact the regional notification center, "Underground Service Alert," and schedule its Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. Without limiting the foregoing, the Contractor's attention is directed to Government Code Sections 4216 to 4216.9, and in particular Section 4216.2.

5-1.09 **PUBLIC SAFETY.** The Contractor shall assume all responsibility for public safety during the performance of its Work, and all costs arising therefrom shall be included in the Contract Price. Whenever the Contractor's operations create a condition hazardous to traffic or to the public, it shall furnish, erect and maintain, at its expense, such fences, barricades, lights, signs, and other devices and take such other protective measures as are

necessary to prevent accidents or damage or injury to the public. The Contractor shall establish the pedestrian detours with comparable lighting to the original pedestrian areas. The Contractor shall arrange for such flaggers as are necessary to give adequate warning to traffic or to the public of any dangerous conditions affecting traffic. For Work in a public right-of-way, the Contractor shall comply with the rules and regulations of the State, County, or local agency that owns the right-of-way.

The Contractor shall promptly and fully comply with and carry out, and shall without separate charge therefor to the City, all safety and first aid requirements prescribed by all applicable Federal, State, and local laws and regulations, rules, and orders. The Work shall be done in a safe manner; and the Contractor shall safeguard the safety and health of its employees, Subcontractors, and the people of local communities. The Contractor shall also be reasonable for ensuring that its Subcontractors comply with the provisions of this section.

Upon the failure of the Contractor to comply with any of the requirements of this section, the City shall have the authority, but not the duty, to stop the Work until such failure is remedied. The Contractor shall not be entitled to an adjustment of the Contract Time or an increase in the Contract Price due to any such suspensions.

When required by the Contract Documents, the Contractor shall construct, maintain, and remove detours for use of public traffic, without additional cost to the City, unless separate payment is specified in the Special Provisions.

The failure or refusal of the Contractor to construct and maintain detours at the proper time shall be sufficient cause for closing down the work until such detours are in satisfactory condition for use by public traffic.

Due care shall be exercised to avoid injury to existing improvements or facilities, utilities,

facilities, adjacent property and trees, shrubs, and other plants that are not to be removed.

Trees, shrubs and other plants that are not to be removed, and pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipe lines, sewer and waterlines, highway facilities, and any other improvements or facilities, under or above ground, that are within or adjacent to the work limit line shall be protected from injury or damage, and the Contractor shall provide and Install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense. The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the Work Site, or as good as required by the Contract Documents if any such objects are part of the Work. The City may make or cause to be made such temporary repairs as are necessary to restore to service any damaged facility. The cost of such repairs shall be borne by the Contractor, and the costs may be deducted from any monies due or to become due to the Contractor under the Agreement.

The fact that any underground facilities is not shown on the Contract Drawings shall not relieve the Contractor of its responsibility pursuant to "Utility Facilities" in Section 2-1.12 elsewhere in the Contract Documents. It shall be the Contractor's responsibility, pursuant thereto, to ascertain the location of such underground improvements or facilities, which may be subject to damage by reason of its operations.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the Work involved in protecting or repairing property as specified in this section, shall be considered as included in the prices paid for the various Contract items of work and no additional compensation will be allowed therefor.

5-1.10 **EMERGENCIES.** In an Emergency affecting the safety of life, the

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Work, or adjoining property, the Contractor, without special instructions or authorization from the City, shall act at its discretion to prevent such threatened loss or injury. In such an Emergency, the Contractor may perform such additional work as is reasonably required. Any compensation claimed by the Contractor on account of Work performed to an Emergency shall be determined in accordance with the provisions relating to Force Account payment contained elsewhere in the Contract Documents.

5-1.11 **APPRENTICES.** Attention is directed to Labor Code Sections 1777.5, 1777.6 and 1777.7 and Title 8, California Code of Regulations Section 200 et seq. In accordance with Section 1777.5, the Contractor shall secure the necessary certificates and shall contribute to the apprenticeship fund or funds, as provided therein. The Contractor shall require each Subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work to fully comply with Sections 1777.5 and 1777.6 of the Labor Code. To insure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, each Contractor or Subcontractor should, where some questions exist, contact the Division of Apprenticeship Standards, , or one of its branch offices prior to commencement of Work on the public works Contract. Responsibility for compliance with this section lies with the prime Contractor.

It is State and City policy to encourage the employment and training of apprentices on public works Contracts as may be permitted under local apprenticeship standards.

5-1.12 **FAIR LABOR STANDARDS ACT.** Attention is invited to the fact that the City has been advised by the Wage and Hour Division, U.S. Department of Labor, that Contractors engaged in construction Work are required to meet the provisions of the Fair Labor Standards Act of 1958 and as amended (52 Stat. 1060).

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5-1.13 **WORKERS' COMPENSATION.** Pursuant to the requirements of Labor Code Section 1860, the Contractor will be required to secure the payment of workers' compensation to its employees in accordance with the provisions of Labor Code Section 3700.

Prior to the commencement of Work, the Contractor shall sign and file with the Director a certification in the following form:

“I am aware of the provisions of Labor Code Section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.”

5-1.14 **AIR POLLUTION CONTROL AND ASBESTOS.** The Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes which apply to any Work performed pursuant to the Contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Government Code Section 11017.

In the absence of any applicable air pollution control rules, regulations, ordinances or statutes governing solvents, all solvents, including but not limited to the solvent portions of paints, thinners, curing compounds, and liquid asphalt used on the project shall comply with the applicable material requirements of the applicable Air Quality Management District. All containers of solvent, paint, thinner, curing compound, or liquid asphalt shall be labeled to indicate that the contents fully comply with said requirements.

Unless otherwise provided in the Supplemental Conditions, material to be disposed of shall not be burned, either inside or outside the Premises.

The Contractor shall also comply with all rules, regulations, statutes and ordinances

regarding asbestos removal and disposal, including but not limited to, 42 U.S.C. Sections 7401, 7412 and 7601, 40 C.F.R. Part 61, Subpart M, and California Code of Regulations Section 1529, Title 8.

If the Contractor discovers that a building to be demolished or renovated contains asbestos containing material, the Contractor shall immediately cease Work and notify the City.

5-1.15 **USE OF PESTICIDES.** The Contractor shall comply with all local, state and federal rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations and all other agencies which govern the use of pesticides required in the performance of the Work.

Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellents.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weed, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered as pesticide.

5-1.16 **SOUND AND LIGHT CONTROL REQUIREMENTS.** The Contractor shall comply with all local sound control, light control, and noise level rules, regulations and ordinances which apply to any Work performed pursuant to the Contract. Work shall not begin before 7 a.m. nor occur after 7 p.m., unless otherwise permitted by the City.

Each internal combustion engine, used for any purpose on the Work or related to the Work, shall be equipped with a muffler, in good working order, of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said

muffler.

5-1.17 **WEIGHT LIMITATIONS.** Unless expressly permitted elsewhere in the Contract Documents, the Contractor shall not operate construction equipment or vehicles of any kind which, laden or unladen, exceed the maximum weight limits set forth in Division 15 of the Vehicle Code over completed or existing base, surfacing, pavement or structures.

5-1.18 **ENVIRONMENTAL CLEARANCES; MITIGATION MONITORING PROGRAMS; AND REGULATORY AGENCY PERMIT REQUIREMENTS.** The Department will obtain all environmental clearances and other authorizations necessary for this project as set forth in the Contract Documents. The Contractor shall comply with the provisions, including giving notices during construction when required, of said authorizations. In the event the obtaining of said authorizations delays completion of all or any portion of the Work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted.

Contractor shall comply with: (1) all mitigation identified in the mitigation monitoring program (attached to and adopted as a component of the mitigated negative declaration or Environmental Impact Report) to mitigate impacts to protected natural resources; and (2) all related permit requirements issued by the regulatory agencies authorizing the project. Contractor shall defend, indemnify, and save and hold harmless the City, its officers, agents, employees, and volunteers from any fines, claims, suits, actions or regulatory sanctions of every name, kind and description brought forth, or on account of, damage to protected natural resources from or arising out of Contractor's negligence or willful misconduct in the performance of this Agreement.

5-1.19 **PERMITS AND LICENSES.** The Contractor acknowledges and agrees that, prior to the submission of its bid for the Work, it fully familiarized itself with the

requirements of all applicable federal, state, county and municipal laws, codes, rules, and regulations, as well as the conditions of any required licenses and permits.

The Contractor shall procure all permits and licenses, including any applicable building permits (except those procured or to be procured by the City which are listed elsewhere in the Contract Documents), in coordination with the Director, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the Work. Contractor shall be responsible for applying, paying all fees, and coordination for obtaining all permits for completion of the Work. All permits and licenses shall be obtained in sufficient time to prevent delays to the Work. Contractor will apply to the City for reimbursement for such permits costs. Accordingly, Contractor should not include the anticipated costs for permits in its bid, as the necessary permit costs will be reimbursed by the City.

The California Environmental Quality Act (Public Resources Code, Section 21000 to 21177) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from State or local agencies in connection with performing the Work. The Contractor shall comply with the provisions of that Act in obtaining such permits, licenses and other authorizations, and all permits, licenses and other authorizations shall be obtained in sufficient time to prevent delays to the Work.

The Contractor shall maintain the applicable Contractor's license as identified in the Notice to Contractors and City business license for the duration of the Work.

5-1.20 **WATER POLLUTION.** The Contractor shall comply with all water pollution control rules, regulations, ordinances and statutes which apply to any Work performed pursuant to the Contract, including any water pollution control rules, regulations, and statutes, specified by the most current State of California NPDES General Permit for Stormwater

Discharges Associated with Construction Activity.

The Contractor shall take all necessary precaution to protect streams, vernal pools, ponds, reservoirs, and lakes from pollution with fuels, oils, bitumen, calcium chloride, and other harmful materials as consistent with the law. Also, the Contractor shall conduct and schedule operations so as to avoid discharging pollutants, such as but not limited to: sediment and silt to the storm drain system. The storm drain system consists of all facilities that are designed to convey stormwater to the Waters of the State as defined in the California Water Code. The storm drain system includes, but is not limited to, all streets, gutters, drain inlets, roadside ditches, streams, vernal pools, ponds, and lakes. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

5-1.21 **PROTECTION AND USE OF PROPERTY.** The Contractor shall be responsible for and provide and maintain all proper temporary walkways, covered walkways, barriers, roads, guards, railings, lights, warning signs, and take precaution at all times to avoid injury or damage to any person or any property, and upon completion of the Work, or at other times as directed, restore Premises and adjacent property to a proper condition. In the event of such injury or damage, Contractor shall report such injury and damage to City within forty-eight (48) hours of occurrence.

The Contractor shall protect adjoining property and nearby buildings, including City buildings, City roads, and public streets or roads, from dust, dirt, debris, or the nuisance arising out of the Contractor's operations or storage practices, and, if ordered by the Director, the Contractor shall provide and Install suitable safeguards, approved by the Director, to protect such objects from damage. If such objects are damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense.

If the Contractor damages any buildings, roads, utilities, or other property which belong to the City, or any Department or agency thereof, then the Director, at his or her option, may retain from the money due under the Contract an amount sufficient to insure repair of the damage.

The Director may make or cause to be made such temporary repairs as are necessary to restore to service any such damaged facility. The cost of such repairs shall be borne by the Contractor and may be deducted from any moneys due or to become due the Contractor under the Contract.

5-1.22 **RESPONSIBILITY FOR DAMAGE AND INDEMNIFICATION.**

The City of Roseville, its officers, agents, employees, and volunteers, including but not limited to the Director and his or her designee, shall not be answerable or accountable in any manner: for any loss or damage that may happen to the Work or any part thereof; for any loss or damage to any of the materials or other things used or employed in performing the Work; for injury to or death of any person, either workers or the public; or for damage to property from any cause which might have been prevented by the Contractor, its workers, or anyone employed by the Contractor or the Contractor's Subcontractors.

The Contractor shall be responsible for any liability imposed by law and for injuries to, or death of, any person including, but not limited to, workers and the public, or damage to property resulting from defects or obstructions, or from any cause whatsoever during the progress of the Work or at any time before its completion and final Acceptance.

To the fullest extent allowed by law, the Contractor shall defend (through counsel acceptable to the City), indemnify, and save and hold harmless the City, and its respective officers, agents, Subcontractors, employees, and volunteers, and the successors and assigns of

any of them, (hereinafter referred to as “Indemnitees”) from and against all claims, demands, liability, suits, actions, costs or expenses for any and all loss or damage, including but not limited to, personal injury, property damage, or economic loss, arising out of or resulting from allegations of (1) Contractor’s use of the City’s property or any activities or Work performed hereunder by the Contractor; (2) the Contractor’s performance of the Work under the Agreement; or (3) the Contractor’s breach of any provision of the Agreement. The duty of the Contractor to indemnify and save harmless includes the duties to defend as set forth in Civil Code Section 2778. The only exception to these provisions is that the Contractor’s obligations under this section will not apply to the extent that the claims, demands, liability, suits, actions, costs or expenses are caused by Indemnitees’ active negligence, willful misconduct, criminal acts, or for defects in design furnished by the Indemnitees, misconduct, criminal acts, or for defects in design furnished by the Indemnitees.

The Contractor waives any and all rights to any type of express or implied indemnity against the City, its officers, agents, employees, or volunteers.

The Contractor’s responsibility for such defense and indemnity obligations shall survive the termination or completion of this Contract for the full period of time allowed by law. The defense and indemnity obligations of this Contract are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Contract. The parties intend that the defense and indemnity obligations in this Contract shall be broadly construed.

Any person, firm or corporation that Contractor authorizes to Work on the City’s property including Subcontractors, shall be deemed to be an agent of the Contractor for purposes herein, shall be subject to all the applicable terms herein, and shall be within the scope of the Contractor’s indemnity obligation described herein.

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In addition to any remedy authorized by law, so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the Department may be retained by the City until disposition has been made of such suits or claims for damages.

The retention of money due the Contractor shall be subject to the following:

A. The City will give the Contractor thirty (30) Days' notice of its intention to retain funds from any partial payment which may become due to the Contractor prior to Acceptance of the Contract. Retention of funds from any payment made after Acceptance of the Contract may be made without such prior notice to the Contractor.

B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 7-1.07, "Progress Payments," of these General Conditions.

C. If the City has retained funds and it is subsequently determined that the City is not entitled to be indemnified and saved harmless by the Contractor in connection with matter for which such retention was made, the Department shall be liable for interest on the amount retained at the legal rate of interest for the period of such retention.

5-1.23 **INSURANCE COVERAGE.**

A. Evidence of Maintenance Required. The Contractor shall, at its expense, procure and at all times maintain in full force and effect at a minimum the insurance required by this section on all of its operations; and the Contractor shall not allow any Subcontractor to commence work until similar insurance required of the Subcontractor has been obtained and filed. An original Certificate of Insurance, and copies of all required endorsements, all in a form approved by the Risk Manager, evidencing all required coverage or policies shall be filed after the award of the bid and prior to approval of the Contract by the City Council. Contractor shall

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provide ten (10) days prior written notice to the City of any reduction of coverage limits or cancellation of the coverage or policies shall be given to the City of Roseville as Certificate holder.

B. Qualifying Insurers. With the exception of the State Compensation Insurance Fund, all required insurance policies shall be issued by companies acceptable to the City and licensed to do business in the State of California and who hold a current policy holders alphabetic and financial size category rating of not less than AVII according to the most recent issue of Best's Insurance Reports.

C. Insurance Required.

1. Commercial General Liability (CGL): Insurance Services Office Form CG 00 01 covering CGL on an "occurrence" basis, including products and completed operations with limits of no less than Two Million Dollars (\$2,000,000) per occurrence for bodily injury, personal injury and property damage for projects under One Million Dollars (\$1,000,000) and limits of no less than Five Million Dollars (\$5,000,000) per occurrence for bodily injury, personal injury and property damage for projects over One Million Dollars (\$1,000,000). If a general aggregate limit applies, either the aggregate limit shall apply separately to this project or the general aggregate limit shall be twice the required occurrence limit.

The Commercial General Liability insurance shall include the following, copies of which shall be provided:

a. Inclusion of the City of Roseville, and its officers, agents, employees, and volunteers, as additional insureds (except for workers' compensation) as respects services or operations under the Contract. The additional insured endorsement for the general liability policy shall be at least as broad as the ISO CG 2010 10 01 combined with ISO CGL.

Endorsement CG 2037 10 01. Any other endorsement must be approved in writing by the City. Endorsements must include coverage for on-going and completed operations, which coverage shall be maintained for four (4) years following completion of the Project. Endorsements shall cover the City of Roseville, its officers, agents, employees, and volunteers.

b. The insurance shall provide coverage for claims by one insured against another insured and the policies shall not contain any cross-suits exclusions, cross-liability exclusions, or insured versus insured exclusions. The policies shall not contain any classification exclusions purporting to deny coverage for any work to be performed by Contractor or any of its Subcontractors.

c. Stipulation that the insurance is primary and noncontributory, as evidenced by a separate endorsement (CG 20 01 04 13 or an equivalent) or section of the policy, and that neither the City nor its insurers will be called upon to contribute to a loss.

d. Such insurance shall specifically cover the contractual liability of the Contractor.

e. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

f. Waiver of subrogation endorsement.

g. The Contractor shall furnish a certificate for the period covered.

2. Automobile Liability: Insurance Services Office Form Number CA 0001 covering Code 1 (any auto), or if Contractor has no owned autos, Code 8 (hired) and Code 9

(non-owned), with limits of no less than One Million Dollars (\$1,000,000) per accident for bodily injury and property damage.

3. Workers' Compensation: In accordance with the provisions of the California Labor Code, Contractor is required to be insured against liability for Workers' Compensation or to undertake self-insurance. Statutory Workers' Compensation and Employers' Liability of at least One Million Dollars (\$1,000,000) shall cover all Contractors staff while performing any work incidental to the performance of this Agreement.

4. Professional Liability: Professional Liability (Errors and Omission) Insurance appropriate to Contractor's profession, with a limit of liability not less than One Million Dollars (\$1,000,000) per occurrence or claim and Two Million Dollars (\$2,000,000) aggregate to cover all design and engineering services rendered by Contractor pursuant to the Agreement. Coverage must commence from the first day that Contractor or any of its Subcontractors provided any design or engineering services in connection with the Project.

5. Builder's Risk/Course of Construction Insurance (If Required by Risk Management): The Contractor shall be responsible for all loss, damage or destruction whatsoever to the work called for by this Contract until the approval of a Notice of Completion or acceptance of the Work if no Notice of Completion is to be recorded.

The Contractor shall secure "All Risk" type of builder's Risk Insurance of the type covering one hundred percent (100%) of the value of the work performed under this Contract (the value is presumed to be the Contract amount unless otherwise stated in Supplemental Conditions) and all materials, equipment, or other items to be incorporated therein while the same are located at the construction site, a bonded warehouse, or its place of manufacture. At any time, the policy shall cover the value of the work completed. The policy shall cover hazards

including the losses due to fire, explosion, hail, rain, lightning, flood (separate insurance as needed), vandalism, malicious mischief, wind, collapse, aircraft, and smoke.

The policies providing such insurance shall name the City as a loss payee as its respective interests may appear, and certified copies of such policies shall be filed with the City. The maximum deductible allowable under the Builder's All Risk policy shall be five percent (5%) of the Contract amount.

Builder's Risk Insurance is not required for coverage of losses in excess of five percent (5%) of the Contract amount for damages resulting from earthquake in excess of a magnitude of 3.5 on the Richter scale, or tidal waves. Coverage in the amount of five percent (5%) of the Contract amount for such losses is required.

6. Pollution Coverage: Contractor shall procure pollution liability coverage or other insurance covering claims for bodily injury or property damage arising out of the abatement, removal, storage, transportation, or other exposure to hazardous materials or pollutants, in limits not less than Two Million Dollars (\$2,000,000). Contractor shall add the City and all parties required to be indemnified by Contractor as additional insured on all pollution liability policies.

7. Higher Coverage Limits: If Contractor maintains higher coverage limits than the amounts shown above, then the City requires and shall be entitled to coverage for the higher coverage limits maintained by Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

8. Claims Made Coverage: Liability insurance coverage may not be written on a "claims made" or modified occurrence basis. The Certificate of Insurance must clearly provide that the coverage is on an "occurrence" basis.

5-1.24 **OTHER INSURANCE PROVISIONS.**

A. The requirements of the Standard Specifications as to types and limits of insurance coverage to be maintained by the Contractor, and any approval of insurance by the City, are not intended to, and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Contractor pursuant to the Contract, including, but not limited to, the provisions concerning indemnification, nor preclude the City from taking any other action available to it under any other provision of the Contract or law.

B. The City acknowledges that some insurance requirements contained in these Standard Specifications may be fulfilled by self-insurance on the part of the Contractor. However, this shall not in any way limit liabilities assumed by Contractor under the Contract. Any self-insurance must be approved in writing by the City, in its sole discretion and shall not reduce the limits of liability. Any deductibles or self-insured retentions (“SIR”) must be declared on the certificate of insurance and approved by City in writing. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or City. City reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

C. The Contractor agrees to include in its contracts with all subcontractors the same requirements and provisions of this Contract, including the indemnity and insurance requirements, to the extent they apply to the scope of the subcontractor’s work. Furthermore, the Contractor shall require its subcontractors to agree to be bound to the Contractor and the City in the same manner and to the same extent as the Contractor is bound to the City under this Contract. Additionally, the Contractor shall obligate its subcontractors to comply with these

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same provisions with respect to any tertiary subcontractor, regardless of tier. A copy of the City's indemnity and insurance provisions will be furnished to the subcontractor or tertiary subcontractor upon request. Alternatively, the Contractor may insure subcontractor(s) under its own policy.

D. The City, its officers, agents, employees, and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under California Insurance Code Section 11580.04.

E. The limits of insurance required in this Contract may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of the City (if agreed to in a written contract) before the City's own insurance shall be called upon to protect it as a named insured.

F. The insurance procured by Contractor shall be subject to the approval of the City, but any acceptance of insurance certificates by the City shall in no way limit or relieve Contractor of its duties and responsibilities under the Agreement.

G. Contractor shall be responsible for all premiums, deductibles, and self-insured retention applicable to the insurance it is required to procure under the Contract. All deductibles or self-insured retentions over five hundred thousand dollars (\$500,000) must be approved by the City, in writing. Contractor shall be responsible for all deductibles, self-insured

retention payments, and/or increased premiums incurred if the City's policies of insurance are forced to cover damages or respond to claims for which Contractor or its Subcontractors were obligated to provide insurance under the Contract.

H. Failure of the City to enforce in a timely manner any of the requirements of these insurance provisions shall not act as a waiver to enforcement of any of these provisions at a later date.

I. Contractor's indemnity obligations shall not be limited by these insurance provisions and shall survive the expiration of the Contract and the insurance provisions of the Contract shall likewise not be limited by the indemnity provisions of the Contract.

J. THE CITY RESERVES THE RIGHT TO WITHHOLD ANY PROGRESS PAYMENTS TO THE CONTRACTOR IN THE EVENT OF NONCOMPLIANCE WITH ANY INSURANCE REQUIREMENTS.

5-1.25 **THIRD PARTY BENEFICIARY.** No provisions in the Contract Documents shall in any way inure to the benefit any third party (including the public at large or any member thereof) so as to constitute such person a third party beneficiary of the Contract, or of any term or condition or other provision of the Contract or otherwise give rise to any cause of action in any person not a party to the Agreement, except as expressly provided elsewhere in the Contract Documents.

5-1.26 **COORDINATION AND ACCESS.** The Contractor acknowledges that the City may award, or has already awarded, other construction contracts for additional work or may perform additional work with its own forces and that such work may affect the Work under this Agreement. Additionally, the Contractor acknowledges that the State and other public and private agencies may be granted a right-of-entry by the City for the purpose of constructing

facilities within and adjacent to the Work Site. It is the obligation of the Contractor to coordinate its Work with the work of others working within or adjacent to the City's property.

During performance of its Work, the Contractor shall not have exclusive access to or use of the work areas. The City may also require that certain facilities and areas be used concurrently by the Contractor and by other contractors working in the area. When two (2) or more contractors are employed on related or adjacent City work, each shall conduct its operations in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to any work, to persons or property caused to the other by its operations, and for loss caused the other due to any unnecessary delays or failure to finish the work within the time specified for completion.

If any party of the Contractor's Work depends on the work of any other contractor and/or the City for proper execution and/or results, the Contractor shall promptly notify the City of any discrepancies and/or defects in said other work that would render its work unsuitable for proper execution and/or results prior to proceeding with the Contractor's own Work. If it becomes necessary, the City will resolve coordination and access problems.

The Contractor and its representative in charge of the Work shall familiarize themselves with the City's property and Work Site, and adjacent surroundings in the vicinity of said Work, and any private or public operations on adjoining properties.

5-1.27 **OCCUPANCY BY THE DEPARTMENT PRIOR TO**

ACCEPTANCE. The City may at any time notify the Contractor in writing that it intends to take Beneficial Occupancy of any portion of the Work even though the Work may not be substantially complete. Unless the reason for the City's taking Beneficial Occupancy is that the Contractor has not completed the Work (or portions thereof) in accordance with the Contract

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Time, the City's Beneficial Occupancy shall relieve the Contractor from its responsibility for maintenance, loss or damage to that portion of the Work for which the City has taken Beneficial Occupancy other than that resulting from the Contractor's act or omission, negligence, willful misconduct or breach of warranty.

Should the Work (or portion thereof) not be completed in accordance with the Construction Schedule within the Contract Time (as adjusted under the terms of the Contract Documents), the City shall have the right, but not the obligation, to take Beneficial Occupancy of the Work. In such event, the Contractor shall not be entitled to any additional compensation on account of said occupancy by the City, nor shall the Contractor be relieved of any of its responsibilities under the Contract Documents, including, without limitation, Contractor's obligation to complete the Work in accordance with the Construction Schedule.

Beneficial Occupancy shall not be deemed an Acceptance by the City either of the Work or of any portion thereof, nor will it relieve the Contractor of full responsibility for correcting defective Work or materials found at any time before the formal written Acceptance of the entire Contract by the Director or during the full warranty period after such Acceptance, as provided in Section 7-1.12, "Warranty," of these General Conditions.

The City's Beneficial Occupancy shall not relieve the Contractor of its responsibility to maintain all insurance and bonds required under the Contract Documents until the entire project is accepted by the City.

5-1.28 **RIGHT TO OPERATE UNSATISFACTORY FACILITIES AND EQUIPMENT.** If, after Installation, the operation or use of the facilities or equipment to be furnished under this Contract proves to be unsatisfactory to the Director, the City shall have the right to operate and use such facilities or equipment until they can, without damage to the City,

be taken out of service for correction or replacement. Such period of use of the defective facilities or equipment, pending correction or replacement, shall in no way decrease the warranty period required for the acceptable corrected or replaced facilities or equipment.

5-1.29 **CONTRACTOR'S RESPONSIBILITY FOR THE WORK.** Except as otherwise provided herein, the Contractor shall have the charge and care of the Work and shall bear the risk of injury or damage to any part of the Work by the action of the elements or from any other cause whether arising from the execution or from the nonexecution of the Work until the Acceptance of the Contract by the Director. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the Work occasioned by any cause before its completion and Acceptance, and shall bear the expense thereof. In case of suspension of Work from any cause whatever, the Contractor shall be responsible for the Work and it shall also be responsible for all materials, and shall properly store them if necessary, and shall provide suitable drainage and erect temporary structures where necessary.

The Contractor will be relieved of responsibility for any injury or damage to the Work caused by the following:

- A. An earthquake in excess of a magnitude of 3.5 on the Richter Scale or a tidal wave, when the effect of such has been proclaimed a disaster or state of emergency by the Governor of the State of California or by the President of the United States, or was of such magnitude at the site of the Work as to have been sufficient to have caused a proclamation of disaster or state of emergency, had it occurred in a populated area.
- B. Occupancy and use by the Department or the public prior to the completion of the entire project.
- C. Acts of the Federal Government or the public enemy.

5-1.30 **RESPONSIBILITY FOR UTILITIES.** The Contractor shall be responsible at its own cost for any and all Work, expense or special precautions caused or required by the existence or proximity of utilities encountered in performing the Work, including without limitation, repair of any or all damage and all hand or exploratory excavation required. The Contractor is cautioned that such utilities may include communication cables or electrical cables which may be high voltage, and when working or excavating in the vicinity of such cables, or the ducts enclosing such cables, the Contractor shall undertake at its own cost any special precautions required. Suitable warning signs, barricades, and safety devices shall be erected as necessary or required.

However, if during the course of the Work the Contractor encounters utility Installations which are not shown or indicated in the Contract Documents or which are found in a location substantially different from that shown, and such utilities are not reasonably apparent from visual examination, then the Contractor shall promptly notify the Director in writing. Where necessary for the Work of the Contract, the Director shall issue a written order to the Contractor to make such adjustments, rearrangement, repair, removal, alteration, or special handling of such utility, including repair of the damaged utility. The Contractor shall perform the Work described in such written order, and compensation therefor will be made in accordance with Section 3 of these General Conditions relating to changes in the Work. Except for the items of cost specified in said Section 3, the Contractor shall receive no compensation for any other cost, damage, delay, interference, or hindrance to him or her due to the presence of such utility. If the Contractor fails to give the notice specified above and thereafter acts without instructions for the Director, then the Contractor shall be liable for any or subsequent to discovery thereof, and the Contractor shall repair and make good such damage at its own cost.

The precise location of underground facilities can only be determined by careful probing or hand digging in compliance with Article 6 of the Cal/OSHA Construction Safety Orders which states in part:

“Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate location of such an installation, the exact location shall be determined by careful probing or hand digging, and, when it is uncovered, adequate protection shall be provided for the existing installation.”

The location of known existing utilities and pipelines are shown on the Contract Drawings in their approximate locations. Some of the locations include multiple conduits. The Contractor shall exercise care in avoiding damage to those facilities which are to remain in service subsequent to the construction of the particular new facility involved and the Contractor will be held responsible for any repairs if damaged. The Contractor shall also exercise care in maintaining those pipes and facilities required for continuing operation of the existing facilities until such time as they can be abandoned. There is no guarantee that all utilities or obstructions are shown on the Contract Drawings or that the locations indicated are accurate.

The Contractor shall exercise extreme caution in working in the area adjacent to the existing pipelines and utility services. It is essential that all the existing facilities be maintained in service. Construction of the connections between the existing facilities and the new facilities shall be at times and during periods acceptable to the City. The Contractor shall advise the Director in writing of its proposed Construction Schedule for these connections at least forty-eight (48) hours in advance.

The Contractor shall uncover all piping and conduits, to a point one foot (1') below the pipe, where crossings, interferences, or connections are shown on the Contract Drawings, prior to trenching or excavating for any pipe or structures, to determine actual elevations. New pipelines shall be laid to such grade as to clear all existing facilities which are to remain in service. If the Contractor does not expose all required utilities, it shall not be entitled to additional compensation for Work necessary to avoid interferences nor for repair to damaged utilities. Excavations around underground electrical ducts and conduits shall be performed using extreme caution to prevent injury or damage to workers and to the electrical ducts or conduits.

5-1.31 **PROPERTY RIGHTS IN MATERIALS.** Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the Work or soil or after partial payment has been made as provided in Section 7-1.07, "Progress Payments," of these General Conditions for material delivered on the ground or stored subject to or under the control of the City and unused. All such material shall become the property of the City upon being so attached or affixed or upon payment for materials delivered on the ground or stored subject to or under the control of the City and unused, as provided in said Section 7-1.07.

5-1.32 **COURT ORDERED DELAY.** If, pursuant to court order, the Department temporarily suspends performance of all or any portion of the Work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted.

5-1.33 **NO PERSONAL LIABILITY.** Neither the Director, nor any other officer or authorized employee of the City, shall be personally responsible for any liability arising under or by virtue of the Contract.

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5-1.34 **RIGHTS IN LAND AND IMPROVEMENTS.** The Contractor shall make no arrangements with any person or entity to permit occupancy or use of any land, structure or building within the limits of the Work, for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the City and any third party owner, former owner, or tenant of such land, structure or buildings. The Contractor shall not occupy City-owned property outside the limit of the Work shown on the Contract Drawings unless it obtains prior approval.

5-1.35 **ANTITRUST CLAIMS.** The Contractor's attention is directed to the following provision of Public Contract Code Section 7103.5(b), which is applicable to the Contractor and its Subcontractors:

“ In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgement by the parties.”

5-1.36 **RIGHTS TO DRAWINGS, TECHNICAL DATA PATENTS.** Shop

Drawings and Working Drawings submitted to the City by the Contractor, Subcontractor or any lower tier Subcontractor pursuant to the Agreement, are the property of the City and the City may use, and disclose in any manner and for any purpose, Shop Drawings and Working Drawings delivered under the Contract.

Technical Data including manuals or instructional materials, computer or microprocessor software which are delivered or submitted to the City by the Contractor, Subcontractor, or any lower tier Subcontract pursuant to the Contract are the property of the City, and the City may use or disclose same in any manner and for any purpose.

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the Work, and shall defend, indemnify and save and hold harmless the City, and its duly authorized representatives, from all suits at law, or in equity, and actions of every nature for, or on account of the use of any patented materials, equipment, devices or processes. In case some materials, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor, at its expense, shall:

1. Secure for the City the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license or licenses; or
2. Replace such materials, equipment, devices, processes; or
3. Modify them so that they become non-infringing or remove the enjoined materials, equipment, devices or processes and refund the sums paid therefor without prejudice to any other rights of the City.

5-1.37 **PAYMENT OF TAXES.** Contractor shall pay all taxes and duties applicable to and assessable against any Work, equipment, materials, services, processes, and

operations incidental to or involved in the Agreement, including but not limited to, retail sales and use, transportation, export, import, business, and special taxes. The Contractor is responsible for ascertaining and acquainting itself with such taxes and making all necessary arrangements to pay them. The Contractor will maintain records that are auditable records, and these records shall be subject to the City's review to verify that Contractor's tax payments are current at all times.

The Contract Price paid for the Work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State or local government, including, without being limited to, Federal excise tax. No tax exemption certificate nor any document designed to exempt the Contractor from payment of any tax will be furnished to the Contractor by the Department, as to any tax on labor, services, materials, transportation, or any other items furnished pursuant to the Contract.

The Contractor shall withhold and pay any and all sales and use taxes, withholding taxes, whether Federal, State, or local, Social Security taxes, State Unemployment Insurance charges and all other taxes which are now or hereafter may be required to be paid or withheld under any laws.

5-1.38 **GRATUITIES AND CONFLICT OF INTEREST.** The Contractor shall not offer or provide gratuities in the form of gifts, entertainment, loans, meals, rewards, and/or services to representatives of the City, including but not limited to, officers, employees, agents, Engineering Service Consultants, Consulting Engineers and Architects, Inspectors and/or Testing Agencies retained by the City. If it is found that the Contractor has violated this provision, the Contract may be subject to termination for default as defined elsewhere in these General Conditions.

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During the term of the Contract and until the final payment has been made to the Contractor, the Contractor shall not employ or compensate in any manner whatsoever, the City's officers, employees and authorized representatives, agents, and any Engineering Service Consultants, Consulting Engineers and Architects, Inspectors, and/or Testing Agencies retained by the City. Any exception to the employment or compensation to any of the above named parties must be made in writing by the City. If the Contractor offers or provides employment or compensation to those named above during the term of the Contract, the Contract may be subject to termination for default.

5-1.39 **COOPERATION.** Should construction be under way by City forces or other forces or by other Contractors within or adjacent to the limits of the Work or should Work of any other nature be under way by such forces within or adjacent to said limits, the Contractor shall cooperate with all such forces to the end that any delay, interference or hindrance to their Work will be avoided. The right is reserved to perform other or additional Work at or near the site at any time, by the use of such forces.

5-1.40 **DIGGING TRENCHES OR OTHER EXCAVATIONS.** In the event any work involves digging trenches or other excavations that extend deeper than four feet (4') below the surface, City and Contractor shall comply with the following:

A. The Contractor shall promptly, and before the following conditions are disturbed, notify City in writing of any:

1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

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2. Subsurface or latent physical conditions at the site differing from those made available to Contractor for inspection as provided in the project proposal.

3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract.

B. The City shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work shall issue a Change Order under the procedures described in the Contract.

C. In the event that a dispute arises between the City and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties. However, no claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required by this Section. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Contract.

5-1.41 **CONTRACTOR REGISTRATION.** No contractor or subcontractor may work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. During the performance of this Contract, the Contractor and its subcontractors shall have a continuing legal obligation to maintain current

registration with the Department of Industrial Relations. The Contractor is hereby notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

5-1.42 **CITY OF ROSEVILLE ENCROACHMENT PERMITS AND**

RIGHTS-OF-WAY. The Contractor need not obtain a separate encroachment permit from the City prior to construction within street rights-of-way or other City rights-of-way. Execution of the Contract by the City shall be deemed an encroachment permit for work required by the Contract within rights-of-way. All work shall conform to the rules and regulations of encroachment permits and shall be subject to the inspection and approval of the Director and City Engineer.

To the extent indicated in the Contract Drawings, the City will provide the rights-of-way over private lands or the site to enable the Contractor to perform its work. The Contractor shall be solely responsible for securing any additional rights-of-way desired by the Contractor. The City will not be a party to nor assume any liability for any separate agreements reached between the Contractor and any third parties with respect to these additional rights-of-way. The Contractor shall procure evidence that agreements are in place with said third parties before the Contractor uses those areas covered by the agreements. Any damage to such private lands caused by the Contractor's operations shall be the sole responsibility of the Contractor.

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SECTION 6

PROSECUTION AND PROGRESS

6-1.01 **SUBLETTING AND SUBCONTRACTING.** The Contractor shall be responsible for all Work performed under the Contract. The Contractor shall give its personal attention to the fulfillment of the Contract and shall keep the Work under its control. Nothing in the Contract Documents shall create any contractual relationship between the City and any Subcontractor. The Contractor is fully responsible to the City for the acts and omissions of its Subcontractors of any tier. When any Subcontractor fails to prosecute a portion of the Work in a manner satisfactory to the Director, that Subcontractor shall not again be employed on the Work. Although the sections of the Contract may be arranged according to various trades, or general grouping of the Work, the Contractor is not obligated to sublet the Work in such manner. The Director will not arbitrate disputes among Subcontractors or between Contractor and one or more Subcontractors concerning responsibility for performing any part of the Work.

The on-site production of materials produced by other than the Contractor's own forces shall be considered as subcontracted. The erection, establishment or reopening of on-site plants for production of materials and the operation thereof in the production of materials for use on the Work shall conform to the requirements relating to labor set forth in the Contract Documents.

The Contractor shall also be responsible for coordinating the Work performed by Subcontractors and Suppliers.

The Contractor shall not substitute any person as Subcontractor in place of a Subcontractor listed on its bid proposal without the written approval of the Director. Substitutions must be in accordance with the provisions of the "Subletting and Subcontracting

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Fair Practices Act” beginning with Public Contract Code Section 4100. Violations of this Act by the Contractor may subject it to penalties which may include cancellation of Contract, Assessment of ten percent (10%) of the Subcontractor's bid, and disciplinary action by the Contractors State License Board.

The Contractor shall pay any Subcontractors approved by the City for work that has been satisfactorily performed no later than seven (7) Days from the date of Contractor’s receipt of progress payments by the City. Within seven (7) Days after receipt from the City of funds attributable to work performed by a Subcontractor, Contractor shall release any retainage payments withheld to the Subcontractor. In the event Contractor does not make progress payments or release retention to Subcontractors in accordance with the time period specified herein, Contractor may be subject to prompt payment penalties per statute.

6-1.02 **ASSIGNMENT.** The performance of this Contract may not be assigned, except upon the written consent of the City Council of the City of Roseville. Consent will not be given to any proposed assignment which would relieve the original Contractor or its surety of their responsibilities under the Contract nor will the City consent to any assignment of a part of the Work under the Contract.

The Contractor may assign moneys due or to become due to it under the Contract and such assignment will be recognized by the City, if given proper notice thereof, to the extent permitted by law, but any assignment of moneys shall be subject to all proper set-offs in favor of the City and to all deductions provided for in the Contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the City for the completion of the Work in the event that the Contractor should be in default therein.

6-1.03 **BEGINNING OF WORK.** After the execution of the Contract by both

parties, the City will issue the Notice to Proceed upon its determination that it is appropriate for the Contract Time to commence.

The Contractor shall begin Work within fifteen (15) Days after receiving the Notice to Proceed from the Director, subject to the requirements stated elsewhere in the Contract Documents regarding, among other things, the submittal of Baseline Schedule, and shall diligently prosecute the same to completion within the time limit provided in the Supplemental Conditions. Contractor shall also achieve any and all Contract milestones as described elsewhere in the Contract Documents.

The Contractor shall notify the Director, in writing, of its intent to begin Work at least seventy-two (72) hours before Work is begun. The notice shall be delivered to the Director and shall specify the date the Contractor intends to start. If the project has more than one (1) location of Work, a separate notice shall be given for each location.

The Contractor is not authorized to perform any Work until it has received a Notice to Proceed from the City. Should the Contractor begin Work in advance of receiving notice that the Contract has been approved as above provided, any Work performed by it in advance of the said date of approval shall be considered as having been done by the Contractor at its own risk and as a volunteer unless said Contract is so approved thereafter.

6-1.04 **PROGRESS SCHEDULE.**

A. Preliminary Progress Schedule. The Contractor shall submit to the Director, within twenty (20) Days after date of the Notice to Proceed, a Preliminary Progress Schedule covering the Contractor's activities over the first three (3) months of operation in detail and the remainder of the project in summary. The Preliminary Progress Schedule shall schedule the project within the Contract Time for completion of the Work, and shall be subject to

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favorable review by the Director.

B. CPM Schedule. The Contractor shall submit an acceptable Critical Path Method (CPM) Schedule to the Director within thirty (30) Days after the receipt of the Notice to Proceed. Subsequent revisions to said schedule shall be submitted as set forth hereinafter. The requirement for the CPM schedule is included to allow for adequate planning and execution of the Work, to determine the critical nature of delays, and to assist the Director in appraising the reasonableness of the proposed schedule and evaluating progress of the Work. The CPM schedule submitted under this Section shall utilize a CPM format, either the precedence or arrow diagramming method. The definitions of CPM terms and functions shall be as provided in the Associated General Contractors of America book *CPM in Construction, A Manual for General Contractors*, or a favorably reviewed alternative publication or reference. No progress payment will be made prior to submission and acceptance of the CPM Schedule.

1. The CPM schedule system shall consist of diagrams and accompanying mathematical analyses. The diagrams shall show elements of the project in detail and an entire project summary. Diagrams shall show the order and interdependence of activities and sequence in which the Work is to be accomplished as planned by the Contractor. The basic concept of a network analysis diagram shall be followed to show how the start of a given activity is dependent on the completion of preceding activities and its completion restricts the start of following activities. Detailed network activities shall include, in addition to construction activities, the submittal and favorable review of samples of material and Shop Drawings, the procurement of critical materials and equipment, fabrication of special material and equipment, and their Installation and testing. All activities of the City and the Director that affect progress and required Contract dates for completion of all or parts of the Work shall be shown. The

selection and number of activities shall be subject to favorable review by the Director. Summary networks shall be time scaled. Durations shall be in Days and shall not exceed fifteen (15) Days, except for submittal and delivery items. Where the duration of continuous Work exceeds fifteen (15) Days, Work items in the Construction Schedule shall be subdivided by location, approximate stationing or other sub-element of the Work.

The graphic network diagram shall include for each activity, the description, activity number, the estimated duration in Days, and all activity relationship lines. The network diagram shall be drawn for the early start of activities. All significant Submittals shall be scheduled along with manual Submittals and training on all large or critical pieces of equipment. If the precedence technique is utilized, the schedule project shall include a calendar in Work Days, a network report sorted by early start and a logic table report sorted by preceding Work item. If the arrow technique is utilized, the schedule report shall include a calendar in Work Days, a network report sorted by early start, a network report sorted by I-J numbers, and a network sorted by slack time and I-J numbers.

2. The critical path shall be shown on all reports and on the graphic network diagram. The activities which constitute the critical path shall be identified.

3. The mathematical analysis of the network diagram shall include a tabulation of each activity. The following information shall be furnished as a minimum for each activity:

- (a) preceding and following event numbers
- (b) activity description and number
- (c) estimated duration of activities
- (d) earliest start date (by calendar date)

- (e) earliest finish date (by calendar date)
- (f) actual start date (by calendar date)
- (g) actual finish date (by calendar date)
- (h) latest start date (by calendar date)
- (i) latest finish date (by calendar date)
- (j) slack or float
- (k) percentage of activity completed

4. The program shall be capable of accepting revised completion dates as modified by approved time adjustments and recomputations of all tabulation dates and float accordingly.

5. Submission and review of the system shall be as follows:

(a) The complete network analysis system, consisting of the detailed network mathematical analysis and network diagrams, shall be submitted within thirty (30) Days after receipt of the Notice to Proceed.

(b) The Contractor shall participate in a review and evaluation of the proposed network diagrams and analysis by the Director. Any revisions necessary as a result of this review shall be resubmitted for review by the Director within ten (10) Days. When completed, the favorably reviewed schedule shall then be the schedule to be used by the Contractor for planning, organizing and directing the Work and for reporting progress. If the Contractor thereafter desires to make significant changes in its method of operating and scheduling, the Contractor shall notify the Director in writing stating the reasons for the change.

(c) The Contractor shall submit at monthly intervals a report of the actual construction progress. Each monthly report shall cover a period of approximately thirty

(30) Days ending around the 20th of each month. The monthly reports shall be submitted within ten (10) Days of the end of the reporting period.

(1) If the project is proceeding on schedule, the monthly update report may consist of a marked-up copy of the graphical network diagram. This submittal shall clearly indicate the status of any minor shifts in sequence or schedule and the estimated completion date or percent complete of all activities currently in progress. The Contract completion date shall also be indicated. The Contractor shall submit a narrative report relating to status of construction, the schedule, and factors which may affect the remainder of the schedule. The report shall show the activities or portions of activities completed during the reporting period. The report shall state the percentage of the Work actually completed and scheduled as of the report date and the progress along the critical path in terms of Days ahead or behind the allowable dates.

(2) If, in the opinion of the Director, the project is behind schedule, the monthly report shall include a revised network diagram and/or mathematical analysis showing the Contractor's proposed revised schedule. An analysis of the effect that the delay has on progress along other paths shall also be included in the report. The Contractor shall also submit a narrative report with each updated analysis which shall include but not to be limited to a description of current and anticipated problem areas, delaying factors and their impact, and an explanation of corrective actions taken or proposed.

(3) Periodic report shall be submitted in sufficient copies to cover Contractor needs plus five (5) copies and an available electronic copy to be retained by the Director.

6. To the extent that the favorably reviewed initial Construction Schedule, or revisions thereto, indicate anything not jointly agreed upon, it shall be deemed to be not favorably reviewed by the Director. Any omission of Work from the detailed schedule, otherwise required for Contract compliance, will not excuse the Contractor from completing such Work within any applicable completion date. The CPM schedule shall be generated by computer methods.

C. Schedule Review. Once each month, on a date mutually agreed upon, but no later than seven (7) business days after the monthly schedule progress report date, a Work Site meeting will be held to review the Construction Schedule and job progress. The Contractor shall also attend weekly meetings scheduled by the Director to review the progress of the Work in the preceding week and in the subsequent week, coordinate the Work with public agencies or other Contractors as required, and allow the Director to plan his or her activities for testing, inspection, etc.

D. Schedule Revisions. The conditions under which the Director will require revisions of the Construction Schedule include the following:

1. When delay in completion of any Work item or sequence of Work items results in an estimated extension of project completion by either twenty (20) business days or by ten percent (10%) of the remaining duration of time to complete the Contract, whichever is less.

2. When delays in Submittals or deliveries make replanning or rescheduling of the Work necessary.

3. When the schedule does not represent actual prosecution and progress of the Work.

4. When any change to the sequence of activities, the completion date for major portions of the Work, or when changes occur which affect the critical path.

5. When Contract Amendments or a Change Order necessitates schedule revision, the Contractor shall submit a schedule analysis of all Change Order Work with its proposal.

E. Cash Flow Projection. A cash flow projection shall be submitted with the Construction Schedule. This cash flow projection shall be revised and resubmitted when revisions of the Construction Schedule will result in changes to the projected cash flow.

F. Schedules showing project completion dates earlier than specified in the Supplemental Conditions will be rejected unless justification can be provided for early completion.

6-1.05 **SCHEDULE OF VALUES.** Prior to preparation of the first estimate for a progress payment, the Contractor shall submit for favorable review by the Director a detailed Schedule of Values or cost breakdown of the Work under each bid item awarded. The breakdown will then become the basis for partial payment determination. Elements of Work shall be grouped by structure, pipeline, system, etc. Within each grouping, Work should be itemized by readily measurable quantities of Work complete in place. For example, concrete should be in units of cubic yards including form Work and reinforcing steel. Move-on costs, bond and insurance costs, and Overhead costs shall not be considered an item of cost for this purpose but shall be prorated over items of Work. In the event the Schedule of Values is not favorable reviewed by the Director, another Schedule of Values shall be submitted that is mutually acceptable to the Contractor and the Director.

6-1.06 **CITY'S RIGHT TO STOP WORK.** The Director shall have the

authority to order the Contractor, in writing, to suspend the Work wholly or in part, for such period as the Director may deem necessary due to the failure on the part of the Contractor to correct Work that is not in accordance with the requirements of the Contract Documents or if Contractor persistently fails to carry out Work in accordance with the Contract Documents.

The Contractor shall immediately comply with the written order of the Director to suspend the Work wholly or in part. The suspended Work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the Director.

Any stoppage of work under this section shall be at the Contractor's sole expense, and the Contractor shall have no claim against the City based on the Contractor's failure to perform the Work in accordance with the Contract Documents.

In addition to the City's right to stop Work, the City may order the Contractor to submit to the City at no additional cost to the City, additional information concerning Contractor's planned Work if the Contractor fails to promptly correct Work that is not in accordance with the requirements of the Contract Documents or persistently fails to carry out Work in accordance with the Contract Documents. The additional information ordered by the City may include, but is not limited to, preparation of Submittals or Working Drawings not otherwise required to be submitted under the Contract Documents.

In the event the City discovers that the Contractor has created an unsafe condition the City may arrange for other work forces to remedy the condition. Such remedial work shall be at the sole discretion of the City. If this action is required, the City may unilaterally terminate Work under the Contract, and will pay only for the quantities of Work actually performed, less the cost of the City's remedial Work. In the event that Work is not halted, the Contractor must take immediate steps to correct the situation. There will be no extra payment for Work required

to correct unsafe conditions.

The right of the City to suspend the Work shall not give rise to a duty on the part of the City to exercise this right for the benefit of the Contractor or any other person or entity. This right shall be in addition to and not in restriction or derogation of the City's other rights under the Contract Documents.

In the event of a suspension of Work under any of the conditions set forth in this Section 6-1.06, such suspension of Work shall not relieve the Contractor of its legal responsibilities as set forth in these General Conditions.

6-1.07 **TIME OF COMPLETION.** The Contractor shall complete the entire Work, including Installation, repairs, startup, troubleshooting, painting, and touchup, training, submittal or record drawings, and manuals, cleanup, demobilization, and all other Work within the number of Days set forth in the Supplemental Conditions. The time for completion includes an allowance for working time lost due to normal inclement weather.

Extensions of time may be allowed for unusual inclement weather under the provisions hereinafter described. Unusual inclement weather is weather which adversely affects "controlling" operations or the critical path of construction and which meets one of the following criteria:

A. For the particular calendar month in question, the number of individual Days with rainfall exceeding 0.10 inches exceeds the average number of such Days for that month over the immediately preceding five (5) years of record by at least three (3) Days.

B. For the particular calendar month in question, the total cumulative rainfall for that month exceeds the average cumulative rainfall for that month over the immediately preceding five (5) years of record by at least two inches (2").

Rainfall shall be measured at a publicly operated, maintained, and reported station in reasonable proximity to the construction site. A claim for delay shall indicate the period of rainfall which is claimed as “unusual,” the specific dates during which the unusual rainfall and subsequent wet soil conditions prevented Work, and the specific critical path tasks adversely affected by such unusual weather. A claim for delay due to unusual inclement weather shall be filed within ten (10) Days of the apparent end of the unusual inclement rainfall period, whether or not the monthly totals are available at that time. The burden of proof that weather meets the criteria for unusual weather shall be solely the responsibility of the Contractor.

It is the responsibility of the Contractor to order materials required for the Work properly and promptly on a Notice to Proceed. If evidence presented demonstrates that, in spite of the Contractor's efforts, government-established priorities controls delay material deliveries, suitable extension of time will be made.

If performance of extra Work ordered by the City or failure of the City to provide the necessary site for Installation affects construction tasks which are “controlling” or which are on the “critical path” of the Construction Schedule, suitable extensions of time will be made.

The Contractor shall not be entitled to a time extension for delays in activities on non-critical paths of the favorably reviewed schedule unless the duration of the excusable delay exceeds the total float of the activities being delayed. If the duration of an excusable delay does exceed the total float of the activities affected by the delay, the Contractor shall be entitled to an extension equal to the difference.

C. Determination that a day is a non-working day by reason of inclement weather or conditions resulting immediately therefrom, shall be made by the Director.

6-1.08 **LIQUIDATED DAMAGES.** It is agreed by the parties to the Contract

that in case all the Work called for under the Contract in all parts and requirements is not completed within the number of Days as set forth in the Supplemental Conditions, damage will be sustained by the City and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the City will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to the City, the monetary amount indicated in the Supplemental Conditions in dollars (U.S.) per day for each and every calendar day of delay in completing the Work in excess of the number of Days prescribed and the number of additional calendar days, if any, authorized by Contract Change Order; and the Contractor agrees to pay said Liquidated Damages herein provided for, and further agrees that the City may deduct the amount thereof from any moneys due or that may become due the Contractor under the Contract.

It is further agreed that in case the Work is not finished and completed in all parts and requirements within the number of Days specified, the City shall have the right to increase the number of Days or not, as it may deem best to serve the interest of the City, and if it decides to increase the said number of Days, it shall further have the right to charge to the Contractor, its heirs, assigns or sureties and to deduct from the final payment for the Work all of any part, as it may deem proper, of the actual cost of engineering, inspection, superintendence, and other Overhead expenses which are directly chargeable to the Contract, and which accrue during the period of such extension, except that cost of preparation of final statement shall not be included in such charges.

6-1.09 **DELAYS AND EXTENSIONS TO THE WORK.** The Contractor must complete all Work within the time specified in the Agreement. The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering

and inspection for any delay in substantially completing the Work (or parts thereof) beyond the time set forth in the Agreement, provided that such delay was caused by unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include acts of public enemy, fire, floods, abnormal weather (as described below), earthquakes, epidemics, quarantine restrictions, strikes, labor disputes and freight embargoes, fire, changes made pursuant to the provisions of “Changes in the Work” under Section 3 of these General Conditions or acts or neglect of the City not contemplated by the Contract Documents. In all cases, any extension of time is conditioned on the following:

1. That the cause is not due to the fault or negligence of the Contractor, and the Contractor has taken reasonable precautions to prevent and minimize the effects thereof; and
2. That the Contractor notifies the Director in writing within three (3) Days from the beginning of such delay specifying the nature of the delay and the measures that have been or will be taken to prevent or minimize the delay. Failure to submit written notice within this time period shall constitute an absolute waiver of any claim for a time extension.

No extension of time will be granted for a delay caused by a shortage of materials, unless the Contractor furnishes to the City documentary proof that it has diligently made every effort to obtain such materials from all known sources within reasonable reach of the work and further proof, as acceptable to the Director, that the inability to obtain such materials when originally planned did in fact cause a delay in Final Completion of the entire Work which could not be compensated for by revising the sequence of the Contractor’s operations. Only the physical shortage of material will be considered as a cause for extension of time, and no consideration

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will be given to any claim that material could not be obtained at a reasonable, practical or economical cost or price, unless it is shown to the satisfaction of the City that such material could have been obtained only at exorbitant prices entirely out of line with current rates, taking into account the quantities involved and the usual practices in obtaining such quantities.

No extension of time will be granted for a delay caused by Contractor's staff turnovers, understaffing or insufficient quantity of qualified staff able to perform the necessary work.

The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the Contract Documents.

No extensions of time will be granted for delays that have no measureable impact on the completion of the Work (or parts thereof) under the Contract Documents. When extensions of time are granted, they will be limited to the period equivalent to the actual number of Days lost on the critical path or controlling operations of the Construction Schedule, taking into account the extent to which that delay could be decreased by reasonable mitigation measures by the Contractor. All requests for extensions of time must be supported with a critical path analysis showing the critical path and impacts to it. Contractor's failure to submit this analysis will be sufficient cause for denial of any request for a time extension.

Within a reasonable period of time after the Contractor submits the notice and information required by this section, the City will determine whether an extension of time is justified and, if so, the number of days for the extension.

Abnormal weather may be a valid basis for a time extension under the Agreement. "Abnormal Weather" occurs when the number of days of rain above 0.5 inches in a 24 hour

period exceeds the average for such rainfall in a particular month as determined by the National Weather Service. The Contractor will only be entitled to, at most, a time extension for the number of days of rain exceeding the average for that month in the locale where the Work is to be performed. If delays are caused by the Contractor or those for whom the Contractor is responsible, the Contractor will only be entitled to, at most, a time extension for the number of rain days exceeding the average for the month when the Work should have been performed.

In addition, before a time extension may be granted for abnormal weather, the Contractor must establish that the rain either significantly impacted at least sixty percent (60%) of the planned work of the controlling operations for a particular day or prohibited at least five (5) hours of work on the controlling operations planned for that day. Contractor shall employ reasonably methods to mitigate the impact of abnormal weather (i.e., dewatering, protection of site, etc.) The occurrence of rain during non-work hours or having minimal impact to work on the controlling operation shall not constitute a day of abnormal weather.

In the event that the project experiences favorable weather for a particular month (e.g., the number of actual rain days in a month less than that indicated above for allowable rain days per months), the additional float resulting from such favorable weather shall accrue to the project.

Any Contractor claim for damages or additional compensation based on delay shall be limited to only those circumstances where the Contractor has fulfilled each of the following three (3) requirements:

1. Contractor has established its entitlement to a time extension pursuant to the provisions described above regarding delay and extensions to the Work.
2. The delay was caused solely by the City's issuance of changes made pursuant to the

provisions of “Changes in the Work” under Section 3 of these General Conditions or by acts or neglect of the City.

3. The delay was unreasonable under the circumstances and not within the contemplation of the parties.

It is expressly understood and agreed that delays caused by the City will be non-compensable when there are concurrent delays caused by the Contractor. Also, the Contractor shall have no entitlement to additional compensation for any delay where there have been concurrent delays caused by non-compensable delays, including, but not limited to, fire, floods, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, and freight embargoes.

Contractor’s damages and/or additional compensation for delays will consist solely of the extended costs of maintaining the Contractor’s Work Site presence. The Contractor will not be entitled to any extended home office overhead.

Compensation for idle time of equipment will be determined in the same manner as determinations are made for equipment used in the performance of extra work paid for on a Force Account basis with the following exceptions:

1. The time for which compensation will be paid will be the actual normal working hours during which such delay conditions exists, but in no case will exceed eight (8) hours in any one day.
2. The days for which compensation will be paid will be each calendar day of the work week (defined elsewhere in the Contract Documents) and Legal Holidays, during the existence of such delay, except that when rental of the equipment is paid for under the provisions in Section 3-1.06C, “Force Account Payment – Equipment,” of these General Conditions, no payment will be made for delays in accordance with the

provisions of this section.

Actual loss shall be understood to include no items of expense other than idle time of personnel, cost of extra moving of equipment, and cost of longer hauls. Compensation for idle time of equipment will be determined as provided in this section and compensation for idle time of personnel will be determined pursuant to Section 3-1.06A, "Force Account Payment – Labor," of these General Conditions. No markup will be added in either case for Overhead and profit. The cost of extra moving of equipment and the cost of longer hauls will be paid for as extra work as provided pursuant to "Changes to the Work" elsewhere in the Contract Documents.

6-1.10 **TERMINATION.**

6-1.10A **TERMINATION OF AGREEMENT – CONVENIENCE OF CITY.** The Department reserves the right to terminate the Contract at any time and for any reason if the Director determines that to do so would be in the best interest of the City. Any termination which is not based on the circumstances set forth in Section 6.1-10B below shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination becomes effective.

Upon the Contractor's receipt of a written Notice of Termination for convenience, the Contractor shall cease Work as to those portions of the project so terminated and shall undertake the steps outlined in Section 6-1.10B below.

1. Acceptance of the Contract as hereinafter specified shall not relieve the Contractor of responsibility for damage to materials except as follows:

- a. The Contractor's responsibility for damage to materials for which partial payment has been made as provided in Section 7-1.07, "Progress

Payments,” of these General Conditions and for materials furnished by the City for use in the Work and unused shall terminate when the Director certifies that such materials have been stored in the manner and at the locations he or she has directed.

- b. The Contractor's responsibility for damage to materials purchased by the City subsequent to the issuance of the notice that the Contract is to be terminated shall terminate when title and delivery of such materials has been taken by the City.
- c. When the Director determines that the Contractor has completed the Work under the Contract directed to be completed prior to termination and such other Work as may have been ordered to secure the project for termination, the Contractor will recommend that the City formally accept the Work, and immediately upon and after such Acceptance by the City, the Contractor will not be required to perform any further Work thereon and shall be relieved of its contractual responsibilities for injury to persons or damage to property which occurs after the formal Acceptance of the project by the City.

2. The total compensation to be paid to the Contractor shall be determined by the Director on the basis of the following:

- a. The reasonable cost to the Contractor, without profit, for all Work performed under the Contract, including mobilization, demobilization and Work done to secure the project for termination. Reasonable cost will include a reasonable allowance for project Overhead and general

administrative Overhead not to exceed a total of seven percent (7%) of Direct Costs of such Work.

- b. A reasonable allowance for profit on the cost of the Work performed as determined under subsection (a), provided the Contractor establishes to the satisfaction of the Director that it is reasonably probable that it would have made a profit had the Contract be completed and provided further, that the profit allowed shall in no event exceed four percent (4%) of said cost.
- c. The reasonable cost to the Contractor of handling material returned to the vendor, delivered to the Department or otherwise disposed of as directed by the Director.
- d. A reasonable allowance for the Contractor's administrative costs in determining the amount payable due to termination of the Contract.

All records of the Contractor and the Contractor's Subcontractors, necessary to determine compensation in accordance with this Section, shall be open to inspection or audit by representatives of the Department at all times after issuance of the notice that the Contract is to be terminated and for a period of three (3) years, and such records shall be retained for that period.

After Acceptance of the Work by the Director, the Director may make payments on the basis of interim estimates pending issuance of the Final Statement, when in his or her opinion the amount thus paid, together with all amounts previously paid or allowed, will not result in total compensation in excess of that to which the Contractor will be entitled. All payments, including payment upon the Final Statement, shall be subject to deduction for prior payments and amounts, if any, to be kept or retained under the provisions of the Contract.

In the event that the City terminates this Contract under Section 6-1.10B below and it is determined for any reason that there was not sufficient cause to do so, the City's termination automatically will convert to a termination for convenience under this section and the terms and conditions outlined in this section automatically will be applied to effectuate the Contract termination. Thus, damages to which a Contractor may be entitled as a result of an improper default termination will be limited to the amounts provided for in this section.

The provisions of this section shall be included in all subcontracts.

6-1.10B **TERMINATION OF AGREEMENT - FOR CAUSE.** An

"Event of Default" as referred to in this section shall occur if the Contractor:

1. Fails to maintain progress of the Work in accordance with the requirements of the Contract Documents; or
2. Fails to prosecute the Work or any of its components in accordance with the Contract Documents; or
3. Persistently or repeatedly fails or refuses to supply sufficient properly skilled workers or proper material to permit the performance of the Work in accordance with the Contract Documents; or
4. Fails to make prompt payment to Subcontractors or Suppliers in accordance with the respective agreements between the Contractor and the Subcontractor and Contractor and Supplier; or
5. Fails to comply with applicable laws, ordinances or rules, regulations or orders of a public authority having jurisdiction over the Work; or
6. Abandons, assigns or sublets the Contract without approval of the City; or
7. Becomes bankrupt or is subject to appointment of a receiver on behalf of the

Contractor; or

8. Otherwise is guilty of a substantial breach of a provision of the Contract Documents.

Upon the City's reasonable belief that there has been an Event of Default by the Contractor, the City may elect to give the Contractor written notice thereof. The Contractor thereafter shall cure the default as soon as possible and in no event after ten (10) Days from the Contractor's receipt of the City's written notice.

If the Contractor does not timely cure its default, the City may, without waiver of any of its other rights and remedies, elect to terminate the Contract, or portion thereof.

Upon the City's election to terminate the Contract, or portion thereof, the City shall have the right to complete the Work, or portion involved, by whatever means and methods it deems expedient, including the hiring of others on such terms as the City deems advisable. The City shall have the right to take possession of the Contractor's materials, plant, tools, equipment and property of any kind provided by or on behalf of the Contractor for the purpose of the Work, or a portion of them, without being responsible to the Contractor for wear and tear. The Contractor shall have no rights in such property during its use by the City. The City shall not be required to obtain the lowest prices for completing the Work or a portion of it but shall make such expenditures as, in the City's sole judgment, best accomplish such completion.

The expense of completing such Work or portion thereof, together with a reasonable charge for engineering, managerial and administrative services, as certified by the City, shall be charged to the Contractor, and the expense so charged shall be deducted by the City out of such monies as may be due or may at any time thereafter become due to the Contractor. In case such expense is more than the sum which otherwise would have been payable to the Contractor under the Agreement, then the Contractor or its surety or sureties shall promptly pay the amount of

such excess so due. When the City terminates the Contract under this section, the Contractor shall not be entitled to receive any further payments until the Work is completed and there has been a final settlement of costs of completing the Work covered by such notice of default.

The City will issue to the Contractor a written notice specifying that the Contract, or portion thereof, is terminated. Upon receipt of said written notice and, except as otherwise directed in writing by the City, the Contractor shall:

1. Stop all Work under the Contract; or if partial termination, stop Work relating to the terminated portion of the Agreement;
2. Perform Work the City deems necessary to secure the Work Site for termination including measures to leave the Work Site in a safe condition;
3. Remove equipment from the site of Work, as specified by the City;
4. Take such action as is reasonably necessary to protect materials from damage;
5. Notify all Subcontractors and Suppliers that the Contract or portion thereof is being terminated and that their contracts or orders are not to be further performed unless otherwise authorized in writing by the City;
6. Provide the City with an inventory list of all materials previously produced, purchased or ordered from Suppliers for use in the Work and not yet used in the Work, including its storage location, and such other information as the City may request;
7. Dispose of materials not used in the Work as directed by the Director. It shall be the Contractor's responsibility to provide the City (a) with good title to all materials purchased by the City hereunder, including materials for which partial payment has been made by the City and (b) with bills of sale or other documents of title for such

materials;

8. Subject to the prior written approval of the City, settle all outstanding liabilities and all claims arising out of Subcontractors or orders for materials terminated hereunder. To the extent directed by the City, the Contractor shall assign to the City all rights, title and interests of the Contractor under subcontracts or orders for materials terminated hereunder. The City shall be at liberty to negotiate with and engage any Subcontractors who had contracted with the Contractor for the Work;
9. Furnish the City with the documentation required to be furnished by the Contractor under the provisions of the Contract Documents, including, on projects as to which Federal funds are involved, all documentation required under the Federal requirements included in the Agreement; and
10. Take such other actions as the City may direct.

If only a portion of the Work has been terminated, the Contractor shall perform the remainder of the Work in conformity with the Contract Documents and in such a manner as not to interfere with the City or others in their performance and completion of the portion of the Work which was terminated.

The City may recover from the Contractor the amount of any loss or damage, including consequential damages, suffered or incurred as a result of the Contractor's default.

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SECTION 7

ACCEPTANCE AND PAYMENT

7-1.01 **ACCEPTANCE.** When the Contractor believes that the entire Work is fully and finally completed, including the satisfactory completion of inspections, tests, and documentation specified in the Contract Documents and completion of all punch list and clean-up items, the Contractor shall submit to the City a written request for final Acceptance within fifteen (15) Days thereafter, specifying that the Work is fully and finally completed and the date on which it was completed. Within thirty (30) Days after receipt of the request for final Acceptance, the City will inspect the Work and will either:

1. Reject the request for final Acceptance, specifying the defective and/or uncompleted portions of the Work; or
2. Notify the Contractor that the Work will be accepted by Resolution of the City Council of the City of Roseville, and a Notice of Completion will be caused to be recorded by the City Clerk; or
3. Notify the Contractor that the Work has been accepted by the City but no Notice of Completion will be recorded.

If the City rejects the request for final Acceptance, the Contractor shall promptly remedy the defective and/or uncompleted portions of the Work. Thereafter, the Contractor shall again submit a written request for final Acceptance of the Work, specifying a new date based on the date the defective and/or uncompleted portions of the Work were corrected. Thereafter, the foregoing procedure shall apply successively until the City has verified that the Work is fully and finally completed and accepted the Work by Resolution of the City Council or by written

notification from the Director. Immediately upon such Acceptance, the Contractor shall be relieved of the duty of maintaining the Work as a whole.

All warranties commence upon final Acceptance of the Work. The City's final Acceptance of the Work shall not be construed as an acceptance by the City of any latent defects discovered with regard to the Contractor's work. Furthermore, Contractor's obligations under Section 5-1.22 "Responsibility for Damage and Indemnification" shall still remain applicable after the City's grant of final Acceptance of the Work.

Prior to final Acceptance, the Contractor shall submit to the City the Record Documents and Operation and Maintenance Manuals as specified in the Contract Documents.

7-1.02 **SCOPE OF PAYMENT.** The Contractor shall accept the compensation provided in the Contract as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all Work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the Acceptance by the Director and for all risks of every description connected with the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as provided in the Contract; and for completing the Work according to the Contract. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective Work or material.

No compensation will be made in any case for loss of anticipated profits.

7-1.03 **NOTICE OF POTENTIAL CLAIM.** The Contractor shall not be entitled to the payment of any additional compensation for any act or failure to act by the City.

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including failure or refusal to issue a Change Order, or for the happening of any event, thing, occurrence or other cause unless the Contractor has given the City due written Notice of Potential Claim as hereinafter specified, provided, however, that compliance with this Section 7-1.03 shall not be a prerequisite as to matters within the scope of the notice provisions in Section 6-1.07, "Time of Completion," or the notice provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions, nor to any claim which is based on differences in measurement or errors of computation as to correct quantities.

The written Notice of Potential Claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. The said Notice as above required must have been given to the Director prior to the time that the Contractor shall have performed the Work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Director, or in all other cases within seven (7) Days after the happening of the event, thing, occurrence or other cause giving rise to the potential claim.

If the Notice of Potential Claim does not include complete information about the claim or the parties do not execute a Contract Change Order in connection with the Notice of Potential Claim, Contractor shall submit complete information about its claim for additional compensation and/or extension of time for performance within fifteen (15) Days after such work is performed. Failure to provide written notice of claim prior to undertaking such work or failure to timely submit a complete and specific information about the claim for additional compensation and/or extension of the time for performance shall be deemed a waiver and abandonment of such claim.

If there is a dispute over any claim, the Contractor shall continue to Work during the dispute resolution process in a diligent and timely manner as directed by the City, and shall be

governed by all applicable provision of the Agreement.

The Contractor shall maintain cost records of all Work that is the basis of any dispute. On a daily basis, Contractor shall submit to City completed daily forms, the format of which will be acceptable to the City, with respect to the Contractor's costs of performing the disputed work. These daily forms shall itemize all of Contractor's costs in performing the disputed work, including, but not limited to, all costs relating to materials, labor and equipment with respect to the disputed work. These daily forms shall provide names or identification and classification of affected workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated. Said daily work forms shall be duly signed and verified by the Contractor or its authorized representative. The City's receipt of the Contractors' daily forms shall not constitute an approval of the Contractor's claim. Contractor's failure to submit the daily forms on a daily basis shall constitute a waiver of the Contractor's right to claim any additional compensation for the disputed work.

Each Contractor claim shall include full and complete information concerning the Claim. Contractor shall provide a clear, concise recital of the basis, upon which the claim is asserted, including a designation of the provisions of the Contract Documents upon which the claim is based. Contractor shall also include a statement as to the amount of time and/or compensation sought pursuant to the claim; if Contractor's claim arises from an ongoing occurrence, Contractor shall so state in its claim, including a description of the specific Work activities affected by the claim. All costs, expenses or damages and extensions of time claimed shall be described in reasonable detail under the circumstances together with complete supporting documentation.

The City will review any timely Notice of Potential Claim and supporting information

submitted by Contractor. In conducting this review, the City shall have the right to require the Contractor to submit such additional or supporting documents, data and other information as the City may require.

If an agreement can be reached which resolves the Contractor's claim, the parties will execute a Contract Change Order to document the resolution of the claim. If the parties cannot reach agreement with respect to the Contractor's claim, the Contractor shall still be obligated to comply with the claim identification provisions identified in these General Conditions, including but not limited to Section 7-1.04.

It is the intention of this Section 7-1.03 that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Director at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any Claim that may be based on any such act, failure to act, event, thing or occurrence for which no timely written Notice of Potential Claim as herein required was filed.

7-1.04 **CLAIMS.** Contractor must submit all Claims, for which it has previously submitted a Notice of Potential Claim, prior to Acceptance of the Work. Each such Claim must be sent to the City by registered mail or certified mail with return receipt requested and must contain reasonable documentation to support the Claim.

Upon receipt of a Claim, the City shall conduct a reasonable review of the Claim and, within a period not to exceed forty-five (45) Days, or such further time as mutually agreed upon or necessary pursuant to Public Contract Code Section 9204, the City shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. If the City does not respond to a Claim from the Contractor within the time

specified herein, such Claim shall be deemed rejected in its entirety.

Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) Days after the City issues its written statement.

If the Contractor disputes the City's written response, or if the City does not respond within the time specified herein, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within thirty (30) Days for settlement of the dispute.

Within ten (10) business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the City shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) Days after the City issues its written statement. Any disputed portion of the Claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and the Contractor shall mutually agree to a mediator within ten (10) business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be resolved in accordance with Section 7-1.05 below.

7-1.05 **DISPUTE RESOLUTION PROCEDURE.** All Claims not resolved

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pursuant to Section 7-1.04, shall be resolved pursuant to Public Contract Code Section 10240, et seq.

7-1.06 **STOP PAYMENT NOTICES.** The City, by and through the Department or other appropriate office or officers, may at its option and at any time retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Civil Code Section 9350, et seq., including an amount to provide for the reasonable cost of any litigation thereunder.

7-1.07 **PROGRESS PAYMENTS.** Within fifteen (15) Days after the effective date in the Notice to Proceed, but in any event prior to Contractor's first Application for Payment, the Contractor shall submit to the City a detailed Schedule of Values.

Upon its approval, the Schedule of Values will form a basis for determining the compensation payable to the Contractor based on its actual progress of Work with respect to each Lump Sum bid item. The City, prior to any progress payment being made, must approve the Schedule of Values.

At the Director's discretion the approved Schedule of Values may be used as the basis for calculating the adjustment in compensation for a lump sum bid item due to changes ordered by the Director. When an ordered change increases or decreases the quantities shown in an approved Schedule of Values, at the Director's discretion, the adjustment in compensation may be determined in the same manner specified for increases and decreases in the quantity of a bid item of work in accordance with Section 3-1.05(B), "Contract Price Adjustment," of these General Conditions.

The Contractor once in each month shall submit an Application for Payment, for approval by the Director. Contractor's Applications shall be based on the Schedule of Values submitted to the City. These applications shall be supported by: (1) documentation requested by the City to

substantiate the payment request; (2) statutory releases from Contractor and all Subcontractors and suppliers pursuant to Civil Code Sections 8132 and 8138; and (3) certified payroll records for the period for which payment is requested. Specifically, the Contractor will submit conditional waivers upon progress payment executed by all contractors and suppliers that will be receiving sums sought in the instant payment request and also submit unconditional waivers upon progress payment executed by all contractors and suppliers that have been paid to the date of the payment request. The Contractor shall certify that the Work for which payment is requested has been accomplished. When requested by the City, the Contractor shall submit receipts, invoices and other documentation that the City requires to be furnished for purpose of evaluating the application.

The City will pay the Contractor within thirty (30) Days after its receipt of an undisputed and properly submitted Application for Payment, after deducting all previous payments, retention, and other sums as described in the Contract Documents. Within seven (7) Days of its receipt of the Contractor's Application for Payment, the City will determine whether it complies with the provisions of the Contract Documents. As appropriate, the City will return the application to the Contractor accompanied by a document prepared by the City setting forth the reasons for the rejection. Thereafter, the Contractor shall correct and resubmit the Application for Payment. Progress payments may be withheld for Work that is not performed in accordance with the Contract Documents.

The City may deduct the following from each progress payment:

1. An amount equal to one hundred and twenty-five percent (125%) of the amount claimed under any stop payment notice or other lien filed against the Contractor, which includes an amount to provide for the reasonable cost of any litigation

thereunder.

2. Any Liquidated Damages or Assessments that have accrued as of the date of the Application for Payment.
3. Any sums expended by the City in performing any of the Contractor's obligations under the Agreement that the Contractor has failed to perform.
4. Any other sums that the City is entitled to recover from the Contractor under the terms of the Contract including damages to the City's property.
5. The failure of the City to deduct any of the above identified sums from a progress payment shall not constitute a waiver of the City's right to such sums.

No such estimate or payment shall be construed to be an acceptance of any defective Work or improper materials.

Under no circumstances will the City make payment to unlicensed Contractors. As a condition of payment, the Contractor is required to maintain the applicable Contractor's license as identified in the Notice to Contractors for the duration of the Work.

7-1.08 **PAYMENT FOR MATERIALS AND EQUIPMENT ON HAND.**

Partial payments may be made to the extent of seventy-five percent (75%) of the cost of materials and equipment plus delivery to be incorporated in the Work, provided that such materials and equipment meet the requirements of the Contract Documents and are delivered to acceptable sites on the plant site or at other sites in the vicinity that are acceptable to the City and only with the prior written approval by the City. Such delivered costs of stored or stockpiled materials and equipment may be included in the next progress payment after the following conditions are met:

- A. Equipment and materials will only be eligible if given conditional or final

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Acceptance by the Director and are in apparent compliance with favorably reviewed Submittals.

B. Only equipment or materials which have received favorable review of Shop Drawings will qualify.

C. The material or equipment has been stored or stockpiled adequately protected against damage in a manner acceptable to the Director at an approved site.

D. The Contractor has furnished the Director with acceptable evidence of the quantity and the quality of such stored or stockpiled materials or equipment with identification of where they will be incorporated into the project with Specification reference.

E. The Contractor has furnished the Director with satisfactory evidence that the material or equipment and transportation costs have been paid.

F. The Contractor has furnished the City legal title (free of liens or encumbrances of any kind) and lien releases to the material or equipment so stored or stockpiled.

G. The Contractor has furnished the City evidence that the material or equipment so stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the Work.

It is understood and agreed that the transfer of title and the City payment for such stored or stockpiled materials or equipment shall in no way relieve the Contractor of its responsibility for furnishing and placing such materials or equipment in accordance with the requirements of the Contract Documents.

In no case will the amount of progress payments for materials or equipment on hand exceed the Contract Price for such materials or equipment or the Contract Price for the Contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant

materials.

The Contractor shall bear all costs associated with the progress payment of stored or stockpiled materials or equipment in accordance with the provisions of this Section.

7-1.09 **RETENTION ON PROGRESS PAYMENTS.** From each progress payment estimate, five percent (5%) will be deducted and held in retention by the City. The remainder, less any deductions described in Section 7-1.07, "Progress Payments," of these General Conditions, will be paid to the Contractor as progress payments.

Pursuant to Public Contract Code Section 22300, the successful Bidder may submit Securities in lieu of retention payments by the City. Upon the Contractor's request, the City will make payment of funds withheld from progress payments, pursuant to the requirements of California Public Contract Code Section 22300, if the Contractor deposits in escrow with the City or with a bank acceptable to the City, securities eligible for investment under California Government Code Section 16430, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the City, upon the following conditions:

1. The Contractor shall bear the expenses of the City and the escrow agent in connection with the escrow deposit made.
2. Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amounts of retention to be paid to the Contractor pursuant to this section.
3. Contractor shall enter into an escrow agreement satisfactory to the City, which agreement shall be substantially similar to the form provided in California Public Contract Code section 22300.

4. The Contractor shall obtain the written consent of the surety to such agreement.

7-1.10 **FINAL PAYMENT.** Final payment will be made only after Contractor has achieved Final Completion of the Work pursuant to the provisions of Section 7-1.01, “Acceptance,” of these General Conditions. Before final payment can be made, the Contractor shall have furnished the City with the following:

1. All Record Documents, catalogues, instruction sheets and information as required by the Contract Documents.
2. Conditional Waivers and Releases Upon Final Payment executed by Contractor and all Subcontractors and Suppliers, as provided by Civil Code Section 8136. Unconditional Waivers and Releases Upon Final Payment, as provided in Civil Code Section 8138, executed by Contractor and all Subcontractors and Suppliers, must be provided for all Subcontractors and Suppliers that have been paid in full.

Within thirty (30) Days of the date of the City’s Acceptance of the Work, the Contractor shall prepare and submit a Final Invoice, showing the proposed total amount due the Contractor, segregated by Bid item quantities, Change Order Work, and other basis for payments; deductions made or to be made for prior payment; and amounts previously retained. Prior invoices and payments shall be subject to correction in the proposed Invoice for Final Payment. Payments to the Contractor will be made only for actual quantities of the Contract items of work constructed in accordance with the Contract Documents.

The City will review the Contractor’s proposed Final Invoice and necessary changes or corrections will be forwarded to the Contractor. Within ten (10) Days thereafter, the Contractor

shall submit a revised proposed Final Invoice incorporating changes or corrections made by the City together with any new claims resulting therefrom. Upon approval by the City, the corrected proposed Final Invoice will become the approval Final Invoice.

If agreements are reached on all questions regarding the Final Invoice, the City will pay the entire sum found due on the approved application. However, the City will withhold sums sufficient to pay all unsettled claims for which stop payment notices have been filed pursuant to Section 9350, et seq. of the California Civil Code, together with the reasonable cost of any litigation thereunder.

Final payment will be made within thirty (30) Days after receipt of an approved Final Invoice and other required Submittals referenced above or within sixty (60) Days after Acceptance of the work by the City, whichever is later, provided, however, that if an approved Final Invoice has not been submitted within sixty (60) Days after Acceptance of the Work by the City, the City may elect to make payment of sums not in dispute without prejudice to the right of either the City or the Contractor in connection with such disputed sums. Notwithstanding the foregoing, if a Notice of Completion is recorded, final payment shall not be made prior to the expiration of the thirty-five (35) calendar day lien period. The start of this lien period is the date the Placer County Recorder's Office records the Notice of Completion.

The City may withhold from the Final Payment an amount not to exceed one hundred fifty percent (150%) of any amount in dispute between the City and the Contractor.

The making of Final Payment shall not operate to release the Contractor or its sureties from obligations arising under the Contract, the Contract bonds and warranties as herein provided. Specifically, the making of final payment shall not constitute a waiver and release of claims by the City arising from:

1. Unsettled or future liens;
2. Failure of the Work to comply with the requirements of the Contract Documents;
3. The terms of any warranties required by or contained in the Contract Documents;
4. The right to any insurance proceeds or the right to make any insurance or bond claims;
5. Any claims with respect to Contractor's obligations of indemnity with respect to claims asserted by third parties; or
6. Any latent deficiencies with the Work or Contractor's fraud.

7-1.11 **CLERICAL ERRORS.** Notwithstanding the provisions of Section 7-1.10, "Final Payment," of these General Conditions, for a period of three (3) years after Acceptance of the Work, all estimates and payments made pursuant to said Section 7-1.10, are subject to correction for clerical errors in the calculations involved in the determination of quantities and payments. The Contractor and the City agree to pay to the other any sum due under the provisions of this Section 7-1.11, provided, however, if the total sum to be paid is less than \$100, no such payment shall be made.

7-1.12 **WARRANTY.** Notwithstanding inspections and Acceptance by the City of Work furnished under the Contract Documents, the Contractor hereby unconditionally guarantees that all materials and equipment furnished will be of good quality and new, that the Work will be free from defects in workmanship and materials and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

This warranty by the Contractor is in addition to any warranties or guarantees required elsewhere in the Contract Documents. This warranty shall be in effect notwithstanding any disclaimers, or limiting or conditional terms contained in such separate warranties furnished by manufacturers or suppliers.

The Contractor hereby agrees to repair or replace any and all Work, together with any other adjacent Work which may be displaced in so doing, that may prove to be not in accordance with the requirements of the Contract or that may be defective in its workmanship or material during the greater of a period of one (1) year after Acceptance of the Work by the City or the period specified in the Special Conditions, without any expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted.

The Contractor further agrees, that within ten (10) Days after being notified in writing by the Department of any Work not in accordance with the requirements of the Contract Documents or of any defects in the Work, the Contractor will commence and prosecute with due diligence all Work necessary to fulfill the terms of this warranty, and to complete such Work within a reasonable period of time. In the event Contractor fails to comply, it does hereby authorize the Department to proceed to have such Work done at the Contractor's expense and the Contractor will honor and pay the cost and charges therefore upon demand. The Department shall be entitled to all costs and expenses, including reasonable attorneys' fees, necessarily incurred upon the Contractor's refusal to honor and pay the above costs and charges.

All warranties set forth in the Contract Documents shall be deemed cumulative and not alternative or exclusive. Nothing contained in this section shall be construed to establish a period of limitation with respect to any other obligation, which Contractor has under the Contract Documents or under any separate warranty or guaranty required thereby. The establishment of a

specific warranty period relates only to the specific obligation of Contractor to correct defective Work, and it has no relationship to the time within which its obligation to comply with the Contract Documents or applicable provision of law may be sought to be enforced, nor to the time within which proceedings may be commenced to establish Contractor's liability with respect to its obligations other than specifically to correct the Work. Without limiting the foregoing, it is understood and agreed that Contractor shall remain responsible for latent defects with its work, regardless of the expiration of any warranty period set forth in the Contract Documents.

7-1.13 **WARRANTY OF TITLE.** No material, supplies, or equipment for the Work under this Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment Installed or incorporated in the Work and agrees upon completion of all Work to deliver the Premises, together with all improvements and appurtenances constructed or placed thereon by it, to the City free from any claim, liens, security interest, or charges, and further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by this Contract shall have any right to a lien upon the Premises or any improvement or appurtenances thereon. Provided, that this shall not preclude the Contractor from Installing metering devices and other equipment of utility companies, the title of which is commonly retained by the utility company. In the event of the Installation of any such metering device or equipment, the Contractor shall advise the City as to the legal owner thereof. Nothing contained in this paragraph, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the City.

The provisions of this paragraph shall be inserted in all subcontracts and material Contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work when no formal Contract is entered into for such materials.

[END OF GENERAL CONDITIONS]

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SUPPLEMENTAL CONDITIONS

Project: Johnson Poolhouse Renovation (Re-bid)

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Scope of Supplemental Conditions

1. The Work shall be performed in accordance with the General Conditions and Department Standards, except as the General Conditions may be modified by the following additional City Standards, incorporated herein by this reference, if so indicated.

	COMMUNITY DESIGN GUIDELINES 311 Vernon Street, Roseville, CA 95678
	SPECIFICATIONS FOR COMMERCIAL CONSTRUCTION (ELECTRIC) 2090 Hilltop Circle, Roseville, CA 95747
x	PARKS CONSTRUCTION STANDARDS 316 Vernon Street, Suite 400, Roseville, CA 95678
x	DESIGN AND CONSTRUCTION STANDARDS 311 Vernon Street, Roseville, CA 95678
	OTHER

Above documents are available at: www.roseville.ca.us.

2. Numbering in these Supplemental Conditions conforms to that in the General Conditions. The existence of a section in these Supplemental Conditions means that the corresponding section in the General Conditions is modified in some respect. Unless otherwise specified, the modified General Condition is deleted entirely and the provisions of these Supplemental Conditions are substituted.

SECTION 1. DEFINITIONS AND TERMS

1-1.24 **DEPARTMENT.** Section 1-1.24 of the General Conditions is amended to include the following:

The Department for Contract Administration is the ~~Parks Recreation & Libraries~~ Department of the City of Roseville.

SECTION 2. CONTROL AND SCOPE OF THE WORK

2-1.08 **SUBMITTALS.** Section 2-1.08 of the General Conditions is amended to include the following:

The time allowed for review of each submittal is 14 Days after receipt of the submittal by the Director.

2.1.28 **PROJECT DOCUMENTS.** Potential bidders are advised to obtain all documents and specifications related to this project directly from the City of Roseville. The City of Roseville does not guarantee the accuracy of any forms, plans, or project manuals obtained through outside sources other than the City of Roseville. Furthermore, the City does not guarantee the distribution of any addendums or the accuracy of their content if obtained from a third party. Bidders expressly assume the risk that their bid will be rejected from the use of plans and manuals obtained from third parties other than the City of Roseville

SECTION 3. CHANGES IN THE WORK

There are no amendments to the General Conditions.

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SECTION 4. CONTROL OF MATERIALS

There are no amendments to the General Conditions.

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SECTION 5. LEGAL RELATIONS AND RESPONSIBILITY

5-1.14 **AIR POLLUTION CONTROL AND ASBESTOS.** Section 5-1.14 of the General Conditions is amended to include the following:

To the best of the City's knowledge, asbestos is not present in the vicinity of the Project. Additional information shall be made available to Contractor upon request.

SECTION 6. PROSECUTION AND PROGRESS

6-1.04 **PROGRESS SCHEDULE.** Section 6-1.04F of the General Conditions is amended to include the following:

Progress schedules showing project completion dates more than 0 Days earlier than specified in Section 6-1.07 shall be rejected.

6-1.07 **TIME OF COMPLETION.** Section 6-1.07 of the General Conditions is amended to include the following:

The Contractor shall begin Work within 10 business days after receiving a Notice to Proceed and shall diligently prosecute the Work to completion. The Work shall be completed within 100 business days of the Notice to Proceed.

If landscaping plants require an establishment period, that period will be 30 calendar days. Start of the establishment should be as outlined in the Specifications.

6-1.08 **LIQUIDATED DAMAGES.** Section 6-1.08 of the General Conditions is amended to include the following:

The amount of Liquidated Damages is the sum of \$ 800 per Day.

SECTION 7: ACCEPTANCE AND PAYMENT

7-1.07 PROGRESS PAYMENTS. Section 7-1.07 of the General Conditions is amended to include the following:

The Contractor shall email an electronic copy of Certified Payroll Reports to the Project Manager along with each Application for Payment.

[END OF SUPPLEMENTAL CONDITIONS]

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SPECIFICATIONS

Project: Johnson Poolhouse Renovation (Re-bid)

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SECTION 00 31 46 PERMITS

PART 1 - GENERAL

1.01 General Requirements

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Supplemental Conditions shall be in addition to the standards provided herein.
- C. The intent of this Section is to furnish bidders with the known list of required permits for the Work under the Contract Documents. Bidders should note that the list is not necessarily complete and that additional requirements may exist or arise.

1.02 Permits

- A. The Contractor shall obtain copies of the following permits from the Project Manager. Copies of these shall be obtained prior to start of work and shall be kept on the jobsite.
 - 1. City of Roseville Department of Development Services, Encroachment Permit for all Work related to this project, if applicable.
 - 2. City of Roseville Department of Development Services, Building Permit including, but not limited to the following: all structural items associated with this project, concrete flatwork, plumbing/restrooms, electrical/lighting, and mechanical.
- B. Contractor shall comply with the conditions of these permits, and will be solely responsible for all costs associated with meeting permit conditions unless specifically specified otherwise in these Contract Documents.
- C. A trench/excavation permit must be on file with the City. Submit a copy of the notification letter to CAL OSHA, which outlines the project, and contracted scope of work.

PART 2 - PRODUCTS

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PART 3 - EXECUTION

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END OF SECTION

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SECTION 01 10 00 SUMMARY OF WORK

PART 1 - GENERAL

1.01 General

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Special Conditions shall be in addition to the standards provided herein.

1.02 Project Description

- A. Project Name and address:
Johnson Poolhouse Renovation Project
100 D. Street, Roseville, CA 95678
- B. Project description/scope of work:
The scope of this project includes selective site and building demolition, site and building accessibility upgrades and related mechanical, electrical and plumbing upgrades.
- C. The Contractor, prior to submission of his bid, shall visit the site and become familiar with the physical site conditions, the plans and specifications. All existing site conditions, apparent in a detailed, on-site inspection, shall be a part of the project. Submission of a bid shall represent the Contractor's acknowledgment of the existing site conditions and its effect on the implementation of the contract documents.

1.03 Engineering

- A. Field Engineering, as a part of this contract, shall include:
 - 1. Layout of the work and establishment of lines and grades.
 - 2. Said work to be performed by a California Registered Civil Engineer or a California licensed Land Surveyor.
 - 3. When discrepancies between the drawings and actual site conditions are discovered, notify the Inspector for instruction on how to proceed.
 - 4. All work shall:
 - a) Establish indicated layout in relation to the property survey and existing reference points.
 - b) Establish and preserve permanent reference points during the course of construction.
 - c) Set locations and elevations of all site elements as required for proper completion of the work.

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1.04 Permits, Fees and Notices

- A. The Contractor and/or his assigned Subcontractors shall obtain any and all required permits (beyond those provided in the Appendix) from all governing authorities, including other City Departments, prior to start of construction.

1.05 Construction Plans

- A. Any discrepancies or omissions found in the Contract Documents shall be reported to the City's project manager immediately. The City's project manager will clarify discrepancies or omissions, in writing, within a reasonable time.
- B. In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:
 - 1. Notice to Contractors
 - 2. Special Provisions
 - 3. City of Roseville Parks Construction Standards
 - 4. City of Roseville Design and Construction Standards
 - 5. Drawings

Addenda shall take precedence over all sections referenced therein. Figure dimensions on Drawings shall take precedence over scale dimensions. Detailed Drawings shall take precedence over general Drawings.

1.06 Definitions

- A. The term "accepted" where used within, shall mean accepted in writing by the City of Roseville's Project Manager.
- B. The term "Inspector", where noted, shall mean the project representative, appointed by the City of Roseville, who will oversee the project on a day-to-day basis.
- C. The term "Project Manager", where noted, shall mean the project representative appointed by the Parks Department.
- D. The term "Consultant", where noted, shall mean the prime Consultant listed on the cover sheet of these Specifications.
- E. The term "accepted equal", where used herein, shall mean the equal in the opinion of the Project Manager, in consultation with the Consultant, when necessary, and as accepted in writing by the Project Manager.
- F. The term "Project Owner", where used herein, shall mean the landowner or developer.
- G. The term "provide", where used herein, shall mean furnish and install complete.
- H. The term "as selected", where used herein, shall mean as selected by the Consultant and as accepted by the Project Manager.
- I. The term "substantially complete", where used herein, shall mean the state of which the project can be used in the manner of which it is intended with the exception of minor items as determined by the Project Manager.

J. See Section 1 of the General Conditions for additional definitions and terms.

1.07 Standards

- A. Numerous standards are referenced in these contract documents. The referenced standards shall be the current edition as of the date of these contract documents. Also, see Section 4 - 1.02 of the General Conditions.
- B. The codes adopted by the City, County, State and federal agencies shall govern minimum requirements for this project. Where codes conflict with these Specifications, the more stringent shall apply, and such conflicts shall be brought to the attention of the Project Manager. Caltrans Standards shall be applied where specifically referenced. In the absence of specific reference requirements in the contract documents, the applicable codes shall govern.
- C. In addition to the standards noted in individual sections of these Specifications, standards of the following organizations shall be noted by initials only.
 - 1. ANSI: American National Standards Institute.
 - 2. ASTM: American Society for Testing and Materials.

1.08 Submittals

- A. All submittals shall be submitted at one time within ten (10) working days from issuance of Notice to Proceed. The review time for submittals shall be as noted in Section 2 - 1.04 of the Special Conditions. Items returned for re- submittal shall be returned to the City within two weeks
- B. The Contractor shall include a cover sheet indicating the following (A sample is provided in Section 5: Forms):
 - 1. Drawing sheet or specification section reference (by section, paragraph and sub-paragraph numbers);
 - 2. Item description;
 - 3. Indication whether this item is "as specified" or "proposed substitution" and
 - 4. A space for itemized response summary, e.g. "reviewed" or "resubmit".
- C. Contractor shall provide submittals electronically in PDF file format and physical product samples as required in specifications. It shall be the Contractor's responsibility to ensure that the summary sheet is included in the submittal package. Incomplete submittal packages (i.e., the lack of a summary sheet or lack an appropriate product sample) will not be reviewed.
- D. Proposed substitution requests must include a comparison between the originally specified item and the proposed substitute. The burden of proof of compliance for proposed substitutions with project requirements rests with the Contractor. Coordination of the installation of accepted substitutions, including incidental changes/modifications to accommodate proposed products shall be at no additional cost to the Owner.

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- E. Where required in specified Section of these Specifications, submittals shall include proof of order of site furnishings, play equipment or other materials within two weeks (ten working days) of receipt of the returned, approved submittal. Submittals of orders shall be made at one time. Exceptions will be considered, with justification.

1.09 Tests

- A. In addition to Section 4 - 1.03 of the General Conditions, testing and inspections may be performed by a private testing laboratory. The testing laboratory, provided by the City, shall be under the direction of a California registered civil engineer. All work shall conform to requirements set forth by ASTM B329, and shall be acceptable to the City.
- B. Copies of the laboratory reports/results of each test or inspection shall be provided to the Project Manager, Inspector and Contractor.

1.10 Temporary Facilities

- A. Sanitary provisions shall be the responsibility of the Contractor. Existing restroom facilities shall be not utilized by the Contractor, his Sub-contractors, or employees thereof, unless specifically accepted by the Project Manager. Provide chemical toilets or water closets and urinals connected to the sewer in a location accepted by the Project Manager.
- B. Barricades shall be the responsibility of the Contractor and shall be erected as necessary to protect the property, the construction and the public from hazards due to construction.
- C. Signs, other than those identified in these Specifications, shall be prohibited. Notices, required by law, shall be posted and maintained.

1.11 Utilities

- A. All utility fees, including, but not limited to, connection fees, installation fees, meters, monthly service fees and cost of utilities used during the course of construction and establishment are considered a direct cost and are the responsibility of the Contractor until project acceptance by City Council.

1.12 Dust/Noise Control Requirements

- A. Dust and other air pollution nuisances on or adjacent to the site shall be abated, per Section 2 - 1.15 of the General Conditions. Dirt shall not be allowed to accumulate on streets or sidewalks nor be washed into sewer.
- B. Noise from construction operations shall be kept to a minimum. Allowable hours of operations shall be from 7 a.m. to 7 p.m. Monday through Friday. Work on weekends and holidays must be approved by the project manager. Work on

weekends and holidays shall not begin before 8 a.m. and must be completed by 8 p.m.

1.13 Tree Replacement Schedule

- A. Trees damaged or removed without prior approval shall be replaced at an inch per inch basis on-site, except otherwise accepted. New stock shall follow the table provided:

Plant Size	Inch Value
3 Five Gallon Stock	One Inch
1 Fifteen Gallon Stock	One Inch
1 24" Box Stock	Two Inches
1 36" Box Stock	Three Inches

1.14 Inspection of Construction

- A. In addition to the routine inspections performed by the Parks Inspector, portions of work may be inspected by the other city departments. Notify the Parks Inspector and Project Manager a minimum of 48 hours prior to date of inspection.
- B. The Parks Inspector shall be the main line of communication between the site superintendent, the project manager and other City department inspectors. Changes in scope of work or standards shall be approved by the project manager.
- C. Refer to the parks inspection record. This shall be issued at the Pre-Construction meeting and shall be utilized by the Contractor throughout the course of construction. A completed "hard card" shall be submitted to the Project Manager along with required turn in items (See 1.19 this Section) upon final acceptance of the project. The Notice of Completion shall not be filed until all record documents have been received and accepted.

1.15 Adverse Impacts to Site Conditions Due to Construction

- A. Impacts that affect the site conditions to the detriment of the park or streetscape
- Impacts that affect the site conditions to the detriment of the park or streetscape construction or long term viability of the site shall be mitigated by the contractor prior to acceptance of the project. Such impacts shall include, but are not limited to:
1. Soil compaction in non-structural areas;
 2. Diesel or gas fuel leaks/spillage;
 3. Buried concrete or other construction debris;
 4. Hazardous material contamination;
 5. Lime treatment in planting areas;
 6. and more.

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1.16 Pre-final (Punch List) Review

- A. Notify, in writing, to the Parks Construction Inspector, that the work is substantially complete. Substantially complete is defined as “the state of work where it may be used in a suitable and intended manner with exception of minor corrections”. Partial acceptances will not be granted. Items to be reviewed as a part of substantial completion include:
1. All construction items
 2. Installation of all site furnishings, including lights and signs
 3. Seeding or sodding of all turf areas
 4. All planting, including weeding of planted areas
 5. The irrigation system is fully functioning and as confirmed by the Parks Inspector.
- B. Within five working days of receipt of notification, the Parks Construction Inspector will confirm substantial completion. The Parks Construction Inspector will schedule the punch list walk (pre-final review) within five working days after the project has been determined as substantially complete. A formal punch list will be developed at the punch list walk. The Parks Construction Inspector will provide a copy of the formal punch list to the Contractor within five working days of punch list walk. Performance of the punch list walk does not automatically trigger the start of establishment.
1. If at any point during this review that it becomes apparent that the Contractor has not properly prepared for the site review, the inspection shall immediately be terminated and re-scheduled at such a time as the site has been readied for a review. Any costs for the re-scheduling of the review shall be the responsibility of the Contractor. Lack of site preparation could delay start of the establishment period.
- C. Concurrent to the pre-final review, the City will make a formal request for all required turn-in items to be submitted to the City. All turn-in items shall be submitted to the City (single point of contact), at one time and only by appointment. Do not drop off the turn-in items at the front counter and without an appointment.
- D. Once all turn-in items have been confirmed to be complete and accurate, the establishment period may be considered to begin. The City shall have sole discretion in determining the appropriateness of the commencement of the establishment period and shall notify the developer/contractor in writing of the start and end dates. Portions of the project will not be accepted for establishment prior to the substantial completion of the entire project.

1.17 Establishment Period – not applicable

1.18 Final Review

- A. One (1) week prior to the end of the establishment period, a final on-site review shall be conducted to review project readiness for final turn-over. All punch list items must be satisfactorily addressed prior to the final review.
- B. The project shall be prepared and cleaned per Section 2 - 1.12 of the General Conditions; the turf shall be mowed; and the irrigation heads shall be adjusted appropriately one day prior to the scheduled final review.
- C. Acceptance of the project shall be considered “field accepted” and a recommendation will be forwarded to the City Council for “final acceptance” per Section 7 - 1.01 of the General Conditions.
- D. An unaccepted project shall extend the establishment period until such time as the unaccepted portions of the project have been reviewed and field accepted by the Inspector and Project Manager.
- E. Turn over for City maintenance shall occur only after:
 - 1. The specified duration of the establishment period has been successfully completed.
 - 2. If required, the deed transferring property ownership, has been recorded at the County.
 - 3. A Notice of Completion (NOC) for city-built parks and for streetscapes has been approved by the City Council.
- F. Contractor shall provide a written guarantee covering all improvements associated with this project. See 1.19 – Warrantees and Guarantees.

1.19 Record Documents

- A. Record documents or as-built plans shall be maintained on-site and updated routinely as specified in Section 2 - 1.13 of the General Conditions. Record documents shall include **all items under the contracted scope of work**.
- B. Record documents shall be submitted:
 - 1. one full size set of final as-built drawings (verified/initialed by the Parks Inspector during the establishment period)
 - 2. one set of 11 x 17 reductions of the complete as-built package; and
 - 3. two sets 11 x 17 laminated reductions of the irrigation plan illustrating with colors the individual controller stations; and
 - 4. one USB storage device containing PDF scanned images (in color) of the verified/initialed as-built drawings.
 - 5. For City of Roseville CIP projects, SWPPP binder.

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1.20 Warranties and Guarantees

- A. Warranties are required under various Sections of these Specifications. Prior to final acceptance, the Contractor shall assemble all warranties into a single, bound or stapled package. All warranties shall be clearly labeled and the number of years highlighted. Also, see Sections 7 - 1.10 and 7 - 1.11 of the General Conditions.
1. Warranties for equipment shall be submitted in the manufacturer's standard form and shall be countersigned by the subcontractor or supplier and the Contractor.
 2. All other warranties shall be provided in the following format, written on subcontractor's or supplier's letterhead, signed by the subcontractor or supplier and countersigned by the Contractor:

WARRANTY FOR _____ YEARS

"We hereby warrant that the product which we have installed at project name has been done in accordance with the contract documents, and that the work, as installed will fulfill the warranty requirements included in the Specifications.

We agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced by so doing, that may prove to be defective in its workmanship or material within the warranty period stated above commencing from the date of final acceptance of the above named project by the City of Roseville's City Council, without additional expense to the City, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of failure to comply with the above conditions within thirty (30) days of notification by the City, we collectively or separately do hereby authorize the City to proceed with the repairs or replacement of such defects at our expense. Payment of said costs and charges will be forwarded to the City upon demand.

Signed: _____
Subcontractor or Supplier Date

Countersigned: _____
Contractor Date

- B. Guarantees shall be a minimum of one (1) year for all plant material, including trees and shrubs. The guarantee shall state that plant materials (trees & shrubs) to be free of all defects or disease and all plants are in a healthy and

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thriving condition at the completion of the contract. Deciduous plant material shall be warranted beyond the time of contract completion until such time as growth becomes evident.

PART 2 - PRODUCTS

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PART 3 - EXECUTION

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SECTION 01 35 10

SUSTAINABILITY (CALGreen) REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes general requirements and procedures for compliance with certain California Green Building Standards Code. The California Green Building Code is Part 11 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of the building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code.

1. This code contains both mandatory and voluntary green building measures. Mandatory and voluntary measures are identified in the appropriate application checklist contained in this code. Mandatory measures as outlined in the California Green Building Standards Code are a requirement of this contract. Voluntary measures are not required as a part of this contract.
2. Voluntary Tier 1 and Tier 2 measures are not required as part of the scope of work of this contract.

- B. Related Sections include the following:

1. Divisions 2 through 48 Sections for CALGreen requirements specific to the Work of each of those Sections. These requirements may or may not include reference to CALGreen.

1.03 DEFINITIONS

- A. CalGreen: California Green Building Standards Code

- B. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).

1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.

1.04 SUBMITTALS

- A. General: Comply with additional CALGreen submittal requirements included in other sections of the Specifications.
- B. Cal Green submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, the single set of copies to verify compliance with indicated CALGreen requirements is acceptable unless noted otherwise.

- C. Verification: Documentation of conformance for applicable green building measures shall be provided to the enforcing agency. Alternate methods of documentation shall be acceptable when the enforcing agency finds that the proposed alternate documentation is satisfactory to demonstrate substantial conformance with the intent of the proposed green building measure.
- D. CALGreen Documentation required: Provide preliminary submittals within seven days of date established for commencement of the Work indicating how the following requirements will be met.
 - 1. 5.408.1 Construction waste diversion: Establish a construction waste management plan for the diverted materials that meets or exceeds the local construction and demolition waste management ordinance, whichever is more stringent.
 - 3. 5.408.3 Provide plan to incorporate construction waste reduction of at least 75%.

PART 2 - EXECUTION

2.01 PLANNING AND DESIGN

A. Section 5.106

- 1. Meet lighting power requirements in the California Energy Code, CCR, Title 24, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Comply with zones 1-4 and lighting zone characteristics as defined in Chapter 10 of the California Administrative Code, CCR, Title 24, Part 1 using the following strategies:
 - a. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code.
 - b. Contain interior lighting within each source.
 - c. Allow no more than .01 horizontal foot-candles to escape 15 feet beyond the site boundary.
 - d. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive period

2.02 ENERGY EFFICIENCY

A. Section 5.201.1

- 1. Comply with aforementioned section.

2.03 WATER EFFICIENCY AND CONSERVATION

A. Section 5.303

- 1. Separate meters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.
- 2. Plumbing fixtures and fixture fittings are required to reduce the overall use of potable water by 20%. This reduction shall be based on the maximum allowable water use per the plumbing fixture and fittings as required by the California Building Standards code.

B. Section 5.304

1. Automatic irrigation system controllers installed at time of final inspection shall comply with the following:
 - a. Controllers shall be weather or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
 - b. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have a rain sensor input.

2.04 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

A. Section 5.408

1. Establish a construction waste management plan for the diverted materials, or meet local construction and demolition waste management ordinance, whichever is more stringent.
2. Documentation is required to be provided to the enforcing agency which demonstrates compliance with Section 5.408.2, items 1-4. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.
3. Recycle and/or salvage for reuse a minimum of 75 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculations are required of materials diverted by weight or volume, but not both.
4. 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

B. Section 5.410

1. Testing and adjusting of systems shall be required for buildings less than 10,000 sf of new building area.
 - a. Operation and maintenance (O&M Manuals) are to be provided to the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O&M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.
 - i. Include a copy of all inspection verifications and reports required by the enforcing agency.

2.05 ENVIRONMENTAL QUALITY

A. Section 5.504:

1. Covering of duct openings and protection of mechanical equipment during construction is required per section 5.504.3.

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2. Finish materials must comply with tables 5.504.4.1 through 5.504.4.4.
3. Adhesives, sealants, and caulks must comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits as indicated in tables 5.504.4.1 and 5.504.4.2. Aerosol adhesives shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.
4. Paints and coatings shall comply with the VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, shown in Table 5.504.4.3, unless more stringent local limits apply. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements as described in code section 5.504.4.3.1.
5. Verification of compliance of this section shall be provided including (1) Manufacturer's product specification and (2) Field verification of on-site product containers.
6. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:
 - a. Carpet and Rug Institute's Green Label Plus Program.
 - b. California Department of Public Health Standard Practice for the testing of VOC's (Specification 01350)
 - c. NSF/ANSI 140 at the Gold Level
 - d. Scientific Certifications Systems Sustainable Choice
7. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.
8. All carpet adhesive shall meet the requirements of Table 5.504.4.1.
9. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq), buy or before the dates specified in those sections, as shown in Table 5.504.4.5.
10. Verification of compliance of this section shall be provided. Documentation shall include at least the following:
 - a. Product certifications and specifications
 - b. Chain of custody certifications
 - c. Other methods acceptable to the enforcing agency
11. For 50% of the floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or product registry) or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.
12. Verification of compliance shall be provided with documentation indicating that the resilient flooring materials meet the pollutant emission limits.

13. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 8. Replace all filtration media immediately prior to occupancy.
14. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor intakes, and operable windows and in buildings. Signage to be posted to inform building occupants if no ordinances are in place.

B. Section 5.505:

1. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of the Cal Green code.
2. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements for Ventilation) of the California Energy Code, CCR, Title 24, Part 6, or the applicable local code, whichever is more stringent, and Chapter 4 of CCR, Title 8.
3. For buildings equipped with demand control ventilation, carbon dioxide sensors and ventilation controls shall be specified and installed in accordance with the requirements of the current edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c).

C. Section 5.507:

1. Employ building assemblies and components with Sound Transmission Coefficient (STC) values determined in accordance with ASTM E90 and ASTM E 413.
 - a. Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following locations: (1) Within 1000 ft. of right of ways of freeways, (2) Within 5 mi. of airports serving more than 10,000 commercial jets per year, (3) Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles, and public warning systems.
 - b. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public spaces shall have an STC of at least 40.

D. Section 5.508:

1. Installations of HVAC, refrigeration and fire suppression equipment shall not contain CFC's nor halon.

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SECTION 013520

CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor shall provide all necessary equipment and material resources required to meet the requirements of this section.

1.02 SUBMITTALS

- A. The Contractor shall provide the following documentation:
 - 1. Construction Indoor Quality Management Plan:
 - a. The Plan shall identify the five SMACNA IAQ requirements for Occupied Buildings under Construction, 1995, Chapter 3.
 - 1) Part 3.01 of this Section, Indoor Air Quality Plan during Construction, can be used as a basis for development of the plan.
 - b. Provide a Draft of the plan prior to the start of building construction.
 - c. Provide a Final version of the Construction IAQ Management Plan after completing the requirements of this section.
 - 1) The final Plan must be revised to reflect the actual as-built conditions of this project.
 - 2. Construction Indoor Air Quality Procedures Photographs:
 - a. Provide photographs of construction IAQ management measures such as protection of ducts and on-site stored or installed absorptive materials.
 - b. Photographs shall be taken on at least three different occasions during the interior finish work:
 - 1) The first two to four weeks of the work.
 - 2) The middle two to four weeks of the work.
 - 3) The last two to four weeks of the work.
 - c. On each occasion at minimum of six photographs representing at least three different Construction IAQ measures shall be taken. This represents a total of 18 photographs.
 - d. Photographs shall be color, between 3"x5" and 8"x10" in size and of normal photographic quality (70 pixel resolution or better).
 - 3. Filtration Media Product Data:
 - a. Provide cut sheets for filtration media installed:

- 1) During Construction.
- 2) During the flush out.
- 3) After the flush out and prior to occupancy.
- 4) The cut sheets shall highlight the MERV values of the media.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 INDOOR AIR QUALITY MANAGEMENT DURING CONSTRUCTION:

- A. During construction the Contractor shall meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Association (SMACNA), IAQ Guidelines for Occupied Buildings under Construction, 2008, Chapters 3 and 4, for the items listed below. The SMACNA guidelines have been modified to address the special issues and needs of a new construction project:
- B. HVAC Protection:
 1. Protect all air handling and distribution equipment, and air supply and return ducting during construction.
 2. Adequately cover and protect all exposed air inlets and outlets openings, grilles, plenums, etc. to prevent water, moisture, dust, and other contaminate intrusion.
 3. Apply protection immediately after installation of equipment and ducting.
 4. Ducting runs that require more than a single day to install shall be protected at the end of each day's Work.
 5. Install air filters with a MERV filtration value of 8, as determined by ASHRAE 52-2-1999, over all air return grilles.
- C. Source Control:
 1. Protect stored on-site or installed absorptive or porous materials such as batt insulation and drywall from exposure to moisture.
 2. Do not use wet damaged porous materials in the building.
 3. Provide adequate ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues.
 4. Provide a temperature range of 60 degrees F minimum to 90 degrees F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by the Architect.

5. Route material deliveries and construction waste removal around the exterior of the building, not through it.
- D. Pathway Interruption:
1. The Owner does not plan to occupy the building until construction is complete. Pathway interruption is not required for this project.
- E. Housekeeping:
1. Minimize accumulation of dust fumes, vapors, or gases in the building.
 2. Suppress dust with wetting agents or sweeping compounds.
 3. Clean-up dust using a wet rag or damp mop.
 4. Increase the cleaning frequency when dust build-up is noted.
 5. Remove spills or excess applications of solvent-containing products as soon as possible.
 6. Remove accumulated water and keep work areas as dry as possible.
 7. Vacuum using HEPA filtered vacuum cleaners.
 8. Store volatile liquids, including fuels and solvents, in closed containers and outside of the building when not in use.
 9. Keep volatile liquid containers closed when the container is inside of the building and not in use.
- F. Scheduling:
1. Schedule for application of interior finishes including time frames for the application of wet materials onto dry materials, dry materials onto wet materials, and expected curing times for applied wet materials.
 2. Wet materials include all paints, adhesives, sealants, coatings, finishes, and spray-applied materials, such as structural fireproofing.
 3. Insure that all wet applied interior finish materials are properly and fully cured before installing other finish materials over them.
 4. Install carpets and furnishings after all of the interior finish materials have been applied and fully cured.
 5. Provide sufficient ventilation, air circulation and air changes to properly cure materials.
 6. Provide sufficient ventilation, air circulation and air changes to dissipate excessive humidity when present.

3.02 INDOOR AIR QUALITY MANAGEMENT PRIOR TO OCCUPANCY:

- A. After completion of the building flush out and immediately prior to occupancy replace of all HVAC filtration media installed in the HVAC system during construction and/or during slush out with new

filtration media. The new filtration media shall have at least a Minimum Efficiency Reporting Value (MERV) of 13 as determined by ASHRAE Standard 52.2-1999.

END OF SECTION

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SECTION 01 52 40

CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section specifies the administrative and procedural requirements for diversion of non-hazardous construction and demolition waste from landfill.

1.2 PERFORMANCE REQUIREMENT

- A. Performance Requirement: It is a requirement of this Project that a minimum of **75** percent (by weight) of non-hazardous construction and demolition debris be diverted from the landfill.

1.3 DEFINITIONS

- A. Construction Waste: Building improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging materials such as cardboard.
- B. Demolition Waste: Building improvement materials resulting from selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.
- G. Recyclable Materials:
 - 1. Products and materials that can be recycled may include, but are not limited to, the following:
 - a. Metals (ferrous and non-ferrous), including banding, metal studs, ductwork, aluminum cans, and piping.
 - b. Gypsum board.
 - c. Paper.
 - d. Cardboard.
 - e. Wood products, including crates and pallets.

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- f. Carpet.
 - g. Plastics.
 - h. Copper wiring.
 - i. Mechanical and electrical products and equipment.
2. Final determination of actual recyclable materials will be based on the local recycling facility capability.

1.4 SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- C. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. If a construction and demolition recycling facility is used, include signed letters from the facility indicating the weight or volume of the material sent to the facility, as well as the state approved monthly diversion rates for that facility.
- D. Submit other records, including records of sales and donations, as applicable and required to substantiate conformance with waste management goals.

1.5 WASTE MANAGEMENT GOALS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of **75** percent by weight of total waste generated by the Work, at a minimum.
- B. The Contractor shall take a proactive and responsible role in the management of construction waste, and shall require all subcontractors, vendors, and suppliers to participate in the effort.
- C. The Contractor shall establish a construction waste management program for this Project that includes, but is not limited to, the following;
 - 1. Salvage and reuse.
 - 2. Salvage for resale.
 - 3. Recycling.
 - 4. Disposal.
- D. Only trash or waste materials that cannot be practically or economically reused or recycled shall be transported to the landfill.

1.6 WASTE MANAGEMENT PLAN

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- A. General: Develop plan consisting of waste identification and waste reduction work plan. Indicate quantities by weight or volume, but use same units of measure throughout Waste Management Plan.
- B. Identify the off-site Recycling Service and Hauler of each designated debris item, who have agreed to accept and divert that item from landfill, and the proposed quantities. Schedule each item and list off-site Recycling Service and Hauler company name, telephone number, address, and person contacted.
- C. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

1.7 PLAN IMPLEMENTATION

- A. Maintain a log of each load, of each category item diverted from landfill. Log in separately debris sent to a Class III and/or Class II landfills and materials sent to recycling facilities.
 - 1. Include in log, type of load, load weight, name of hauling service; recycling service or landfill, and date accepted by recycling service or by landfill.
 - 2. Owner reserves the right to audit the log at any time, retain and make available, all weight tickets, copies of receipts and invoices.
 - 3. Submit a Monthly Construction Waste Management Report with each Application for Payment. Monthly reports shall indicate all material removed from the project, and it's eventual disposition, recycling or landfill. Provide weights for all materials and percentages of total waste recycled.
- B. Material Handling:
 - 1. Separation Facilities:
 - a. Designate a specific on site area or areas to facilitate separation of materials for potential salvage or reuse, recycling, and return.
 - b. Keep waste bins and pile areas neat and clean. Clearly mark bins for each category of waste. Do not mix non-recyclable waste with materials designated for reuse or recycling.
 - 2. Do not permit designated materials to become contaminated or to contaminate site or surrounding areas.
 - 3. Construction and demolition recycling facilities are an acceptable means of landfill diversion. If such a facility is utilized, monthly diversion records for the construction and demolition recycling facility and a letter from the facility identifying weights or volumes of material processed by the facility for the Project must be submitted.
- C. Training and Coordination:
 - 1. Furnish copies of the Waste Management Plan to all on-site supervisors and each subcontractor.
 - 2. Provide on-site instruction of appropriate separation, handling, and recycling, salvage or reuse, and return methods to be used by all entities at the appropriate stages of the Project.

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3. Include construction and demolition debris management on the agenda of meetings. At a minimum, discuss waste management goals and issues at the following meetings:
 - a. Pre-construction meeting.
 - b. Regularly scheduled job-site meetings.

END OF SECTION

SECTION 01 57 23

STORM WATER POLLUTION CONTROL

PART 1 - GENERAL

1.01 General

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Special Conditions shall be in addition to the standards provided herein.

1.02 References

- A. State Water Resources Control Board Order No. 2009-0009-DWQ National Pollutant Discharge Elimination System General Permit No. CAS0000002, for Storm Water Discharges Associated with Construction and Land Disturbance Activities.
- B. CASQA California Stormwater BMP Handbook – Construction, November 2009

1.03 Definitions

- A. NOI: Notice of Intent
- B. NOT: Notice of Termination
- C. QSP: Qualified SWPPP Practitioner
- D. QSD: Qualified SWPPP Developer
- E. SWPPP: Storm Water Pollution Prevention Plan
- F. SWRCB: State Water Resources Control Board
- G. NPDES: National Pollutant Discharge Elimination System General
- H. WDID: Waste Discharger Identification number
- I. BMP: Best Management Practices

PART 2 - PRODUCTS

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PART 3 - EXECUTION

3.01 SWPPP

- A. Comply with State Water Resources Control Board Order No. 2009-0009-DWQ National Pollutant Discharge Elimination System General Permit No. CAS0000002, for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

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- B. A SWPPP has not been developed for this project. Contractors must comply with General Conditions 5-1.20 Water Pollution.
- C. Implementation of the Erosion and Sediment Control Plan is the responsibility of the Contractor and a part of this project. Costs associated with implementation and maintenance of the BMPs per the Erosion and Sediment Control Plan shall be included in the lump sum base bid.
- D. Major changes to the Erosion and Sediment Control Plan shall be reviewed by the City's Parks Inspector prior to implementation. Cost associated with the major changes will be paid for using the unit cost listed in the Additions or Deletions Sheet of the Proposal
- E. The City's Parks Inspector will perform inspections of the jobsite. Implementation of and minor changes to the Erosion and Sediment Control Plan as directed by the City's Parks Inspector shall be incidental to the Work. Contractor shall start all inspection corrective actions within 72 hours of observation, and complete as soon as possible.
- F. All BMPs installed will be inspected by the City's Parks Inspector for compliance with the Erosion and Sediment Control Plan and BMP Fact Sheets. BMPs that are not in compliance shall be brought into compliance by the Contractor at no cost to the City.
- G. Keep one copy of the Erosion and Sediment Control Plan and amendments at the project site.
- H. The Erosion and Sediment Control Plan shall be readily available throughout the course of construction and until the NOC has been accepted by the City. The Erosion and Sediment Control Plan shall be made available upon request by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or City' storm water staff.
- I. When requested by the City for pre-final (punch list) review, the Contractor shall submit the project site copy of the Erosion and Sediment Control Plan to the City's Project Manager.

3.02 Schedule

- A. Contractor shall develop a Water Pollution Control Schedule that describes the timing of grading or other work activities that could affect water pollution. The schedule shall be updated by the Contractor to reflect changes in the Contractor's operations that would affect the necessary implementation of water pollution control practices. The typical sequence of work shall be adjusted by the Contractor based on weather conditions and forecasted rain events. The schedule is considered an appropriate and applicable BMP.

3.03 Penalties and fines

- A. Contractor is responsible for all penalties and fines assessed to or levied on the project related to the implementation of the Erosion and Sediment Control Plan.
- B. In an effort to maintain compliance with the General Permit, the Contractor may be asked to make changes to the BMPs. If the Contractor is unable to perform these services in a timely manner the City reserves the right to address any areas of concern and deduct the cost from the contract.

3.04 BMP's

- A. Construction BMP's shall be installed per the Erosion / Sediment Control Plan and in accordance with the CASQA California Stormwater BMP Handbook. Use of alternative BMP's will be reviewed and accepted at the discretion of the City's Parks Inspector.

3.05 Cleaning

- A. Thoroughly clean all areas where work has occurred. Remove from the site excess material, debris and rubbish.
- B. Take all precautions to protect completed work. Immediately repair or replace all damaged areas due to tire ruts, erosion, compaction failure, etc. Keep all erosion control measures intact.

END OF SECTION

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SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Demolition and removal of selected site elements.
 - 3. Salvage of existing items to be reused or recycled.

1.02 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.03 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

1.04 SUBMITTALS

- A. Engineering Survey: Submit engineering survey of condition of building.
- B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of selective demolition activities with starting and ending dates for each activity.
- D. Pre-demolition photographs or video.
- E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.
- F. Inventory of items that have been removed and salvaged.

1.05 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.06 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

- B. Notify Owner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Storage or sale of removed items or materials on-site is not permitted.
- D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- E. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.07 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Notify the Owner if it appears that removing any unforeseen element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
- C. Inventory and record the condition of items to be removed and salvaged.

3.02 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.03 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain for on-going operations and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.

3.04 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.05 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Maintain fire watch during and after flame-cutting operations.
 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 52 40 "Construction Waste Management".
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

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- C. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area designated by Owner.
 - 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.06 CLEANING

- A. Remove demolition waste materials from Project site and recycle or dispose of them according to Section 01 52 40 "Construction Waste Management".
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 03 30 00

SITE CONCRETE

PART 1 - GENERAL

1.01 General Requirements

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Supplemental Conditions shall be in addition to the standards provided herein.
- C. The standards set forth in the City of Roseville Design and Construction Standards and the City of Roseville Parks Construction Standards, latest editions, shall be in addition to the standards provided herein.

1.02 DESCRIPTION

- A. Furnish all labor, materials and equipment for the complete installation of all concrete work, flatwork and poured-in-place as shown in the Plans and as specified herein.

1.03 REFERENCES

- A. Caltrans Standard Specifications, latest edition.
- B. California Building Code (CBC) and California Administrative Code (Title 24), latest editions.

1.04 QUALITY ASSURANCE

- A. For all flatwork, the Contractor shall pour a six-foot by six-foot (6" x 6") sample of each type of finish specified for review and acceptance by the Project Manager prior to pouring any concrete. The accepted samples shall remain on-site and intact until all concrete work has been completed. The quality of the concrete work shall be measured by the accepted samples.
- B. During the course of construction, a qualified testing laboratory shall obtain samples as determined by the Inspector and conforming to federal and state codes and standards. Such costs shall be paid for by the City. Re-tests and removal of below acceptable strength concrete shall be borne by the Contractor. The Contractor shall cooperate with the testing during the course of obtaining such samples.
- C. Variances in surface grades of more than 1/8", as measured by a straight edge ten feet (10") long, shall be corrected to the satisfaction of the Inspector. Remove all areas where standing water occurs, including any surface irregularities.

1.05 HANDLING AND STORAGE

- A. Comply with ATSM C-94, "Specifications for Ready Mix Concrete" for the batch, mix and transport of concrete.
- B. Mix and deliver only the amount that will be poured immediately.

1.06 RECORD DRAWINGS

- A. The Contractor shall keep an accurate record of the as-built conditions of the

site concrete. These records shall be updated daily and kept at the construction site. At any time, the Inspector may examine the conditions of the "as-builts" to ensure compliance of the above.

PART 2 - PRODUCTS

2.01 Concrete

- A. Concrete for play area curbs, sidewalks, and accessible ramps shall conform to the provisions of Section 90-2 "Minor Concrete" of the Caltrans Standard Specifications. Cementitious material shall be "Type II Modified" and shall contain no less than 505 pounds of cementitious material per cubic yard. Aggregate shall be not greater than one-inch or smaller than 3/8-inch. Submit concrete analysis for review and acceptance prior to placement of concrete.

2.02 FIBERGLASS REINFORCEMENT

- A. Fibers for concrete shall be Fibermesh 150, as manufactured by Propex Operating Company; or accepted equal. Fibers shall contain 100 percent virgin polypropylene multifilament fibers, e3 patented technology, containing no reprocessed olefin materials. The fibers shall conform to ASTM C1116 Type III and manufactured specifically for the secondary reinforcement of concrete.

2.03 EXPANSION JOINT MATERIAL

- A. Fiber expansion joint shall conform to ASTM-1751 and shall be a non-extruding resilient filler. Filler shall have preserve attributes and high quality bituminous materials.
- B. Apply Sikaflex elastomeric sealant, or accepted equal, over all expansion joints.

2.04 CONCRETE FORMS

- A. All forms shall be new at the start of the project and shall be construction grade Douglas Fir. Minimum size lumber shall be 2 x 6.
- B. Radius bends shall be formed by spring steel forms or laminated boards, as required.
- C. Plywood shall be 5/8", Class I, exterior grade as outlined in APA "Guide to Plywood Grades". Omit mill oiling treatment.

2.05 SEEDED AGGREGATE

- A. Aggregate shall be clean, washed aggregate as selected. Provide samples of rock mixture.

PART 3 - EXECUTION

3.01 Poured-In-Place Concrete Forms

- A. Concrete for hardscape or flatwork shall be placed on subgrade compacted to 95% relative compaction. Prior to placement of concrete, a soils compaction test must be performed by an accepted soils testing professional on a representative number of locations along the flatwork area. The City or project owner shall provide the initial test. The results of these tests must be available and meet

acceptable levels prior to pouring. Re-tests and re-work of any area, as directed by the soils professional, shall be the responsibility of the Contractor.

- B. Construct forms to conform to the shapes, dimensions and details shown on the Plans. All forms shall be true to lines, plumb, level and square.
- C. Forms shall not leak, spread, shift or settle when concrete is placed.
- D. All forms shall carry dead and live loads and shall not deflect more than 1/8" between supports after placement of concrete.
- E. All forms shall be thoroughly soaked a minimum of twelve (12) hours prior to pouring of concrete. Forms shall be treated per manufacturer's recommendations.
- F. Reuse of forms may be allowed at the discretion of the Inspector. Reused forms shall be cleaned and free of defects that would affect the final concrete finish.
- G. Concrete footings shall be formed only when excavations slump or cave in. Over-excavate the trench or footing diameter to accommodate the forms' installation and removal. Apply water to moisten soil. Do not allow water to create mud or ponding.

3.02 FIBERGLASS REINFORCEMENT

- A. Install per manufacturer's instructions. Apply at the batch plant prior to delivery. Thoroughly mix fiber material to avoid "clumping".

3.03 EXPANSION JOINTS

Expansion joints shall be placed where vertical elements meet horizontal paving unless otherwise noted on the Plans. This shall include vertical expansion joints on play area curb walls, buildings, shade structures, walls and/or planters. The corners of the paving shall be tooled at the expansion joints. Trim exposed fibers which protrude above or beyond the finish surface of paving or the finish surface of the wall.

3.04 CONTROL JOINTS FOR CONCRETE SIDEWALKS

- A. Control joints shall be per detail PK-32 with deep, straight and finished with rounded edges. Control joints shall be placed (on-center) a distance equal to the width of the concrete walkway, unless otherwise shown on the Plans. For example a ten-foot wide walkway shall have control joint placed ten feet on

3.07 PLACEMENT OF CONCRETE

- A. Do not pour concrete in weather below 40 degrees F. or when temperatures are predicted to fall below freezing within 24 hours, except with prior authorization.
- B. Concrete shall be transit mixed according to ASTM C-94. Limit the quantity of water to the required strength. Concrete shall be of a consistency that it flows slowly into the forms.
- C. Mixing of concrete shall be continuous commencing from the time water is added to the mix until such time that the concrete is poured. All concrete shall be placed within an hour of the time when water is first added.
- D. Concrete shall be deposited up to the finished height of the forms and up to the adjacent joint. No partial pours will be allowed. Excess material shall be dumped on-site and later removed by the Contractor.
- E. Thoroughly compact the concrete manually spading and tamping concrete into

all corners of the forms and by utilizing a high-speed mechanical vibrator. Retain a standby vibrator on-site during the course of concrete work. When utilizing the vibrator, take precautions to avoid impact on the forms.

- F. After obtaining uniform compaction, screen tamper all flatwork surfaces, screed and bull float to ensure that large aggregates are pushed below the surface. When it is practical to work on the surface, wood float, steel trowel paving to a uniform surface.
- G. Concrete elements shall not exceed the following tolerances:
 - 1. Linear: 1/8"
 - 2. Slab deviation: 1/8" in 10"

3.08 FINISHES

- A. Finishes shall be as shown below and shall be consistent in quality throughout the project. Medium broom finished concrete shall have clean, deep control joints spaced appropriately. No visible cracks or discoloration will be accepted. Finishes on vertical surfaces shall be consistent throughout. Vertical expansion joints are spaced as identified on the plans and are smooth with the finish surfaces. All edges for flatwork and vertical surfaces shall be eased at a consistent radius.
- B. Upon completion of float finishing, provide the final finish as follows:
 - 1. Medium Broom Finish: shall be accomplished by pulling a stiff bristle broom across a floated surface. The direction of the broom shall be perpendicular to the path of travel, unless otherwise shown on the Plans.

3.09 REMOVAL OF FORMS

- A. Forms shall remain in place as follows:
 - 1. For mass concrete work: 5 days.
 - 2. For other flatwork and other concrete work: 3 days.
- B. Remove all bolts, nails, ties, wires, etc. a minimum of one inch (1") below the surface of the concrete. Remove imprints, irregularities or other such defects and patch as directed by the Inspector.

3.10 CURING AND PROTECTION

- A. Allow adequate time for the concrete to cure. In temperatures above 75 degrees F., ensure that the concrete surface remains wet for a period of seven (7) days minimum.
- B. Protect all concrete from damage during the curing period. This shall include damage from sun, rain, flowing water, frost, mechanical injury, tire tracks, footprints, oil stains, etc. Should such damage occur, Contractor shall take immediate action to repair damage to the satisfaction of the City.

3.11 CLEAN-UP

- A. During the course of this work, the area shall be kept clear and free of debris as realistically possible. Upon completion of concrete work, completely remove from the site all used forms, hardware, spillage, rejected work and other materials.
- B. Remove from site furnishing posts all concrete "slobber". Re-touch posts as necessary for a clean finish.

END OF SECTION

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SECTION 04 22 00
CONCRETE MASONRY UNITS

PART 1 - GENERAL

1.01 Conditions

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this section.

1.02 Scope of Work

- A. Provide all labor, materials, and equipment required to complete the unit masonry work as indicated on the Drawings and/or specified herein.
- B. Work includes, but not limited to the following:
1. Concrete masonry units.
 2. Pre-cast Elements.
 3. Installation of all required reinforcements, fasteners, anchors and accessories.
 4. Cleaning of unit masonry.
- C. Related work specified in other sections:
1. Section 03 30 00: Concrete

1.03 Quality Assurance

- A. Material and installation standards: Comply with recommendations of the Brick Institute of America (BIA) standards; National Concrete Masonry Association standards; and ASTM standards.
- B. Verify all measurements indicated on Drawings by taking field measurements; proper fit and attachment of all units is required.
- C. Accurately fit, cut, and securely mortar together all units to produce a plumb, level and rigid installation.
- D. All work and materials shall comply with Uniform National Building Codes (latest edition), and all other applicable codes and ordinances that govern the work of this Section.

1.04 Qualification of Installers

- A. Installers shall be trained and experienced in the skills required and shall be completely familiar with the materials and their installation. Qualified installers shall be present at all time during the progress of work.

1.05 Coordination

- A. Coordinate with all other trades whose work relates to unit masonry installation for placing all required reinforcements, fasteners, anchor, accessories, etc.

1.06 Submittals

- A. Submit for Architect's written approval two (2) representative samples of each unit specified.
- B. Submit manufacturer's certificate that units meet or exceed material specifications.

PART 2 - PRODUCTS

2.01 Concrete Masonry Units

- A. ASTM C-652, concrete masonry hollow units, wire cut. Standard and bond beam units. Size and color shall be standard grey.

2.02 Masonry Mortar

- A. ASTM C-270, Type M, consisting of one (1) part cement and three (3) parts sand with quarter (1/4) part lime.
- B. LATICRETE 3701 grout and Mortar Admix
- C. Mortar compressive strength at 28 days shall be 3000 PSI

2.03 Grout

- A. Grout mix ratio by volumes: one part Portland Cement (ASTM C-150, Type 1); two parts minimum to three parts maximum damp loose sand, two (2) parts coarse aggregate (ASTM C-404).
- B. LATICRETE 3701 Grout and Mortar Admix.
- C. Grout compressive strength at 28 days shall be 3000 PSI.

2.04 Unit Masonry Reinforcement

- A. Horizontal Joint Reinforcement: Truss type, hot-dipped galvanized zinc coated steel construction; 3/16 inch side rods with No. 9 cross ties.
- B. Horizontal and vertical rebar reinforcements: ASTM A-615, Grade 40, size as indicated on the Drawings.

2.05 Concrete

- A. As per Section 03 30 00: Concrete

PART 3 - EXECUTION

3.01 General

- A. Supply anchor devices as indicated on the Drawings and as required to install materials as specified in other sections of work.
- B. Cut units where required with a power saw or order units pre-cut from manufacturer.
- C. Construct walls and other masonry construction to the full thickness indicated on the Drawings, using unit sizes as indicated.
- D. Establish lines, levels, and coursing. Protect from disturbances.

3.02 Coursing

- A. Install units straight and plumb with all courses true to line and level.
- B. Install units in pattern as indicated on the Drawings.
- C. Maintain unit courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.

3.03 Placing and Bonding

- A. Lay units in full bed of mortar properly jointed with other work.
- B. Install full mortar coverage of vertical and horizontal face of joints. Maintain uniform joint width of

- 3/8" – 1/2", depending on nominal unit sizes. Cut joints flush and tool slightly concave.
- C. Fully bond intersections and external and internal corners.
 - D. Do not shift or tap units after mortar has taken initial set. Where adjustment must be made remove mortar and replace.
 - E. Remove excess mortar.
 - F. Fill hollows at concrete masonry units solid with grout or as indicated on the Drawings. Fill hollows of structural brick block units where reinforcement occurs solid with grout or as indicated on the Drawings.
 - G. Wall caps shall be epoxied and anchored in place.

3.04 Reinforcement

- A. Horizontal joint reinforcement: Place masonry joint reinforcement sixteen (16) inches on center or as indicated on the Drawings.
- B. Place joint reinforcement continuous and lap reinforcement according to the recommendations of the Manual of Standard Practice of the Concrete Reinforcing Steel Institute.
- C. Horizontal and vertical rebar reinforcement: Install with bond and beam spacing and rebar spacing as indicated on Drawings.
- D. Place and consolidate grout fill without disturbing reinforcing. Cells containing reinforcement shall be grouted solid.

3.05 Curing and Protection

- A. Provide thorough curing of joints and grout pours.
Protect newly laid masonry from exposure to precipitation, excessive drying, freezing, soiling, backfill and other harmful elements.

3.06 Waterproofing & Graffiti Seal

- A. All walls below grade shall be waterproofed on the backside extending from the foundation to the brick cap.
- B. Install in conformance with manufacturer's specifications.
- C. Apply 2 clear coats of graffiti sealant on exposed exterior and interior surfaces.
Submit proposed sealant type and conform to manufacturer specifications.

3.07 Cleaning

- A. Brush off excess mortar as work progresses. Dry-brush masonry at end of each day's work.
- B. Clean masonry with cleaners and methods as recommended by the manufacturer of the masonry units.
- C. Rinse walls by washing off cleaning solution, dirt and mortar using clean, pressurized water.
- D. Repair damage to adjacent materials that occurs during cleaning operation at no additional cost to the Owner.

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SECTION 06 41 16
PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-faced architectural cabinets.
 - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.
- B. Related Requirements:
 - 1. Section 12 36 61.16 "Solid Surfacing Countertops."

1.2 SUBMITTALS

- A. Product Data: For each type of product[, including] panel products high-pressure decorative laminate adhesive for bonding plastic laminate and cabinet hardware and accessories.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
 - 1. Plastic laminates, for each color, pattern, and surface finish.
 - 2. Thermoset decorative panels, for each color, pattern, and surface finish.

1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

1.4 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
- B. Grade: Custom.
- C. Type of Construction: Frameless.

- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. Reveal Dimension: 1/8 inch.
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Wilsonart LLC.
- G. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade VGS.
 - 4. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.
- H. Materials for Semiexposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade CLS or Thermoset decorative panels as required by woodwork quality standard.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber.
 - 3. Drawer Bottoms: Hardwood plywood.
- I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As selected by Owner from laminate manufacturer's full range.

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content: 8 to 13 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Recycled Content of MDF and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 92 percent.
- C. Composite Wood Products: Products shall be made using ultra-low-emitting formaldehyde resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.
 - 1. Medium-Density Fiberboard: ANSI A208.2, Grade 130.
 - 2. Particleboard: ANSI A208.1, Grade M-2.
 - 3. Softwood Plywood: DOC PS 1, medium-density overlay.
 - 4. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
 - 5. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 08 71 11 "Door Hardware (Descriptive Specification)."
- B. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal, and as follows:
 - 1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
 - 2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.
- C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening, self-closing.
- D. Back-Mounted Pulls: BHMA A156.9, B02011.
- E. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
- F. Catches: Magnetic catches, BHMA A156.9, B03141.
- G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- H. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.
- I. Drawer Slides: BHMA A156.9.
 - 1. Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer; full-extension type; zinc-plated steel or epoxy-coated steel with polymer rollers.
 - 2. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
 - 3. For drawers not more than 3 inches high and not more than 24 inches wide, provide Grade 1.
 - 4. For drawers more than 3 inches high but not more than 6 inches high and not more than 24 inches wide, provide Grade 1.
 - 5. For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-100.
- J. Door Locks: BHMA A156.11, E07121.
- K. Drawer Locks: BHMA A156.11, E07041.
- L. Door and Drawer Silencers: BHMA A156.16, L03011.
- M. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.

2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use

nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

- C. Adhesives: Use adhesives that meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- D. Adhesive for Bonding Plastic Laminate: Contact cement.

2.5 FABRICATION

- A. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- B. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- D. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.
- E. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 12 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

END OF SECTION

SECTION 07 21 00

THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass-fiber blanket.
 - 2. Mineral-wool blanket.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating VOC content.
- C. Product test reports.
- D. Research reports.

PART 2 - PRODUCTS

2.1 MINERAL-WOOL BLANKETS

- A. Mineral-Wool Blanket, Unfaced: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Johns Manville; a Berkshire Hathaway company.
 - b. ROCKWOOL.
 - c. Thermafiber, Inc.; an Owens Corning company.

2.2 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
 - 1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
 - 2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
- B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.2 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
 - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
 - 5. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
 - a. Interior Walls: Set units with facing placed as indicated on Drawings.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
 - 1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
 - 2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants.
 - 3. Mildew-resistant joint sealants.
 - 4. Latex joint sealants.

1.02 SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For sealants, indicating VOC content.
- C. Samples: For each kind and color of joint sealant required.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.
- E. Product test reports.
- F. Preconstruction field-adhesion-test reports.
- G. Sample warranties.

1.03 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.04 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.05 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 JOINT SEALANTS, GENERAL

- A. VOC Content: Verify sealants and sealant primers comply with the following:
 - 1. Architectural sealants have a VOC content of 250 g/L or less.
 - 2. Sealants and sealant primers for nonporous substrates have a VOC content of 250 g/L or less.
 - 3. Sealants and sealant primers for porous substrates have a VOC content of 775 g/L or less.
- B. Colors of Exposed Joint Sealants: As selected by Owner from manufacturer's full range.

2.02 NON-STAINING SILICONE JOINT SEALANTS

- A. Non-staining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.
- B. Silicone, Non-staining, S, NS, 50, NT: Non-staining, single-component, non-sag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. GE Construction Sealants; Momentive Performance Materials Inc.
 - b. Pecora Corporation.
 - c. Sika Corporation; Joint Sealants.
 - d. The Dow Chemical Company.
 - e. Tremco Incorporated.

2.03 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, NT: Single-component, non-sag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Master Builders Solutions.
 - b. Pecora Corporation.
 - c. Sika Corporation; Joint Sealants.
 - d. Tremco Incorporated.
- B. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Master Builders Solutions.
 - b. Pecora Corporation.
 - c. Polymeric Systems, Inc.
 - d. Sherwin-Williams Company (The).

- C. Urethane, M, P, 50, T, NT: Multicomponent, pourable, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade P, Class 50, Uses T and NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. LymTal International Inc.

2.04 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, non-sag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. GE Construction Sealants; Momentive Performance Materials Inc.
 - b. Pecora Corporation.
 - c. The Dow Chemical Company.
 - d. Tremco Incorporated.
- C. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Pecora Corporation.
 - b. Sherwin-Williams Company (The).
 - c. Tremco Incorporated.

2.05 JOINT-SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adfast.
 - b. Alcot Plastics Ltd.
 - c. Construction Foam Products; a division of Nomaco, Inc.
 - d. Master Builders Solutions.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.06 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove laitance and form-release agents from concrete.
 - 2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.02 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.03 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other

requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.04 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces, JS-A.
 - 1. Joint Locations:
 - a. Control and expansion joints in brick pavers.
 - b. Isolation and contraction joints in cast-in-place concrete slabs.
 - c. Joints in paving units.
 - d. Tile control and expansion joints.
 - e. Joints between different materials listed above.
 - f. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, M, P, 50, T, NT.
 - 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces JS-B.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Joints between plant-precaster architectural concrete units.
 - c. Control and expansion joints in unit masonry.
 - d. Joints in dimension stone cladding.
 - e. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Silicone, non-staining, S, NS, 50, NT.
 - 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces JS-C.
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in stone flooring.
 - c. Control and expansion joints in brick flooring.
 - d. Control and expansion joints in tile flooring.
 - e. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, S, P, 25, T, NT.
 - 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces JS-D.
 - 1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Tile control and expansion joints.
 - c. Vertical joints on exposed surfaces of concrete walls and partitions.
 - d. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, S, NS, 25, NT.
 - 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement JS-E.
 - 1. Joint Locations:
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - c. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Acrylic latex.

3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- F. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces JS-F.
1. Joint Locations:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.
- G. Joint-Sealant Application: Concealed mastics JS-G.
1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Sill plates.
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Butyl-rubber based.
 3. Joint-Sealant Color: As selected by Owner from manufacturer's full range of colors.

END OF SECTION

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes hollow-metal work.

1.02 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.03 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Samples for Selection: For units with factory-applied color finishes.
- D. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.
- E. Product test reports.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Ceco Door; ASSA ABLOY.
 - 2. Curries Company; ASSA ABLOY.
 - 3. Custom Metal Products.
 - 4. Steelcraft; an Allegion brand.
 - 5. Stiles Custom Metal, Inc.

2.02 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - 1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

- B. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.03 INTERIOR DOORS AND FRAMES

- A. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At interior locations unless indicated otherwise in the Door and Frame Schedule.
 - 1. Physical Performance: Level B according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
 - d. Edge Construction: Model 2, Seamless.
 - e. Core: Manufacturer's standard Polystyrene Polyurethane or Polyisocyanurate.
 - 3. Frames:
 - a. Materials: Metallic-coated, steel sheet, minimum thickness of 0.053 inch.
 - b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
 - c. Construction: Full profile welded.
 - 4. Exposed Finish: Prime.
- B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At locations indicated in the Door and Frame Schedule.
 - 1. Physical Performance: Level A according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.053 inch.
 - d. Edge Construction: Model 2, Seamless.
 - e. Core: Manufacturer's standard Polystyrene, Polyurethane or Polyisocyanurate..
 - 3. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.
 - b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
 - c. Construction: Full profile welded.
 - 4. Exposed Finish: Prime.

2.04 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

- A. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At exterior locations unless noted otherwise in the Door and Frame Schedule.
 - 1. Physical Performance: Level A according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
 - d. Edge Construction: Model 2, Seamless.
 - e. Core: Manufacturer's standard insulation material.
 - 3. Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.
 - 4. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.

Not for Construction
For Council Approval
For Complete Bid

- b. Construction: Full profile welded.
- 5. Exposed Finish: Factory.

2.05 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 3. Post-installed Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.06 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- I. Glazing: Section 08 80 00 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

2.07 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical,

fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

- B. Hollow-Metal Doors:
1. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.
- C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 5. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

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1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow-metal work.
5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.08 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 1. Shop Primer: SDI A250.10.

2.09 ACCESSORIES

- A. Louvers: Provide sight-proof louvers for interior doors, where indicated, which comply with SDI 111C, with blades or baffles formed of 0.020-inch-thick, cold-rolled steel sheet set into 0.032-inch-thick steel frame.
 1. Fire-Rated Automatic Louvers: Movable blades closed by actuating fusible link, and listed and labeled for use in fire-rated door assemblies of type and fire-resistance rating indicated.
- B. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- C. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.

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4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
 8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch, unless noted otherwise.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
 3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.
- C. Glazing: Comply with installation requirements in Section 08 80 00 "Glazing" and with hollow-metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.02 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

SECTION 08 33 23
OVERHEAD COILING COUNTER SHUTTERS

PART 1 GENERAL

1.1 SUMMARY

- A. **Section Includes:** Manual rolling counter shutters
- B. **Related Sections:**
 - 1. 05 50 00 Metal Fabrications. Door opening jamb and head members
 - 2. 06 10 00 Rough Carpentry. Door opening jamb and head members
 - 3. 08 31 00 Access Doors and Panels. Access doors
 - 4. 08 70 00 Hardware. Padlocks. Masterkeyed cylinder
 - 5. 09 91 00 Painting. Field painting
 - 6. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, and installation of control station and wiring
- C. **Products That May Be Supplied, But Are Not Installed Under This Section:**
 - 1. Control Station

1.2 SUBMITTALS

- A. **Reference Section 01 33 00 Submittal Procedures;** submit the following items:
 - 1. **Product Data**
 - 2. **Shop Drawings:** Include special conditions not detailed in Product Data. Show interface with adjacent work.
 - 3. **Quality Assurance/Control Submittals:**
 - a. Provide manufacturer ISO 9001:2015 registration
 - b. Provide manufacturer and installer qualifications - see below
 - c. Provide manufacturer's installation instructions
 - 4. **Closeout Submittals:**
 - a. Operation and Maintenance Manual
 - b. Certificate stating that installed materials comply with this specification

1.3 QUALITY ASSURANCE

- A. **Qualifications:**
 - 1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years experience in producing counter doors of the type specified
 - 2. **Installer Qualifications:** Manufacturer's approval

1.4 DELIVERY STORAGE AND HANDLING

- A. Reference Section 01 66 00 Product Storage and Handling Requirements.
- B. Follow manufacturer's instructions.

1.5 WARRANTY

- A. **Standard Warranty:** Two years from date of shipment against defects in material and workmanship
- B. **Maintenance:** Submit for owner's consideration and acceptance of a maintenance service agreement for installed products

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer:

1. **Cornell:** 24 Elmwood Avenue, Mountain Top, PA 18707. Telephone: (800) 233-8366.
2. **Cookson**
3. **Clopay Building Products**

2.2 PRODUCT INFORMATION

A. Model: ESC10

2.3 MATERIALS

A. Curtain:

1. Slat Configuration:

- a. **Stainless Steel:** No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, minimum 22 gauge AISI type 304 #4 finish stainless steel with stainless steel angle bottom bar with lift handles and vinyl astragal

2. Finish:

- a. **Stainless Steel:** type 304 #4 finish

B. Endlocks:

Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats

C. Guides:

1. Fabrication:

- a. **Stainless Steel:** 12 gauge formed shapes

2. Finish:

- a. **Stainless Steel:** type 304 #4 finish

D. Shaft Assembly:

1. Counterbalance Shaft Assembly:

- a. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width

- b. **Spring Balance:** Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque
- E. **Brackets:**
Fabricate from reinforced steel plate with bearings at rotating support points to support counterbalance shaft assembly and form end closures
 - 1. **Finish:**
 - a. **Standard (Stock Colors):** Zirconium treatment followed by a gray baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness
- F. **Hood:**
Minimum 24 gauge stainless steel with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets.
 - 1. **Finish:**
 - a. **Stainless steel:** type 304 #4 finish

2.4 OPERATION

- A. **Manual Operation:**
 - 1. **Crank Hoist:** Crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

2.5 ACCESSORIES

- A. **Locking:**
 - 1. **Padlockable slide bolt:** Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides. Provide interlock switches on motor operated units.
- C. **Operator [and Bracket Mechanism] Cover:**
Minimum 24 gauge stainless steel sheet metal cover at coil area of unit. Finish to match door hood.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates
- C. Commencement of work by installer is acceptance of substrate

3.2 INSTALLATION

- A. Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports
- B. Follow manufacturer's installation instructions

3.3 ADJUSTING

- A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion

3.4 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer
- B. Remove surplus materials and debris from the site

3.5 DEMONSTRATION

- A. Demonstrate proper operation to Owner's Representative
- B. Instruct Owner's Representative in maintenance procedures

END OF SECTION

SECTION 086313
SECTIONAL OVERHEAD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aluminum full view sectional overhead door (Model 904)

1.2 RELATED SECTIONS

- A. 06 10 00 - Rough Carpentry.
- B. 07 90 00 - Joint Seals.
- C. 08 71 00 - Door Hardware and locks.
- D. 09 90 00 - Paints and Coatings.

1.3 REFERENCES

- A. [ASTM B 653/653M](#)
- B. [ASTM B 209/209M](#)
- C. [ASTM B 221/221M](#)
- D. [AAMA 2604](#)
- E. [DASMA TDS-163](#)
- F. [ANSI/DASMA 102](#)

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Operation and maintenance data.
- C. Shop Drawings: Include opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Selection Samples: Upon request furnish color samples or 2' X 2' section sample

1.5 WIND PERFORMANCE REQUIREMENTS

- A. Design doors to withstand positive and negative wind loads as calculated in accordance with applicable building code and detailed in structural documents.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum ten years of documented experience.
- B. Installer Qualifications: Minimum five years of documented experience, and authorized by the door manufacturer.

1.7 WARRANTY

- A. Manufacturers Limited Warranty aluminum sectional overhead doors.
 - 1. Standard finish warranty against cracking, checking, or peeling for 5 years.
Color Blast Finish option warranty for 5 years; Parts and Hardware for 1 year

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Clopay Corporation
- B: Alternates
 - 1. Cornell
 - 2. Cookson

2.2 ARCHITECTURAL SERIES ALUMINUM SECTIONAL OVERHEAD DOOR

- A. Basis Of Design: Full View Aluminum Doors: Clopay Model 904
Section Thickness: 2 1/8 inches
Solid Aluminum Panels
 - 1. Aluminum Panel Finish:
 - a. Factory Powder Coated, RAL color to be selected by owner.
 - 2. Aluminum Mullion Finish:
 - a. Factory Anodized Black.
 - 3. Locking: Inside spring loaded slide bolt lock on end stile that engages slot in track.
 - a. Provide two inside slide lock.
 - 4. Weatherstripping: Provide complete perimeter seals.
 - 5. Track:
 - a. 2 inches track designed for 2" diameter rollers. Vertical tracks minimum 0.061 inch galvanized steel. Horizontal tracks minimum 0.075 inch galvanized steel).
 - b. Configure track to maximize headroom clearance.
 - 6. Spring Counterbalance: Torsion spring counterbalance mechanism sized to weight of the door, with high strength galvanized aircraft cable with minimum 7 to 1 safety factor
 - a. Heavy Duty Cycle Spring: 25,000 cycle.

2.3 OPERATION

- A. Manual Push up.

PART 3 EXECUTION

1.8 EXAMINATION

- A. Examine wall and overhead areas, including opening framing and blocking, with installer present, for compliance with requirements for installation tolerances, clearances, and other conditions affecting performance of Work in this Section.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. If substrate preparation is the responsibility of another installer, notify Owner of unsatisfactory preparation before proceeding.

1.9 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

1.10 INSTALLATION

- A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.

1.11 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Mechanical door hardware for the following:
 - a. Swinging doors.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product in each finish specified.
- C. Door hardware schedule.
- D. Keying schedule.
- E. Sample warranty.
- F. Maintenance data.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.
- B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as an Architectural Hardware Consultant (AHC).

1.4 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Insert number years from date of Substantial Completion unless otherwise indicated below:
 - a. Exit Devices: Two years from date of Substantial Completion.
 - b. Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

- B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the DOJ's "2010 ADA Standards for Accessible Design" and the 2016 California Building Code.

2.2 SCHEDULED DOOR HARDWARE

- A. Provide products for each door that comply with requirements indicated in Part 2 and door hardware schedule.
 - 1. Door hardware is scheduled on Drawings.

2.3 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hager Companies.
 - b. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.4 SELF-CLOSING HINGES AND PIVOTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hager Companies.
 - 2. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.5 CONTINUOUS HINGES

- A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.
- B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hager Companies.
 - b. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.6 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
 - 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
 - 2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
 - 3. Deadbolts: Minimum 1-inch bolt throw.
- C. Lock Backset: 2-3/4 inches unless otherwise indicated.

- D. Lock Trim:
1. Description: As indicated on Drawings.
 2. Levers: Cast.
 3. Escutcheons (Roses): Cast.
 4. Dummy Trim: Match lever lock trim and escutcheons.
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
- F. Bored Locks: BHMA A156.2; Grade 1; Series 4000.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Stanley Commercial Hardware; a division of Stanley Security Solutions.
 - b. Allegion plc.

2.7 AUXILIARY LOCKS

- A. Bored Auxiliary Locks: BHMA A156.36: Grade 1; with strike that suits frame.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.8 SURFACE BOLTS

- A. Surface Bolts: BHMA A156.16.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allegion plc.
 - b. Door Controls International, Inc.
 - c. Trimco.

2.9 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
 - b. Allegion plc.
 - c. Door Controls International, Inc.
 - d. Trimco.

2.10 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
 - b. Allegion plc.
 - c. Precision Hardware, Inc.; a Stanley company.
 - d. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.11 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide cylinder from same manufacturer of locking devices.
- B. Standard Lock Cylinders: BHMA A156.5; Grade 1 permanent cores; face finished to match lockset.
- C. High-Security Lock Cylinders: BHMA A156.30; Grade 1 permanent cores that are removable; face finished to match lockset.
- D. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- E. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

2.12 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.
 1. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.
 - a. Provide three cylinder change keys and five each of master and grand master keys.
 2. Existing System:
 - a. Master key or grand master key locks to Owner's existing system.
 - b. Re-key Owner's existing master key system into new keying system.
 - 3.
- B. Keys: Nickel silver.
 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: "DO NOT DUPLICATE."

2.13 OPERATING TRIM

A. Operating Trim: BHMA A156.6; stainless steel unless otherwise indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. [Allegion plc.](#)
- b. [Hager Companies.](#)
- c. [Trimco.](#)

2.14 ACCESSORIES FOR PAIRS OF DOORS

- A. Carry-Open Bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts are used.

2.15 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written instructions for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

- 1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [Allegion plc.](#)
 - b. [Hager Companies.](#)
 - c. [Norton Door Controls; an ASSA ABLOY Group company.](#)
 - d. [Stanley Commercial Hardware; a division of Stanley Security Solutions.](#)

2.16 MECHANICAL STOPS AND HOLDERS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16.

- 1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [Allegion plc.](#)
 - b. [Hager Companies.](#)
 - c. [Trimco.](#)

2.17 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHMA A156.8.

- 1. [Manufacturers:](#) Subject to compliance with requirements, provide products by one of the following:
 - a. [Allegion plc.](#)
 - b. [Architectural Builders Hardware Mfg., Inc.](#)
 - c. [Hager Companies.](#)

2.18 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Hager Companies.
- b. National Guard Products, Inc.
- c. Pemko Manufacturing Co.

- B. Maximum Air Leakage: When tested according to ASTM E 283 with tested pressure differential of 0.3-inch wg, as follows:

1. Gasketing on Single Doors: 0.3 cfm/sq. ft. of door opening.
2. Gasketing on Double Doors: 0.50 cfm per foot of door opening.

2.19 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. National Guard Products, Inc.
- b. Pemko Manufacturing Co.

2.20 METAL PROTECTIVE TRIM UNITS

- A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Allegion plc.
- b. Hager Companies.
- c. Trimco.

2.21 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."

- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

- C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as directed by Owner.
- E. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 07 92 00 "Joint Sealants."
- F. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- G. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
 - 1. Do not notch perimeter gasketing to install other surface-applied hardware.
- H. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- I. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.2 ADJUSTING

- A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

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SECTION 092900

GYPSUM WALLBOARD

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: Gypsum wallboard as indicated on the drawings.

1.02 RELATED SECTIONS

- A. Section 061000 "Rough Carpentry".
- B. Section 079200 "Sealants".
- C. Section 099113 "Exterior Painting".
- D. Section 099123 "Interior Painting".

1.03 SUBMITTALS

- A. Provide manufacturer's data for all material to be supplied under this section of work.
- B. Provide certification that materials meet these specifications.
- C. Provide manufacturer's printed instructions for installation of assemblies.
- D. Provide samples of texture finishes for approval.

1.04 STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened containers, packages or bundles identified with manufacturer's name, brand, type, and grade clearly marked.
- B. Store in dry areas and protect from dampness and deterioration.
- C. Protect ready-mixed products from freezing.
- D. Protect metal products from rusting.
- E. Deliver fire-rated materials bearing testing agency label and required fire classification number.

1.05 PROJECT CONDITIONS

- A. Do not install wallboard products unless installation areas comply with minimum temperature and ventilation requirements recommended by manufacturer.
- B. Under slow drying conditions, allow additional drying time between coats of joint treatment.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Provide gypsum wallboard materials manufactured by Georgia Pacific, United States Gypsum, or

equal.

B. Gypsum Board:

1. Standard: ASTM C1396 – C1396M; or Fed. Spec. SS-L-30, Type III, Grade R, Class I; 5/8 inch thick, tapered edges, ends square cut, maximum permissible lengths.
2. Water-resistant: ASTM C 630, 5/8 inch thick, tapered edges, ends square cut, maximum permissible lengths.
 - a. Seal all edges per manufacturer's recommendations.
3. Fire Resistant: Type X or Type C as indicated. 5/8" thick minimum.
4. Ceramic Tile Backer Board: 5/8" "Den-shield", by Georgia-Pacific, or equal.

2.02 GYPSUM WALLBOARD ACCESSORIES

- A. Provide gypsum wallboard accessories in accordance with Gypsum Association GA-216, and as shown on Drawings and specified.
- B. Provide all accessories such as corner beads and edge trim as metal fabrications (26 gauge minimum).
- C. Joint Treatment:
 1. Tape: Perforated, conforming to ASTM C 475 or Fed. Spec. SS-J-570, Type II.
 2. Compound: Powdered or ready-mixed conforming to ASTM C 475 or Fed. Spec. SS-J-570, Type I. Taping and topping joint compound or all-purpose joint compound may be used.
- D. Texturing:
 1. Wall Texturing: Provide materials manufactured by U. S. Gypsum, or equal.
 2. Ceiling Texturing: Provide materials manufactured by U. S. Gypsum, or equal.

PART 3 – EXECUTION

3.01 COORDINATION

- A. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work which is to be placed in or behind framing and gypsum wallboard. Allow such items to be installed after framing is completed.

3.02 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in accordance with Gypsum Association GA-216 recommendations.
- B. Erect gypsum board in direction most practical and across studs with ends and edges occurring over continuous firm bearing.

- C. Use screws when fastening gypsum board to framing.
- D. Treat cut edges and holes in moisture resistant gypsum board with sealant.
- E. Place corner beads and trim/molds as shown or required. Use longest practical lengths. Place edge trim and molds where gypsum board abuts dissimilar materials and at all board terminations exposed to view. Construct reveals required by Drawings.
- F. Tape, fill, and sand exposed joints, edges, corners, and openings to produce surfaces ready to receive finishes except at non-exposed-to-view conditions. Feather coats onto adjoining surfaces so that camber is maximum of 1/16 inch. Finishing of taping is not required at areas to receive tiles, and areas above exposed-to-view ceilings.
- G. Remove and correct or replace defective work in a manner acceptable to the Owner.
- H. Hang ceiling and soffit systems level and plumb, in true alignment with adjacent surfaces and walls.
- I. Construct tight fitting joints in exposed ceiling members, continuously around openings and obstructions.

3.03 TRIM

- A. Apply edge casing plumb and true to all openings and exposed ends of wallboard abutting another material or as specifically detailed otherwise. Use continuous lengths where possible.
- B. Apply corner bead plumb and true to all exposed exterior corners in continuous lengths whenever possible.
- C. The drawings do not purport to show all locations and all requirements for metal trim in connection with the work of this Section. Carefully study the drawings and the job conditions; provide in place, all metal trim recommended by the manufacturer of the gypsum wallboard used and as required for a finished installation.

3.04 APPLICATION OF TEXTURE FINISH

- A. Finish: All wall surfaces shall receive a "Level 4" smooth finish minimum.
- B. Finish Application: Mix and apply finish to drywall and other surfaces indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform finish.
 - 1. Finish shall be smooth.
 - 2. Gypsum Board finish shall be inspected by Owner to approve after prime coat has been applied by the painter.
- D. Remove any droppings or overspray from door frames, windows and other adjoining work.

END OF SECTION

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SECTION 09 65 13

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
 - 2. Resilient molding accessories.

1.02 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating VOC content.
- C. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

PART 2 - PRODUCTS

2.01 THERMOSET-RUBBER BASE

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Johnsonite; a Tarkett company; Cove Rubber Base or a comparable product by one of the following:
 - 1. Burke Mercer Flooring Products; a division of Burke Industries Inc.
 - 2. Flexco; Roppe Holding Company.
 - 3. Roppe Corporation; Roppe Holding Company.
- B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
 - 1. Style and Location:
 - a. Style B, Cove: Provide in areas with carpet and resilient flooring.
- C. Thickness: 0.125 inch.
- D. Height: 4 inches and 6 inches as indicated on Drawings.
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Job formed or preformed.
- G. Inside Corners: Job formed or preformed.
- H. Colors: As selected by Owner from full range of industry colors.

2.02 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
 - 1. Verify adhesives have a VOC content of 50 g/L or less.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.02 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners:
 - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Miter or cope corners to minimize open joints.

3.03 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION

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SECTION 09 66 23
EPOXY-RESIN TERRAZZO FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes thin-set, epoxy-resin terrazzo flooring and base.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
1. Product Data: For adhesives, indicating VOC content.
 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 3. Laboratory Test Reports: For sealers, indicating compliance with requirements for low-emitting materials.
- C. Shop Drawings: Include terrazzo installation requirements. Include plans, elevations, sections, component details, and attachments to other work.
- D. Samples: For each exposed product and for each color and texture specified.
- E. Maintenance data.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an installer who is a contractor member of NTMA.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1.4 FIELD CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.
- B. Control and collect water and dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NTMA Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

- B. Flooring products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.2 EPOXY-RESIN TERRAZZO

- A. Epoxy-Resin Terrazzo: Comply with NTMA's "Terrazzo Specifications and Design Guide" and manufacturer's written instructions for matrix and aggregate proportions and mixing.
1. Basis-of-Design Manufacturer: Sherwin Williams Company, General Polymers, Fas Top Ceramic Carpet System. Subject to compliance with requirements, one of the following products may be acceptable:
 - a. Hi-Tek Polymers, Inc.
 - b. Key Resin Company.
 - c. Terrazzo & Marble Supply Companies.
 2. Thickness: 3/16" - 1/4 inch nominal.
 3. Mix Color and Pattern: As selected by Owner from full range of industry colors.
- B. Materials:
1. Flexible Reinforcing Membrane: Manufacturer's resinous membrane for substrate-crack preparation and reflective-crack reduction.
 2. Primer: Manufacturer's product recommended for substrate and use indicated.
 3. Epoxy-Resin Matrix: Manufacturer's standard recommended for use indicated and in color required for mix indicated.
 - a. Physical Properties without Aggregates:
 - 1) Hardness: 60 to 85 per ASTM D 2240, Shore D.
 - 2) Minimum Tensile Strength: 550-600psi per ASTM C 307.
 - 3) Minimum Compressive Strength: 5,000 psi per ASTM C 579.
 - 4) Chemical Resistance: No deleterious effects by contaminants listed below after seven-day immersion at room temperature per ASTM D 1308.
 - a) Distilled water.
 - b) Mineral water.
 - c) Isopropanol.
 - d) Ethanol.
 - e) 0.025 percent detergent solution.
 - f) 1.0 percent soap solution.
 - g) 10 percent sodium hydroxide.
 - h) 10 percent hydrochloric acid.
 - i) 30 percent sulfuric acid.
 - j) 5 percent acetic acid.
 - b. Physical Properties with Aggregates: For resin blended with Georgia white marble, ground, grouted, and cured per requirements in NTMA's "Terrazzo Specifications and Design Guide"; comply with the following:
 - 1) Flammability: Self-extinguishing, maximum extent of burning 1/4 inch per ASTM D 635.
 - 2) Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per deg F for temperature range of minus 12 to plus 140 deg F per ASTM D 696.
 4. Aggregates: Comply with NTMA gradation standards for mix indicated and contain no deleterious or foreign matter.
 - a. Abrasion and Impact Resistance: Less than 40 percent loss per ASTM C 131.
 - b. 24-Hour Absorption Rate: Less than 0.75 percent.
 - c. Dust Content: Less than 1.0 percent by weight.
 5. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than (maximum available) percent.
 6. Finishing Grout: Resin based.

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2.3 STRIP MATERIALS

- A. Thin-Set Divider Strips: L-type angle, 1/4 inch deep.
 - 1. Material: White-zinc alloy or plastic, in color selected from full range of industry colors.
 - 2. Top Width: 1/8 inch or 1/4 inch.
- B. Heavy-Top Divider Strips: L-type angle in depth required for topping thickness indicated.
 - 1. Bottom-Section Material: Matching top-section material.
 - 2. Top-Section Material: White-zinc alloy Aluminum or plastic, in color selected from full range of industry colors.
 - 3. Top-Section Width: 1/8 inch or 1/4 inch.
- C. Control-Joint Strips: Separate, double L-type angles, positioned back to back, that match material and color of divider strips and in depth required for topping thickness indicated.
- D. Accessory Strips: Match divider-strip width, material, and color unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:
 - 1. Base-bead strips for exposed top edge of terrazzo base.
 - 2. Edge-bead strips for exposed edges of terrazzo.
 - 3. Nosings for terrazzo stair treads and landings.
 - 4. .

2.4 MISCELLANEOUS ACCESSORIES

- A. Strip Adhesive: Epoxy-resin adhesive recommended by adhesive manufacturer for this use.
 - 1. Adhesives shall have a VOC content of 70 g/L or less.
 - 2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Strip Anchoring Devices: Provide mechanical anchoring devices or adhesives for strip materials as recommended by manufacturer and required for secure attachment to substrate.
- C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- E. Resinous Matrix Terrazzo Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.
- F. Sealer: Slip- and stain-resistant, penetrating-type sealer that is chemically neutral; does not affect terrazzo color or physical properties; is recommended by sealer manufacturer; and complies with NTMA's "Terrazzo Specifications and Design Guide" for terrazzo type indicated.
 - 1. Surface Friction: Not less than 0.6 according to ASTM D 2047.
 - 2. Acid-Base Properties: With pH factor between 7 and 10.
 - 3. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.
- B. Concrete Slabs:
 - 1. Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written recommendations.
 - c. Use patching and fill material to fill holes and depressions in substrates according to terrazzo manufacturer's written instructions.
- C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
 - 1. Moisture Testing: Test for moisture content by method recommended in writing by terrazzo manufacturer. Proceed with installation only after substrates pass testing.

3.2 EPOXY-RESIN TERRAZZO INSTALLATION

- A. Comply with NTMA's written recommendations for terrazzo and accessory installation.
- B. Place according to manufacturer's written instructions and NTMA's "Terrazzo Specifications and Design Guide."
- C. Installation Tolerance: Limit variation in terrazzo surface from level to 1/4 inch in 10 feet; noncumulative.
- D. Primer: Apply to terrazzo substrates according to manufacturer's written instructions.
- E. Strip Materials:
 - 1. Divider and Control-Joint Strips:
 - a. Locate divider strips in locations indicated.
 - b. Install control-joint strips back to back directly above concrete-slab control joints in locations indicated.
 - c. Install control-joint strips with 1/4-inch gap between strips, and install sealant in gap.
 - d. Install strips in adhesive setting bed without voids below strips, or mechanically anchor strips as required to attach strips to substrate, as recommended by strip manufacturer.
- F. Repair: Cut out and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Owner.

3.3 CLEANING AND PROTECTION

- A. Cleaning:

1. Remove grinding dust from installation and adjacent areas.
 2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow them to dry thoroughly.
- B. Sealing:
1. Seal surfaces according to NTMA's written recommendations.
 2. Apply sealer according to sealer manufacturer's written instructions.
- C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION

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SECTION 09 91 13
EXTERIOR PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes surface preparation and the application of paint systems on exterior substrates.
 - 1. Concrete.
 - 2. Concrete Masonry Units.
 - 3. Fiber-Cement Panels & Siding.
 - 4. Steel and iron.
 - 5. Galvanized metal.
 - 6. Wood.

1.02 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.03 SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
- B. Sustainable Design Submittals:
 - 1. Product Data: For paints and coatings, indicating VOC content.
- C. Samples: For each type of paint system and each color and gloss of topcoat.

1.04 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Owner will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..

- b. Other Items: Owner will designate items or areas required.
- 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Owner at no added cost to Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); systems as listed or comparable products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. Dunn-Edwards Corporation (a Nippon Paint Holdings Co. Ltd. company).
 - 3. Pratt & Lambert.
- B. Products: Subject to compliance with requirements, provide one of the products listed in the Exterior Painting Schedule for the paint category indicated.

2.02 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: For field applications, verify paints and coatings comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 50 / 100 g/L.
 - 3. Dry-Fog Coatings: 150 g/L.
 - 4. Primers, Sealers, and Undercoaters: 100 g/L.
 - 5. Rust-Preventive Coatings: 100 / 250 g/L.
 - 6. Zinc-Rich Industrial Maintenance Primers: 100 / 340 g/L.
 - 7. Pretreatment Wash Primers: 420 g/L.
 - 8. Shellacs, Clear: 730 g/L.
 - 9. Shellacs, Pigmented: 550 g/L.
- D. Colors: As selected by Owner..

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (CMUs): 12 percent.

- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

3.03 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.04 CLEANING AND PROTECTION

- A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Owner, and leave in an undamaged condition.
- B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.05 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
 - 1. Latex System MPI EXT 3.1A or MPI EXT 3.1K:
 - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
- B. Concrete Masonry Unit Substrates:
 - 1. Latex over Alkali-Resistant Primer System MPI EXT 4.2L:
 - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, flat (MPI Gloss Level 1), MPI #10.
 - d. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
 - e. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.
- C. Steel and Iron Substrates:
 - 1. Water-Based Light Industrial Coating System MPI EXT 5.1C or MPI EXT 5.1M:
 - a. Prime Coat: Primer, rust inhibitive, water based MPI #107.

- b. Prime Coat: Shop primer specified in Section where substrate is specified.
 - c. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - d. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
- D. Galvanized-Metal Substrates:
 - 1. Water-Based Light Industrial Coating System MPI EXT 5.3J:
 - a. Prime Coat: Primer, galvanized, water based, MPI #134.
 - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.
- E. Wood Substrates: Wood trim.
 - 1. Latex over Latex Primer System MPI EXT 6.3L:
 - a. Prime Coat: Primer, latex for exterior wood, MPI #6.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
 - 2. Latex System MPI EXT 6.3A:
 - a. Prime Coat: Primer, alkyd for exterior wood, MPI #5.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
- F. Wood Substrates: Wood-based panel products.
 - 1. Latex over Latex Primer System MPI EXT 6.4K:
 - a. Prime Coat: Primer, latex for exterior wood, MPI #6.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.
 - 2. Latex over Alkyd Primer System MPI EXT 6.4G:
 - a. Prime Coat: Primer, alkyd for exterior wood, MPI #5.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low sheen (MPI Gloss Level 3-4), MPI #15.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes surface preparation and the application of paint systems on interior substrates.
 - 1. Concrete.
 - 2. Concrete Masonry Units.
 - 3. Steel and iron.
 - 4. Wood.
 - 5. Gypsum board.

1.02 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.03 SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
- B. Sustainable Design Submittals:
 - 1. Product Data: For paints and coatings, indicating VOC content.
- C. Samples: For each type of paint system and in each color and gloss of topcoat.

1.04 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Owner will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Owner will designate items or areas required.
2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Owner at no added cost to Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The); paint systems as noted or a comparable product by one of the following:
 1. Benjamin Moore & Co.
 2. Dunn-Edwards Corporation (a Nippon Paint Holdings Co. Ltd. company).
 3. Pratt & Lambert.
- B. Products: Subject to compliance with requirements, provide one of the products listed in the Interior Painting Schedule for the paint category indicated.

2.02 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: For field applications that are inside the weatherproofing system, verify paints and coatings comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:
 1. Flat Paints and Coatings: 50 g/L.
 2. Nonflat Paints and Coatings: 50 / 100 g/L.
 3. Dry-Fog Coatings: 150 g/L.
 4. Primers, Sealers, and Undercoaters: 100 g/L.
 5. Rust-Preventive Coatings: 100 / 250 g/L.
 6. Zinc-Rich Industrial Maintenance Primers: 100 / 340 g/L.
 7. Pretreatment Wash Primers: 420 g/L.
 8. Shellacs, Clear: 730 g/L.
 9. Shellacs, Pigmented: 550 g/L.
- D. Low-Emitting Materials: For field applications that are inside the weatherproofing system, verify 90 percent of paints and coatings comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- E. Colors: As selected by Owner..

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Wood: 15 percent.
 - 3. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.03 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.04 INTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
 - 1. High-Performance Architectural Latex System MPI INT 3.1C:
 - a. Prime Coat: Primer, alkali resistant, water based, MPI #3.
 - b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
 - c. Topcoat: Latex, interior, high performance architectural (MPI Gloss Level 3), MPI #139.
 - d. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.

- B. CMU Substrates:
 - 1. Institutional Low-Odor/VOC Latex System MPI INT 4.2E:
 - a. Block Filler: Block filler, latex, interior/exterior, MPI #4.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 3), MPI #145.
- C. Steel Substrates:
 - 1. Water-Based Light Industrial Coating System MPI INT 5.1B:
 - a. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, interior, water based, semi-gloss (MPI Gloss Level 5).
- D. Wood Substrates: Wood trim and wood board paneling.
 - 1. High-Performance Architectural Latex System MPI INT 6.3A:
 - a. Prime Coat: Primer, latex, for interior wood, MPI #39.
 - b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
 - c. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.
- E. Gypsum Board Substrates:
 - 1. High-Performance Architectural Latex System MPI INT 9.2B:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
 - b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
 - c. Topcoat: Latex, interior, high performance architectural (MPI Gloss Level 3), MPI #139.
 - d. Topcoat: Latex, interior, high performance architectural, semi-gloss (MPI Gloss Level 5), MPI #141.

END OF SECTION

SECTION 101400

SIGNAGE

PART 1 – GENERAL

1.01 SUBMITTALS

- A. Submit fully detailed shop drawings giving sizes, methods of attachment, and all required accessories.
- B. Submit product data for all products specified.

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers: Subject to compliance with requirements, provide custom fabricated identifying signage as manufactured by ASI Sign Systems, Bradford Signs, or equal.

2.02 IDENTIFYING DEVICES

- A. Toilet Room Accessibility Signs: Comply with Title 24, California Administrative Code and Americans with Disabilities Act (ADA) with raised and braille letters and as indicated. Provide room identification signage with tactile and braille, as well as door signage (12" equilateral Triangle for men, 12" diameter circle for women), 1/4" thick Plexiglas, adhesive applied. Symbols and lettering as indicated. Signage colors to be as indicated.
- B. Interior Room Identification Signs: Acrylic plastic signs with raised letters and braille, 1/2" radiused corners, ASI Sign Systems, or equal.
 - 1. As indicated, mounted with double faced tape or adhesive as recommended by manufacturer. Mount 60" above FFE on strike side of door, unless noted otherwise. Confirm location of all signs with Owner prior to installation.
 - 2. Colors shall be as selected by Owner.
 - 3. Style of Lettering: Helvetica Medium 1" high capitals, related lower case and numerals.
 - 4. Text of Signs: The text of signs shall be as confirmed with Owner
- C. Exterior Room Identification Signage: As specified for interior room identification signage. Mounting to be with screws through face of sign. Screws to be finished to match sign color.
- D. Exterior Building Signage:
 - 1. 1/4" aluminum plate cut out letters: Letters shall be sized as indicated. Letter style shall be as indicated. Color to be factory applied baked enamel finish, after fabrication, color shall be selected by Owner from manufacturer's standard colors.

Mounting shall be projected, with threaded studs set in adhesive, letters to project $\frac{1}{2}$ ".

PART 3 – EXECUTION

3.01 Identification Signage Installation

- A. Install toilet room accessibility signs on door as indicated.
- B. Install interior room identification signage on wall adjacent to doors, mounting heights shall be 60" above FFE, and as required by code.
- C. Install exterior building signage as indicated above and in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 10 21 13.19
PLASTIC TOILET, SHOWER & CHANGING COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes solid-plastic toilet compartments, shower compartments and changing compartments configured and urinal screens.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals: Recycled Content.
- C. Shop Drawings: For toilet compartments, shower compartments and changing compartments. Include plans, elevations, sections, details, and attachment details.
- D. Samples for each type of toilet / shower / changing compartment material indicated.
- E. Product certificates.
- F. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.
- B. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than (maximum available) percent.
- C. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and 2016 California Building Code for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS & CHANGING COMPARTMENTS

- A. Manufacturers: Basis of Design Subject to compliance with requirements, provide Bobrick, Sierra Series SRC or approved equal by one of the following:
 - 1. Scranton Products, Hiny Hiders.
 - 2. General Partitions Mfg. Corp.
 - 3. Global Partitions Corp., an ASI Group Company.
- B. Toilet-Enclosure Style: Overhead braced and floor anchored.

- C. Urinal-Screen Style: Wall hung.
- D. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
 - 2. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum or stainless-steel strip fastened to exposed bottom edges of solid-plastic components to hinder malicious combustion.
 - 3. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range.
- E. Pilaster Shoes and Sleeves (Caps): Manufacturer's standard design; stainless steel.
- F. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets, stainless steel.

2.3 SOLID-PLASTIC SHOWER COMPARTMENTS

- A. Manufacturers: Basis of Design Subject to compliance with requirements, provide Bobrick, Sierra Series SRC or approved equal by one of the following:
 - 1. Scranton Products, Hiny Hiders.
 - 2. General Partitions Mfg. Corp.
 - 3. Global Partitions Corp., an ASI Group Company.
- B. Shower-Enclosure Style: Overhead braced and floor anchored.
- C. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper
- D. Shower Curtains: Vinyl, 72 inches high x width per plan, hung with aluminum curtain hooks with self-lubricating Delrin slides.
- E. Panels: 76 inches high, mounted to pilasters with continuous brackets and to panels with continuous extruded aluminum brackets or continuous extruded aluminum shower corner brackets.
- F. Headrail: Heavy-duty extruded aluminum, anti-grip design, clear anodized finish, fastened to headrail brackets and top of pilaster using stainless steel tamper-resistant Torx head screws.
- G. Brackets: 76 inches long, extruded aluminum, clear anodized finish, attached using stainless steel tamper-resistant Torx head screws

2.4 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.5 SOLID PLASTIC BENCHES

- A. Basis of Design: Provide Scranton Products TuffTec solid plastic benches or equivalent.
- B. Bench Tops: Manufacturer's standard one-piece units, minimum width is 9-1/2-inch or 20"-24" at ADA accessible benches. Thickness to be 1-1/2 inches thick, with rounded corners and edges.
 - 1. Material: High density polyethylene (HDPE)
- C. Pedestals: Aluminum pedestals shall be 2-3/8-inch diameter x 16-inches high.
- D. Color as selected by Owner

2.6 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- C. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- D. Door Size and Swings: Unless otherwise indicated, provide 24-inch wide, in-swinging doors for standard toilet compartments and 36-inch wide, out-swinging doors with a minimum 32-inch wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch.
 - b. Panels and Walls: 1 inch.
 - 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
 - a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

SECTION 10 28 00
TOILET and BATH ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2. Public-use shower room accessories.
 - 3. Childcare accessories.
 - 4. Underlavatory guards.
 - 5. Custodial accessories.

1.2 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: Full size, for each exposed product and for each finish specified.
- C. Sample warranty.
- D. Maintenance data.

1.3 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Manufacturers: Basis-of-Design product is listed in each category below. Subject to compliance with requirements, provide products by one of the following:
 - a. [American Specialties, Inc.](#)
 - b. [Bobrick Washroom Equipment, Inc.](#)
 - c. [Bradley Corporation.](#)
 - d. [Tubular Specialties Manufacturing, Inc.](#)
- B. Grab Bars TBA-1 and TBA-2:
 - 1. Basis-of-Design is Bobrick B-6806x36 and B-6806x48.
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 18 gauge thick.
 - a. Finish: Smooth, No. 4 finish (satin).
 - 4. Outside Diameter: 1-1/2 inches.

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5. Configuration and Length: Straight, 36 inches long at rear and 48 inches long at side of water closet.
- C. Toilet Tissue (Roll) Dispenser TBA-3:
1. Basis-of-Design is Bobrick B-6977.
 2. Description: Double-roll dispenser.
 3. Mounting: Recessed. Provide recess at CMU wall construction to receive unit where applicable.
 4. Operation: Noncontrol delivery with theft-resistant spindle.
 5. Capacity: Designed for 5-inch diameter tissue rolls.
 6. Material and Finish: Stainless steel, No. 4 finish (satin).
- D. Seat-Cover Dispenser TBA-4:
1. Basis-of-Design is Bobrick B-221 Classic Series.
 2. Mounting: Surface mounted.
 3. Minimum Capacity: 250 seat covers.
 4. Exposed Material and Finish: Stainless steel, No. 4 finish (satin).
 5. Lockset: Tumbler type.
- E. Seat Cover and Toilet Tissue Dispensers TBA-5:
1. Basis-of-Design is Bobrick B-347 Classic Series for various applications.
 2. Description: Double-roll toilet tissue dispenser and seat-cover dispenser.
 3. Mounting: Recessed in frame wall (B34745) and surface-mounted on toilet partition serving one compartment (B-3479).
 4. Operation: Noncontrol delivery with theft-resistant spindle.
 5. Capacity: Designed for 5-inch diameter tissue rolls and 250 seat covers.
 6. Material and Finish: Stainless steel, No. 4 finish (satin).
- F. Seat Cover Dispenser, Sanitary Napkin Disposal and Toilet Tissue Dispensers TBA-6:
1. Basis-of-Design is Bobrick B-3574 Classic Series for various applications.
 2. Description: Double-roll toilet tissue dispenser, sanitary napkin disposal and seat-cover dispenser.
 3. Mounting: Surface-mounted on toilet partition serving one compartment (B-3579) and centered through partition used from both sides (B-357).
 4. Operation: Noncontrol delivery with theft-resistant spindle.
 5. Capacity: Designed for 5-inch diameter tissue rolls and 250 seat covers.
 6. Material and Finish: Stainless steel, No. 4 finish (satin).
- G. Combination Towel (Folded) Dispenser/Waste Receptacle TBA-7:
1. Basis-of-Design is Bobrick B-3944 (recessed) and B-3949 (surface-mounted).
 2. Description: Combination unit for dispensing C-fold or multifold towels, with removable waste receptacle.
 3. Mounting: Surface mounted (B-3949) and Recessed with projecting receptacle (B-3944).
 - a. Designed for nominal 4-inch wall depth.
 - b. Provide recess at CMU wall construction to receive unit where applicable.
 4. Minimum Towel-Dispenser Capacity: 600 C-fold or 800 multifold paper towels.
 5. Minimum Waste-Receptacle Capacity: 12 gal.
 6. Material and Finish: Stainless steel, No. 4 finish (satin).
 7. Liner: Reusable, vinyl waste-receptacle liner.
 8. Lockset: Tumbler type for towel-dispenser compartment and waste receptacle
- H. Paper Towel (Folded) Dispenser TBA-8:
1. Basis-of-Design is Bobrick B-2621 (7 1/8" high) and B-262 (14" high).
 2. Mounting: Surface mounted.

3. Minimum Capacity: 200 C-fold or 525 multifold towels and 400 C-fold or 800 multifold towels.
4. Material and Finish: Stainless steel, No. 4 finish (satin).
5. Lockset: Tumbler type.
6. Refill Indicator: Pierced slots at sides or front.

I. Mirror Unit TBA-9:

1. Basis-of-Design is Bobrick B-165 2448.
2. Frame: Stainless-steel channel.
 - a. Corners: Mitered and mechanically interlocked.
3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
4. Size: 24" wide x 48" high.

J. Liquid-Soap Dispenser TBA-10:

1. Basis-of-Design is Bobrick B-2111.
2. Description: Designed for dispensing soap in liquid or lotion form.
3. Mounting: Vertically oriented, surface mounted.
4. Capacity: 40 fluid oz.
5. Materials: Satin finish stainless steel.
6. Lockset: Tumbler type.
7. Refill Indicator: Window type.

K. Coat Hook TBA-12:

1. Basis-of-Design is Bobrick B-6717.
2. Description: Single-prong unit.
3. Material and Finish: Stainless steel, No. 4 finish (satin).
4. Mounting: Mount on inside face of all toilet and changing cubicles.

2.3 PUBLIC-USE SHOWER ROOM ACCESSORIES

A. Grab Bars TBA-13:

1. Basis-of-Design is Bobrick B-6806x18 and B-6806x48.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 18 gauge thick.
 - a. Finish: Smooth, No. 4 finish (satin).
4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length: Straight, 18 inches at side wall and 48 inches long at rear wall of accessible shower.

B. Folding Shower Seat TBA-14:

1. Basis-of-Design is Bobrick B-5192.
2. Configuration: Rectangular seat.
3. Seat: Phenolic or polymeric composite of slat-type or one-piece construction in color as selected by Architect.
4. Mounting Mechanism: Stainless steel, No. 4 finish (satin).
5. Dimensions: 22.5" wide, projects 15 13/16" from wall.

C. Shower Curtain TBA-15:

1. Basis-of-Design is Bobrick B-204-2 Curtain and 204-1 Curtain Hooks.
2. Size: Minimum 6 inches -12 inches wider than opening by 72 inches (1828 mm) high.
3. Material: Vinyl, minimum 0.006 inch thick, opaque, matte.
4. Color: As selected from manufacturer's full range.

5. Grommets: Corrosion resistant at minimum 6 inches o.c. through top hem.
6. Shower Curtain Hooks: Chrome-plated or stainless-steel, spring wire curtain hooks with snap fasteners, sized to accommodate specified curtain rod. Provide one hook per curtain grommet.

- D. Soap Dish at Frame Walls and CMU Walls TBA-16:
1. Basis-of-Design is Bobrick B-4390.
 2. Mounting: Recessed. Provide recess at CMU wall construction to receive unit where applicable.
 - 3.
 4. Material and Finish: Stainless steel, No. 4 finish (satin).

2.4 CHILDCARE ACCESSORIES

- A. Diaper-Changing Station TBA-19:
1. Basis-of-Design is Bobrick KB200-05.
 2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap. Provide required signage.
 3. Mounting: Surface mounted, with unit projecting not more than 4 inches from wall when closed.
 4. Operation: By pneumatic shock-absorbing mechanism.
 5. Material and Finish: HDPE in manufacturer's standard color.
 6. Liner Dispenser: Built in.

2.5 UNDERLAVATORY GUARDS

- A. Underlavatory Guard TBA-20:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Buckaroos, Inc.
 - b. Plumberex Specialty Products, Inc.
 - c. Truebro by IPS Corporation.
 2. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
 3. Material and Finish: Antimicrobial, molded plastic, white.

2.6 CUSTODIAL ACCESSORIES

- A. Mop and Broom Holder TBA-21:
1. Basis-of-Design is Bobrick B-223.
 2. Description: Unit with mop and broom holders.
 3. Length: 24inches.
 4. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
 5. Material and Finish: Stainless steel, No. 4 finish (satin).

2.7 FABRICATION

- A. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

END OF SECTION

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SECTION 10 44 13

FIRE EXTINGUISHER CABINETS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes fire-protection cabinets for portable fire extinguishers.

1.02 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For fire-protection cabinets.
- C. Maintenance data.

1.03 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.02 FIRE-PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Larsen's Manufacturing Co. "Architectural Series" or comparable product by one of the following:
 - a. JL Industries, Inc.; a division of the Activar Construction Products Group.
 - b. Modern Metal Products, Division of Technico Inc.
 - c. Nystrom, Inc.
 - d. Potter Roemer LLC.
- B. Cabinet Construction: Nonrated and 1-hour fire rated.
 - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch-thick cold-rolled steel sheet lined with minimum 5/8-inch-thick fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Cold-rolled steel sheet.
- D. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - 1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
 - 2. Rolled-Edge Trim: 2-1/2-inch backbend depth.

- E. Cabinet Trim Material: Stainless-steel sheet.
- F. Door Material: Stainless-steel sheet.
- G. Door Style: Vertical duo panel with frame.
- H. Door Glazing: Clear float glass Break glass.
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
- J. Accessories:
 - 1. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
 - 2. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as directed by Architect.
 - a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Silk-screened.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.
- K. Materials:
 - 1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
 - a. Finish: Baked enamel or powder coat.
 - b. Color: As selected by Architect from full range of industry colors and color densities.
 - 2. Stainless Steel: ASTM A 666, Type 304.
 - a. Finish: No. 4 directional satin finish.
 - 3. Clear Float Glass: ASTM C 1036, Type I, Class 1, Quality q3, 3 mm thick.

2.03 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.
- B. Install fire-protection cabinets in locations and at mounting heights indicated
- C. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
- D. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

END OF SECTION

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SECTION 10 44 16
FIRE EXTINGUISHERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.02 SUBMITTALS

- A. Product Data: For each type of product.
- B. Warranty: Sample of special warranty.
- C. Operation and maintenance data.

1.03 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.04 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

2.02 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Amerex Corporation.
 - c. Larsens Manufacturing Company.
 - d. Nystrom.
 - e. Potter Roemer LLC; a Division of Morris Group International.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

- B. Multipurpose Dry-Chemical Type: UL-rated 4A-60BC nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.03 MOUNTING BRACKETS <Insert drawing designation>

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Amerex Corporation.
 - c. Guardian Fire Equipment, Inc.
 - d. Larsens Manufacturing Company.
 - e. Nystrom.
 - f. Potter Roemer LLC; a Division of Morris Group International.
- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Horizontal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging.
 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
 1. Mounting Brackets: 48inches above finished floor to the highest operable part of fire extinguisher.
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION

SECTION 11 31 00

RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Refrigeration appliances.

1.02 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.03 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
- C. Product certificates.
- D. Sample warranties.
- E. Operation and maintenance data.

1.04 WARRANTY

- A. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.02 REFRIGERATOR/FREEZERS

- A. Refrigerator/Freezer: Single door, refrigerator/freezer and complying with AHAM HRF-1.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Samsung RB34T630ESA/EF
 - 2. Type: Freestanding.
 - 3. General Features:
 - a. Dispenser in door for ice and cold water.
 - b. Interior light in refrigeration compartment.
 - c. Automatic defrost.

- d. Interior light in freezer compartment.
 - e. Automatic icemaker and storage bin.
 - 4. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
 - 5. Front Panel(s): Stainless steel
- B. Food Waste Disposal:
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Insinkerator SS-125

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.
- B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.

3.02 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
 - 2. Leak Test: After installation, test for leaks. Repair leaks and retest until no leaks exist.
 - 3. Operational Test: After installation, start units to confirm proper operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.
- B. An appliance will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION

SECTION 12 36 61.16
SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Solid surface material countertops.
 2. Solid surface material backsplashes.
 3. Solid surface material end splashes.

1.2 SUBMITTALS

- A. Product Data: For countertop materials.
- B. Sustainable Design Submittals:
1. Product Data: For adhesives, indicating VOC content.
 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 3. Laboratory Test Reports: For composite wood products, indicating compliance with requirements for low-emitting materials.
- C. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
- D. Samples: For each type of material exposed to view.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. E. I. du Pont de Nemours and Company.
 - b. Formica Corporation.
 - c. Wilsonart LLC.
 2. Type: Provide Standard type unless Special Purpose type is indicated.
 3. Colors and Patterns: As selected by Architect from manufacturer's full range.
- B. Composite Wood Products: Products shall be made using ultra-low-emitting formaldehyde resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.
- C. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
- D. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 COUNTERTOP FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Custom.
- B. Configuration:
 - 1. Front: 1-1/2-inch laminated bullnose.
 - 2. Backsplash: Radius edge with 3/8-inch radius.
 - 3. End Splash: Matching backsplash.
- C. Countertops: 1/2-inch-thick, solid surface material with front edge built up with same material.
- D. Backsplashes: 1/2-inch-thick, solid surface material.
- E. Joints: Fabricate countertops in sections for joining in field, with joints at locations indicated.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
 - 1. Adhesives shall have a VOC content of 70 g/L or less.
 - 2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Sealant for Countertops: Comply with applicable requirements in Section 07 92 00 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Predrill holes for screws as recommended by manufacturer.
- B. Fasten subtops to cabinets by screwing through subtops into cornerblocks of base cabinets. Shim as needed to align subtops in a level plane. Over plywood or particleboard, secure countertops to subtops with adhesive according to solid surface material manufacturer's written instructions.
- C. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
- D. Install backsplashes and end splashes by adhering to wall and countertops with adhesive.
- E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
- F. Apply sealant to gaps at walls; comply with Section 07 92 00 "Joint Sealants."

END OF SECTION

SECTION 22 00 50 - BASIC PLUMBING MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Access Doors.
 - 2. Insulation.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. This Section is a part of each Division 22 Section.

1.3 ADDITIONAL REQUIREMENTS

- A. Furnish and install any incidental work not shown or specified which is necessary to provide a complete and workable system.
- B. Make all temporary connections required to maintain services during the course of this Contract without additional cost to the Owner. Notify the Owner seven days in advance before disturbing any service.
- C. Plumbing work done under this contract shall not adversely affect the operation of the existing plumbing systems.

1.4 REFERENCES AND STANDARDS

- A. Where material or equipment is specified to conform to referenced standards, it shall be assumed that the most recent edition of the standard in effect at the time of bid shall be used.
 - 1. CSA – Canadian Standards Association International.
 - 2. ANSI - American National Standards Institute.
 - 3. ASTM - American Society for Testing and Materials.
 - 4. CCR - California Code of Regulations.
 - a. Title 8 - Division of Industrial Safety, Subchapter 7; General Industry Safety Orders, Articles 31 through 36.
 - 5. NCPWB - National Certified Pipe Welding Bureau.
 - 6. CEC - California Electrical Code.
 - 7. NEMA - National Electrical Manufacturers' Association.
 - 8. NFPA - National Fire Protection Association.
 - 9. OSHA - Occupational Safety and Health Act.
 - 10. UL - Underwriters' Laboratories, Inc.
- B. Requirements of Regulatory Agencies:

1. The publications listed below form part of this specification; comply with provisions of these publications except as otherwise shown or specified.
 - a. California Building Code, 2019.
 - b. California Electrical Code, 2019.
 - c. California Energy Code, 2019.
 - d. California Fire Code, 2019.
 - e. California Green Building Standards Code, 2019.
 - f. California Mechanical Code, 2019.
 - g. California Plumbing Code, 2019.
 - h. California Code of Regulations, Title 24.
 - i. California Health and Safety Code.
 - j. CAL-OSHA.
 - k. California State Fire Marshal, Title 19 CCR.
 - l. National Fire Protection Association.
 - m. Occupational Safety and Health Administration.
 - n. Other applicable state laws.
2. Nothing in Drawings or specifications shall be construed to permit work not conforming to these codes, or to requirements of authorities having jurisdiction. It is not the intent of Drawings or specifications to repeat requirements of codes except where necessary for clarity.

1.5 DRAWINGS

- A. Examine Contract Documents prior to bidding of work and report discrepancies in writing to Architect.
- B. Drawings showing location of equipment and materials are diagrammatic and job conditions will not always permit installation in location shown. The Plumbing Drawings show general arrangement of equipment and materials, etc., and shall be followed as closely as existing conditions, actual building construction, and work of other trades permit.
 1. Architectural and Structural Drawings shall be considered part of the Work. These Drawings furnish Contractor with information relating to design and construction of the Project. Architectural Drawings take precedence over Plumbing Drawings.
 2. Because of the small scale of Plumbing Drawings, not all offsets, fittings, and accessories required are shown. Investigate structural and finish conditions affecting the Work and arrange Work accordingly. Provide offsets, fittings, and accessories required to meet conditions. Inform Architect immediately when job conditions do not permit installation of equipment and materials in the locations shown. Obtain the Architects approval prior to relocation of equipment and materials.
 3. Relocate equipment and materials installed without prior approval of the Architect. Remove and relocate equipment and materials at Contractors' expense upon Architects' direction.
 4. Minor changes in locations of equipment, piping, etc., from locations shown shall be made when directed by the Architect at no additional cost to the Owner providing such change is ordered before such items of work, or work directly connected to same are installed and providing no additional material is required.

- C. Execute work mentioned in Specifications and not shown on Drawings, or vice versa, the same as if specifically mentioned or shown in both.

1.6 FEES AND PERMITS

- A. Obtain and pay for all permits and service required in installation of this work; arrange for required inspections and secure approvals from authorities having jurisdiction. Comply with requirements of Division 01.

- B. Arrange for utility connections and pay charges incurred, including excess service charges.

- 1. Bear the cost of construction related to utility services, from point of connection to utility services shown on Contract Documents. This includes piping, excavation, backfill, meters, boxes, check valves, backflow prevention devices, general service valves, concrete work, and the like, whether or not Work is performed by Contractor, local water/sanitation district, public utility, other governmental agencies or agencies' assigns.

- C. Coordination:

- 1. General:

- a. Coordinate plumbing Work with trades covered in other Specifications Sections to provide a complete, operable and sanitary installation of the highest quality workmanship.

- 2. Electrical Coordination:

- a. Refer to the Electrical Drawings and Specifications, Division 26, for service voltage and power feed wiring for equipment specified under this section. Contractor has full responsibility for the following items of work:

- 1) Review the Electrical Drawings and Division 26 Specifications to verify that electrical services provided are adequate and compatible with equipment requirements.
- 2) If additional electrical services are required above that indicated on Electrical Drawings and in Division 26, such as more control interlock conductors, larger feeder, or separate 120 volt control power source, include cost to furnish and install additional electrical services as part of the bid.
- 3) Prior to proceeding with installation of additional electrical work, submit detailed drawings indicating exact scope of additional electrical work.

- 3. Mechanical Coordination:

- a. Arrange for pipe spaces, chases, slots and openings in building structure during progress of construction, to accommodate mechanical system installation.
- b. Coordinate requirements for access panels and doors for mechanical items requiring access where concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section "Access Doors and Frames."
- c. Coordinate with other trades equipment locations, pipe, duct and conduit runs, electrical outlets and fixtures, air inlets and outlets, and structural and architectural

features. Provide information on location of piping and seismic bracing to other trades as required for a completely coordinated project.

1.7 SUBMITTALS - GENERAL

- A. Refer to Division 01 Submittals Section(s) for additional requirements.
- B. Submittal packages may be submitted via email as PDF electronic files, or as printed packages. PDFs shall be legible at actual size (100 percent). Provide seven copies of printed submittal packages.
- C. Provide submittal of materials proposed for use as part of this Project. Product names in Specifications and on Drawings are used as standards of quality. Furnish standard items on specified equipment at no extra cost to the Contract regardless of disposition of submittal data. Other materials or methods shall not be used unless approved in writing by Architect. Architect's review will be required even though "or equal" or synonymous terms are used.
 - 1. Partial or incomplete submittals will not be considered.
 - 2. Quantities are Contractor's responsibility and will not be reviewed.
 - 3. Provide materials of the same brand or manufacturer for each class of equipment or material.
 - 4. Identify each item by manufacturer, brand, trade name, number, size, rating, or other data necessary to properly identify and review materials and equipment. Words "as specified" are not sufficient identification.
 - 5. Identify each submittal item by reference to items' Specification Section number and paragraph, by Drawing and detail number, and by unit tag number.
 - 6. Organize submittals in same sequence as in Specification Sections.
 - 7. Show physical arrangement, construction details, finishes, materials used in fabrications, provisions for piping entrance, access requirements for installation and maintenance, physical size, mechanical characteristics, foundation and support details, and weight.
 - a. Submit Shop Drawings, performance curves, and other pertinent data, showing size and capacity of proposed materials.
 - b. Specifically indicate, by drawn detail or note, that equipment complies with each specifically stated requirement of Contract Documents.
 - c. Drawings shall be drawn to scale and dimensioned (except schematic diagrams). Drawings may be prepared by vendor but must be submitted as instruments of Contractor, thoroughly checked and signed by Contractor before submission to Architect for review.
 - d. Catalog cuts and published material may be included with supplemental scaled drawings.
- D. Review of submittals will be only for general conformance with design concept and general compliance with information given in Contract Documents. Review will not include quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with work of other trades, or construction safety precautions, which are sole responsibility of Contractor. Review of a component of an assembly does not indicate acceptance of an assembly. Deviations from Contract Documents not clearly identified by Contractor are Contractor's responsibility and will not be reviewed by Architect.

- E. Within reasonable time after award of contract and in ample time to avoid delay of construction, submit to Architect Shop Drawings or submittals on all items of equipment and materials provided. Provide submittal in at least seven copies and in complete package.
 - 1. Shop Drawings and submittals shall include Specification Section, Paragraph number, and Drawing unit symbol or detail number for reference. Organize submittals into booklets for each Specification section and submit in loose-leaf binders with index. Deviations from the Contract Documents shall be prominently displayed in the front of the submittal package and referenced to the applicable Contract requirement.
- F. Furnish to the Project Inspector complete installation instructions on material and equipment before starting installation.

1.8 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for plumbing systems materials and products.
- B. Shop Drawings.
- C. Pipe, pipe or plumbing fittings, fixtures, solder and flux installed in a system providing water for human consumption shall comply with lead free requirements of the California Health and Safety Code Section 116875. Provide submittal information for products third-party certified by an approved laboratory as complying with California Health and Safety Code Section 116875.
 - 1. Additional Requirements: In addition to the above, conform to all state and local requirements.

1.9 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data:
 - 1. Refer to Division 01 for complete instructions.
 - 2. Furnish three complete sets of Operation and Maintenance Manual bound in hardboard binder, and one compact disc containing complete Operation and Maintenance Manual in searchable PDF format. Provide Table of Contents. Provide index tabs for each piece of equipment in binder and disc. Begin compiling data upon approval of submittals.
 - a. Sets shall incorporate the following:
 - 1) Product Data.
 - 2) Shop Drawings.
 - 3) Record Drawings.
 - 4) Service telephone number, address and contact person for each category of equipment or system.
 - 5) Complete operating and maintenance instructions for each item of plumbing equipment and systems.
 - 6) Copies of guarantees/warranties for each item of equipment and systems.
 - 7) Test data and system balancing reports.

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- 8) Typewritten maintenance instructions for each item of equipment listing lubricants to be used, frequency of lubrication, inspections required, adjustment, etc.
- 9) Manufacturers' bulletins with parts numbers, instructions, etc., for each item of equipment.
- 10) Control diagrams and literature.
- 11) Check test and start reports for each piece of plumbing equipment provided as part of the Work.
- 12) Commissioning and Preliminary Operation Tests required as part of the Work.

- b. Post service telephone numbers and/or addresses in an appropriate place as designated by the Architect.

B. Record Drawings:

1. Refer to Division 01, Record Documents, for requirements governing Work specified herein.
2. Upon completion of the work, deliver to Architect the following:
 - a. Originals of drawings showing the Work exactly as installed.
 - b. One complete set of reproducible drawings showing the Work exactly as installed.
 - c. One compact disc with complete set of drawings in PDF format showing the Work exactly as installed.
 - d. Provide Contractor's signature, verifying accuracy of record drawings.
 - e. Obtain the signature of the Project Inspector for all record drawings.

1.10 SUBSTITUTIONS

- A. Refer to Division 01 for complete instructions. Requirements given below are in addition to or are intended to amplify Division 01 requirements. In the case of conflict between requirements given herein and those of Division 01, Division 01 requirements shall apply.
- B. It is the responsibility of Contractor to assume costs incurred because of additional work and or changes required to incorporate proposed substitute into the Project. Refer to Division 01 for complete instructions.
- C. Substitutions will be interpreted to be all manufacturers other than those specifically listed in the Contract Documents by brand name, model or catalog number.
- D. Only one request for substitution will be considered for each item of equipment or material.
- E. Substitution requests shall include the following:
 1. Reason for substitution request.
 2. Complete submittal information as described herein; see "Submittals."
 3. Coordinated scale layout drawings depicting position of substituted equipment in relation to other work, with required clearances for operation, maintenance and replacement.
 4. List optional features required for substituted equipment to meet functional requirements of the system as indicated in Contract Documents.
 5. Explanation of impact on connected utilities.

6. Explanation of impact on structural supports.

- F. Installation of reviewed substitution is the Contractors' responsibility. Any mechanical, electrical, structural, or other changes required for installation of reviewed substituted equipment or material must be made by the Contractor without additional cost to the Owner. Review by the Architect of the substituted equipment or material, including dimensioned Drawings will not waive these requirements.
- G. Contractor may be required to compensate the Architect for costs related to substituted equipment or material.

1.11 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of plumbing systems products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Contractor's Qualifications: Firm with at least 5 years of successful installation experience on projects with plumbing systems work similar to that required for this Project.
- C. California Health and Safety Code Compliance: For products covered under the scope of HSC 116875 for potable water service. Products for potable water service shall be third-party certified by an approved laboratory as complying with California Health and Safety Code Section 116875.
- D. Comply with applicable portions of California Plumbing Code pertaining to selection and installation of plumbing materials and products.
- E. All materials and products shall be new and shall match existing.

1.12 DELIVERY, STORAGE, AND HANDLING

- A. Protect equipment and piping delivered to Project site from weather, humidity and temperature variations, dirt, dust and other contaminants.

1.13 FIELD CONDITIONS

- A. Contractor shall visit Project site and examine existing conditions in order to become familiar with Project scope. Verify dimensions shown on Drawings at Project site. Bring discrepancies to the attention of Architect. Failure to examine Project site shall not constitute basis for claims for additional work because of lack of knowledge or location of hidden conditions that affect Project scope.
- B. Information on Drawings relative to existing conditions is approximate. Deviations from Drawings necessary during progress of construction to conform to actual conditions shall be approved by the Architect and shall be made without additional cost to the Owner. The Contractor shall be held responsible for damage caused to existing services. Promptly notify the Architect if services are found which are not shown on Drawings.

1.14 WARRANTY

- A. Refer to Division 01 for warranty requirements, and duration and effective date of Contractor's Standard Guarantee.
- B. Repair or replace defective work, material, or part that appears within the warranty period, including damage caused by leaks.
- C. On failure to comply with the warranty requirements within a reasonable length of time after notification is given, the Architect/Owner shall have the repairs made at the Contractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials or equipment of the same type shall be of the same brand wherever possible. All materials shall be new and in first class condition.
- B. All sizes, capacities, and efficiency ratings shown are minimum, except that gas capacity is maximum available.
- C. Refer to Sections 22 10 00 for specific system piping materials.

2.2 MATERIALS AND PRODUCTS

- A. No material installed as part of this Work shall contain asbestos.
- B. Insulation products, including insulation, insulation facings, jackets, adhesives, sealants and coatings shall not contain polybrominated diphenyl ethers (PBDEs) in penta, octa, or deca formulations in amounts greater than 0.1 percent (by mass).

2.3 ACCESS DOORS

- A. Where floors, walls, or ceilings must be penetrated for access to mechanical equipment, provide access doors, 14 inch by 14 inch minimum size in usable opening. Where entrance of a serviceman may be required, provide 20 inch by 30 inch minimum usable opening. Locate access doors/panels for non-obstructed and easy reach.
 - 1. All access doors less than 7'-0" above floors and exposed to public access shall have keyed locks.
- B. Access doors shall match those supplied in Division 08 in all respects, except as noted herein.
- C. Provide stainless steel access doors for use in toilet rooms, shower rooms, kitchens and other damp areas. Provide steel access doors with prime coat of baked-on paint for all other areas.
- D. Do not locate access doors in highly visible public areas such as lobbies, waiting areas, and primary entrance areas. Coordinate with the Architect when access is required in these areas.

- E. Where specific information or details relating to access panels different from the above is shown or given on the Drawings or other Divisions of work, then that information shall supersede this specification.
- F. Manufacturers: Subject to compliance with requirements, available manufacturers offering products which may be incorporated into the Work include Milcor, Karp, Nystrom, or Cesco, equal to the following:
 - 1. Milcor
 - a. Style K (plaster).
 - b. Style DW (gypsum board).
 - c. Style M (Masonry).
 - d. Style "Fire Rated" where required.

2.4 INSULATION WORK

- A. General:
 - 1. Insulation products, including insulation, insulation facings, jackets, adhesives, sealants and coatings shall not contain polybrominated diphenyl ethers (PBDEs) in penta, octa, or deca formulations in amounts greater than 0.1 percent (by mass).
 - 2. Adhesives and sealants shall comply with testing and product requirements of South Coast Air Quality Management District, Rule 1168.
 - 3. The term "piping" used herein includes pipe, valves, strainers and fittings.
 - 4. Apply insulating cement to fittings, valves and strainers and trowel smooth to the thickness of adjacent covering. Cover with jacket to match piping. Extend covering on valves up to the bonnet. Leave strainer cleanout plugs accessible.
 - 5. Provide pre-formed PVC valve and fitting covers.
 - 6. Provide Calcium Silicate rigid insulation and sheet metal sleeve, 18 inch minimum length at each pipe hanger. Seal ends of insulation to make vapor tight with jacket.
 - 7. Test insulation, jackets and lap-seal adhesives as a composite product and confirm flame spread of not more than 25 and a smoke developed rating of not more than 50 when tested in accordance with UL723 or ASTM E84.
 - 8. Clean thoroughly, test and have approved, all piping and equipment before installing insulation and/or covering.
 - 9. Repair all damage to existing pipe and equipment insulation whether or not caused during the work of this contract, to match existing adjacent insulation for thickness and finish, but conforming to flame spread and smoke ratings specified above.

PART 3 - EXECUTION

3.1 EXISTING MATERIALS

- A. Remove existing equipment, piping, wiring, construction, etc., which interferes with Work of this Contract. Promptly return to service upon completion of work in the area. Replace items damaged by Contractor with new material to match existing.
- B. Removed materials which will not be re-installed and which are not claimed by Owner shall become property of Contractor and shall be removed from Project site. Consult Owner before

removing any material from Project site. Carefully remove materials claimed by Owner to prevent damage and deliver to Owner-designated storage location.

- C. Existing piping and wiring not reused and are concealed in building construction may be abandoned in place and all ends shall be capped or plugged. Remove unused piping and wiring exposed in Equipment Rooms or occupied spaces. Material shall be removed from Project premises. Disconnect power, water, gas, pump or any other active energy source from piping or electrical service prior to abandoning in place.
- D. Existing piping, ductwork, and equipment modified or altered as part of this Work shall comply with the most recent applicable code requirements.

3.2 FRAMING, CUTTING AND PATCHING

- A. Special framing, recesses, chases and backing for Work of this Section, unless otherwise specified, are covered under other Specification Sections.
- B. Contractor is responsible for placement of pipe sleeves, hangers, inserts, supports, and location of openings for the Work.
- C. Cutting, patching, and repairing of existing construction to permit installation of equipment, and materials is the responsibility of Contractor. Repair or replace damage to existing work with skilled mechanics for each trade.
- D. Cut existing concrete construction with a concrete saw. Do not utilize pneumatic devices.
- E. Core openings through existing construction for passage of new piping and conduits. Cut holes of minimum diameter to suit size of pipe and associated insulation installed. Coordinate with building structure, and obtain Structural Engineer's approval prior to coring through existing construction.

3.3 PLUMBING DEMOLITION

- A. Refer to Division 01 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.
- B. Disconnect, dismantle and remove mechanical systems, equipment, and components indicated to be removed. Coordinate with all other trades.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - 2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping to remain with same or compatible piping material. Refrigerant system must be evacuated per EPA requirements.
 - 3. Equipment to Be Removed: Drain down and cap remaining services and remove equipment.
 - 4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.

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5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.4 ELECTRICAL REQUIREMENTS

- A. Provide adequate working space around electrical equipment in compliance with the California Electrical Code. Coordinate the Mechanical Work with the Electrical Work to comply.
- B. Furnish necessary control diagrams and instructions for the controls. Before permitting operation of any equipment which is furnished, installed, or modified under this Section, review all associated electrical work, including overload protection devices, and assume complete responsibility for the correctness of the electrical connections and protective devices. Motors and control equipment shall conform to the Standards of the National Electrical Manufacturers' Association. All equipment and connections exposed to the weather shall be NEMA IIIR with factory-wired strip heaters in each starter enclosure and temperature control panel where required to inhibit condensation.
- C. All line voltage and low voltage wiring and conduit associated with the Temperature Control System are included in this Section. Wiring and conduit shall comply with Division 26.

3.5 PIPING SYSTEM REQUIREMENTS

- A. Drawing plans, schematic and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

3.6 EXCAVATING

- A. Perform all excavating required for work of this Section. Provide the services of a pipe/cable locating service prior to excavating activities to determine location of existing utilities.
- B. Unless shown otherwise, provide a minimum of 2'-6" cover above top of pipe to finished grade for all service piping, unless otherwise noted. Trim trench bottom by hand or provide a 4 inch deep minimum bed of sand to provide a uniform grade and firm support throughout entire length of pipe. For all PVC pipe and for PE gas pipe, bed the pipe in 4 inch sand bed. Pipe bedding materials should be clean crushed rock, gravel or sand of which 100 percent will pass a 1 inch sieve. For pipes that are larger than 10 inches in diameter, at least 95 percent should pass a 3/4 inch sieve, and for pipes 10 inches in diameter or smaller, 100 percent should pass a 1/2 inch sieve. All other materials should have a minimum sand equivalent of 50. Only a small proportion of the native soils will meet these requirements without extensive processing; therefore, importation of pipe bedding materials should be anticipated. Pipe bedding materials shall be compacted in lifts not exceeding 6 inches in compacted thickness. Each lift shall be compacted to not less than 90 percent relative compaction at or above the optimum moisture content, in accordance with ASTM Specification D2940, except that bedding materials graded such that 100 percent of the material will pass a No. 200 sieve shall be compacted in 6 inch lifts.

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using a single pass of a flat-plate, vibratory compactor or vibratory drum. Pipe bedding materials should extend at least to the spring line.

- C. Maintain all warning signs, barricades, flares, and red lanterns as required.
- D. For all trenches 5 feet or more in depth, submit copy of permit detailed drawings showing shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trenches. Obtain a permit from the Division of Industrial Safety prior to beginning excavations. A copy of the permit shall be available at the site at all times.

3.7 BACKFILLING

- A. Backfill shall comply with applicable provisions of Division 31 of these Specifications.
- B. Except under existing or proposed paved areas, walks, roads, or similar surfaces, backfill for other types of pipe shall be made using suitable excavated material or other approved material. Place backfill in 8 inch layers, measured before compaction, and compact with impact hammer to at least 90 percent relative compaction per ASTM D2940.
 - 1. Backfill plastic pipe and insulated pipe with sand for a minimum distance of 12 inches above the top of the pipe. Compact using mechanical tamping equipment.
- C. Entire backfill for excavations under existing or proposed pavements, walks, roads, or similar surfaces, under new slabs on grade, shall be made with clean sand compacted with mechanical tamping equipment vibrator to at least 90 percent relative compaction per ASTM D2940. Remove excess earth. Increase the minimum compaction within the uppermost two feet of backfill to 95 percent.
- D. Replace or repair to its original condition all sod, concrete, asphalt paving, or other materials disturbed by the trenching operation. Repair within the guarantee period as required.

3.8 PIPING SYSTEMS INSTALLATION

- A. At time of final connection, and prior to opening valve to allow pressurization of water and gas piping from existing systems, on site or off site, perform a pressure test to indicate static pressure of existing systems. If pressure on water piping is greater than 80 psi, or gas pressure is not as indicated on Contract Documents, inform Architect immediately. Do not allow piping systems to be pressurized without written consent of the Architect.
- B. General:
 - 1. All piping shall be concealed unless shown or otherwise directed. Allow sufficient space for ceiling panel removal.
 - 2. Installation of piping shall be made with appropriate fittings. Bending of piping will not be accepted.
 - 3. Install piping to permit application of insulation and to allow valve servicing.
 - 4. Where piping or conduit is left exposed within a room, the same shall be run true to plumb, horizontal, or intended planes. Where possible, uniform margins are to be maintained between parallel lines and/or adjacent wall, floor, or ceiling surfaces.

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5. Horizontal runs of pipes and/or electrical conduit suspended from ceilings shall provide for a maximum headroom clearance. The clearance shall not be less than 6'-6" without written approval from the Architect.
6. Close ends of pipe immediately after installation. Leave closure in place until removal is necessary for completion of installation.
7. Each piping system shall be thoroughly flushed and proved clean before connection to equipment.
8. Pipe the discharge of each relief valve, air vent, backflow preventer, and similar device to floor sink or drain.
9. Install exposed polished or enameled connections with special care showing no tool marks or threads at fittings.
10. Install horizontal valves with valve stem above horizontal.
11. Use reducing fittings; bushings shall not be allowed. Use eccentric reducing fittings wherever necessary to provide free drainage of lines and passage of air.
12. Verify final equipment locations for roughing-in.
13. Furnish and install anchors or thrust blocks on PVC water lines in the ground, at all changes in direction of piping, and at all connections or branches from mains 1-1/2 inch and larger. Form anchors or thrust blocks by pouring concrete between pipe and trench wall. Thrust blocks shall be of adequate size and so placed as to take thrusts created by maximum internal water pressure. Sizing and placement shall be per manufacturer's recommendations, CPC, and IAPMO installation standards. Anchor piping to building construction.
14. Sanitary Sewer and Storm Drain: Grade piping inside building uniformly 1/4 inch per foot if possible but not less than 1/8 inch per foot. Run piping as straight as possible. Make piping connections between building piping and outside service pipe with cast iron reducers or increasers. Slope sewers uniformly between given elevations where invert elevations are shown.
15. Where piping is installed in walls within one inch of the face of stud, provide a 16 gauge sheet metal shield plate on the face of the stud. The shield plate shall extend a minimum of 1-1/2 inches beyond the outside diameter of the pipe.

C. Floor, Wall, and Ceiling Plates:

1. Fit all pipes with or without insulation passing through walls, floors, or ceilings, and all hanger rods penetrating finished ceilings with chrome-plated or stainless escutcheon plates.

3.9 UNION AND FLANGE INSTALLATION

- A. Install Watts, Epco, Nibco, or equal, dielectric unions or flanges at points of connection between copper or brass piping or material and steel or cast iron pipe or material except in drain, waste, vent, or rainwater piping. Bushings or couplings shall not be used. Dielectric unions installed in potable water systems shall conform to the lead-free requirements of the California Health and Safety Code Section 116875.
- B. Install unions in piping NPS 2" and smaller, and flanges in piping NPS 2-1/2" and larger whether shown or not at each connection to all equipment and tanks, and at all connections to all automatic valves, such as temperature control valves. Unions installed in potable water systems shall conform to the lead-free requirements of the California Health and Safety Code Section 116875.

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- C. Locate the unions for easy removal of the equipment, tank, or valve.

3.10 ACCESS DOOR INSTALLATION

- A. Furnish and install access doors wherever required whether shown or not for easy maintenance of mechanical systems; for example, at concealed valves, strainers, traps, cleanouts, dampers, motors, controls, operating equipment, etc. Access doors shall provide for complete removal and replacement of equipment.

3.11 PIPE PROTECTION

- A. Wrap bare galvanized and black steel pipe buried in the ground and to 6" above grade, including piping in conduit, with one of the following, or equal:
 - 1. Polyethylene Coating: Pressure sensitive polyethylene coating, "X-Tru-Coat" as manufactured by Pipe Line Service Corporation or "Green Line" wrap as manufactured by Royston Products, or equal.
 - a. Field Joints and Fittings: Protecto Wrap #1170 tape as manufactured by Pipe Line Service Corporation, or Primer #200 tape by Royston Products, or equal. Installation shall be as per manufacturer's recommendation and instructions.
 - 2. Tape Wrap: Pressure-sensitive polyvinyl chloride tape, "Transtex #V-10 or V-20", "Scotchwrap 50", Slipknot 100, PASCO Specialty & Mfg., Inc., or equal, with continuous identification. Tape shall be a minimum of 20 mils thick for fittings and irregular surfaces, two wraps, 50 percent overlap, 40 mils total thickness. Tape shall be laminated with a suitable adhesive; widths as recommended by the manufacturer for the pipe size. Wrap straight lengths of piping with an approved wrapping machine.
- B. Field Joints: Valves and Fittings: double wrap polyvinyl chloride tape as above. Provide at least two thicknesses of tape over the joint and extend a minimum of 4 inches over adjacent pipe covering. Build up with primer to match adjacent covering thickness. Width of tape of fittings shall not exceed 3 inches. Tape shall adhere tightly to all surfaces of the fittings without air pockets.
- C. Testing: Test completed wrap of piping, including all epoxy painted piping with Tinker and Rasor Co. test machine (San Gabriel, CA - 818-287-5259), Pipeline Inspection Company (Houston, TX - 713-681-5837), or equal.
- D. Cleaning: Clean all piping thoroughly before wrapping.
 - 1. Inspection: Damaged or defective wraps shall be repaired as directed. No wrapped pipe shall be covered until approved by Architect.
- E. Sleeve copper piping/tubing installed below slab with "Polywrap-C" polyethylene sleeve, as manufactured by Northtown Pipe Protection Products, or equal. Sleeve shall be a minimum of 6 mils thick, colored blue for domestic water piping and orange for other piping. Install sleeve per manufacturer's recommendations and instructions.
- F. Sleeve copper piping/tubing installed outside building below grade with "Polywrap-C" polyethylene sleeve, as manufactured by Northtown Pipe Protection Products, or equal. Sleeve

shall be a minimum of 6 mils thick, colored blue for domestic water piping. Install sleeve per manufacturer's recommendations and instructions.

- G. Sleeve cast iron and ductile iron pipe below grade and below slab with "Polywrap" polyethylene sleeve, as manufactured by Northtown Pipe Protection Products, or equal. Sleeve shall be a minimum of 8 mils thick, colored natural. Install sleeve per manufacturer's recommendations and instructions.
- H. Covering: No rocks or sharp edges shall be backfilled against the wrap or sleeve. When backfilling with other than sand, protect wrap with an outer wrapping of Kraft paper; leave in place during backfill.

3.12 PIPING SYSTEM PRESSURE TESTING

- A. General:
 - 1. Perform operational tests under simulated or actual service conditions, including one test of complete plumbing installation with fixtures and other appliances connected.
 - 2. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
- B. Piping Systems: Test piping systems in accordance with the following requirements and applicable codes:
 - 1. Authority having jurisdiction shall witness tests of piping systems.
 - 2. Notify Architect at least seven days in advance of testing.
 - 3. All piping shall be tested at completion of roughing-in, or at other times as directed by Architect.
 - 4. Furnish necessary materials, test pumps, gases, instruments and labor required for testing.
 - 5. Isolate from system equipment that may be damaged by test pressure.
- C. Test Schedule: No loss in pressure or visible leaks shall show after four hours at the pressures indicated.
- D. Testing of Sanitary Sewer, Drain, Vent, and Storm Drain may be done in segments in order to limit pressure to within manufacturer's recommendations. Test to 10 feet above highest point in the system.

<u>System Tested</u>	<u>Test Pressure PSI</u>	<u>Test With</u>
Sanitary Sewer, Drain, Vent	10 Ft. Hd.	Water
Storm Drain, Condensate Drains	10 Ft. Hd.	Water
Domestic Water	125	Water

- 1. Non-corrosive leak test fluid shall be suitable for use with piping material specified, and with the type of gas conveyed by the piping system.

3.13 CERTIFICATES OF INSTALLATION

- A. Contractor shall complete applicable "Certificates of Installation" forms contained in the California Building Energy Efficiency Standards and submit to the authorities having jurisdiction for approval and issuance of final occupancy permit, as described in the California Energy Code.

END OF SECTION 22 00 50

SECTION 22 10 00 - PLUMBING PIPING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Valves.
3. Domestic water piping specialties.
4. Drain and waste piping specialties.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 22 00 50 Basic Plumbing Materials and Methods.

1.3 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Product Data: Submit manufacturer's technical product data and installation instructions for plumbing piping systems materials and products.

1.4 INFORMATIONAL SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Gas Pipe Installer Qualifications: Provide evidence of current qualifications for individuals performing work requiring qualifications.

1.5 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Maintenance Data: Submit maintenance data and parts lists for plumbing piping systems materials and products. Include this data in Operation and Maintenance Manual.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish to Owner, with receipt, one valve key for each key operated hydrant, bibb, or faucet installed.

1.7 QUALITY ASSURANCE

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.

PART 2 - PRODUCTS

2.1 MATERIALS AND PRODUCTS

- A. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Provide materials and products complying with California Plumbing Code. Where more than one type of material or product is indicated, selection from materials or products specified is Contractor's option.
- B. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372. Plastic piping components shall be marked with "NSF-pw."

2.2 PIPE AND FITTINGS ATTACHED TO AND BELOW BUILDINGS INCLUDING 5 FEET FROM BUILDINGS

- A. Piping and fittings attached to covered walkways and corridors shall comply with the requirements of this article.
- B. Drain and Waste Pipe Above Grade: Cast iron soil pipe and fittings, asphaltic coated, conforming to ASTM A888 and Cast Iron Soil Pipe Institute Standard (CISPI) 301 and so marked. Pipe and fittings shall be as manufactured by AB&I, Charlotte, Tyler Pipe, or equal. Pipe and fittings shall be the products of a single manufacturer. At Contractor's option, vertical piping above floor from lavatories, sinks, and drinking fountains may be Schedule 40 galvanized steel pipe with black cast iron drainage fittings, or DWV weld pipe and fittings.
 - 1. Joints above grade: No-Hub pipe conforming to ASTM A888 and CISPI 301. Couplings conforming to ASTM 1277 and CISPI 310, with stainless steel bands. Provide products by ANACO-Husky, Tyler, Ideal or equal. Provide sway brace at 20'-0" maximum spacing for suspended pipe with No-Hub joints. Provide a brace on each side of a change in direction of 90 degrees or more. Brace riser joints at each floor and at 15 foot maximum intervals (also see Specification Section 22 00 50).
- C. Drain and Waste Pipe Below Grade: Cast iron soil pipe and fittings, asphaltic coated, conforming to ASTM A888 and CISPI 301 and so marked. Pipe and fittings shall be as manufactured by AB&I, Charlotte, Tyler Pipe, or equal. Pipe and fittings shall be the products of a single manufacturer. At Contractor's option, hub and spigot cast iron soil pipe and fittings, asphaltic coated, conforming to ASTM A-74 and so marked, may be used.
 - 1. Joints below grade: ANACO-Husky SD 4000, Clamp-All 125, or equal couplings and No-Hub fittings, meeting the requirements of FM 1680, SD Class I and ASTM C1540.
 - 2. Joints below grade (hub and spigot option): Neoprene gaskets conforming to ASTM C564, as manufactured by Ty-Seal, Dual-Tite, or equal.
- D. Vent Pipe:

1. 3 inch and larger: Cast iron soil pipe and fittings conforming to ASTM A888 and Cast Iron Soil Pipe Institute Standard 301 and so marked. Joints in cast iron vent pipe shall be the same as specified for cast iron waste pipe above grade.
 2. 2-1/2 inch and smaller: Cast iron soil pipe and fittings as specified for sizes 3 inch and larger, Schedule 40 galvanized steel pipe with black cast iron drainage fittings, or DWV copper pipe and fittings.
 3. Vent pipe buried in ground and to 6 inches above ground: Cast iron soil pipe and fittings conforming to ASTM A888 and Cast Iron Soil Pipe Institute Standard 301 and so marked. Joints in cast iron vent pipe shall be the same as specified for cast iron waste pipe below ground.
- E. Water Pipe (Tempered Water, Tempered Water Return, Hot Water, Hot Water Return and Cold Water): ASTM B88, Type L copper tubing, hard-temper, with wrought copper fittings. Provide full solder cup for all fittings. Capped or plugged outlets shall be Schedule 40 screwed brass. Water piping below slab: ASTM B88, Type K copper tubing, hard temper, with wrought copper fittings. At Contractor's option, pipe runs below slab having no branches may be ASTM B88, Type K annealed copper tubing without joints. See Section 22 00 50 for pipe protection requirements for below slab copper piping.
- F. Temperature and Pressure Relief Valve Piping: ASTM B88, Type L copper tubing, hard-temper, with wrought copper fittings. Provide full solder cup for all fittings. Capped or plugged outlets shall be Schedule 40 screwed brass.

2.3 PIPE JOINING MATERIALS

- A. Refer to piping Articles in this Section for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated
 - a. Full-Face Type: For flat-face, Class 125, cast iron and cast bronze flanges.
 - b. Narrow-Face Type: For raised-face, Class 250, cast iron and steel flanges.
 2. AWWA C111, rubber, flat face, 1/8-inch (3.2mm) thick, unless otherwise indicated; and full-face or ring type, unless other indicated.
 3. Flange Bolts and Nuts: AWWA C111, carbon steel, unless otherwise indicated.
 4. Plastic, Pipe-Flange Gasket, Bolts and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, 100 percent lead free alloys. Include water-flushable flux according to ASTM B813.
- D. Brazing Filler Metals: AWS A5.8, BCup-5 Series, copper-phosphorus unless otherwise indicated. Sil-Fos 15, or equal.

2.4 VALVES AND FITTINGS FOR POTABLE WATER SYSTEMS

A. General:

1. Provide valves and fittings conforming to lead-free requirements of California Health and Safety Code Section 116875.
 - a. Provide valves listed to NSF/ANSI 61-G or NSF/ANSI 372 for valve materials for potable-water service.
 - 1) Exception: Main distribution gate valves above 1-1/2 inches located underground outside building are not required to conform lead-free requirements of California Health and Safety Code Section 116875.

B. Ball Valves:

1. 2 inches and smaller: 600 psi CWP, cast bronze or brass body, full port, two piece, threaded ends, and reinforced PTFE seal, conforming to MSS SP-110. Nibco T-685-80-LF, Milwaukee UPBA400, Apollo 77C-LF10, Kitz 868, or equal.
2. 2-1/2 inches: Apollo 77C-LF10, or equal.

2.5 DOMESTIC WATER PIPING SPECIALTIES

A. Water Hammer Arrestors:

1. Provide water hammer arrestors conforming to lead-free requirements of California Health and Safety Code Section 116875, with nesting type bellows contained within a casing having sufficient displacement volume to dissipate the calculated kinetic energy generated in the piping system. Water hammer arrestors shall be sized for type and number of fixtures served. Provide all stainless steel shell construction with stainless steel bellows and threaded connection to water system.
2. Water hammer arrestors shall be certified under P.D.I. Standard WH201 and by ASSE Standard 1010.
3. Select units in accordance with the requirements of Plumbing and Drainage Institute Standard P.D.I. WH201. Install above ceilings or behind wall access door at each plumbing fixture, or where plumbing fixtures are installed in groups, at each group of fixtures.
4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - a. Josam Company, series 75000.
 - b. Smith (Jay R.) Mfg. Co., Hydrotrol 5005-5050.
 - c. Mifab, series WHB.

B. Relief Valves:

1. Provide relief valves as indicated, of size and capacity as selected by Contractor for proper relieving capacity, in accordance with ASME Boiler and Pressure Vessel Code.
2. Combined Pressure-Temperature Relief Valves: Bronze body, test lever, thermostat, complying with ANSI A21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210 degrees F, and pressure relief at 150 psi.

3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - a. Watts Regulator Company.
 - b. Cash (A.W.) Valve Manufacturing Corporation.
 - c. Zurn Industries, Inc.; Wilkins-Regulator Division.

C. Trap Primers:

1. Manufacturers: Drawing schedules indicate Basis of Design products. Subject to compliance with requirements, provide product indicated on Drawings, or comparable product by one of the following, or equal:
 - a. MiFab, Inc.
 - b. Precision Plumbing Products.
 - c. Sioux Chief Manufacturing Company.

2.6 DRAIN AND WASTE PIPING SPECIALTIES

A. Cleanouts:

1. General: Install cleanouts of same diameter as pipe (4 inch maximum) in all horizontal soil and waste lines where indicated and at all points of change in direction. Cleanouts shall be located not less than 18 inches from building construction so as to provide sufficient space for rodding. No horizontal run over 50 feet inside buildings or 100 feet outside buildings shall be without cleanout, whether shown on Drawings or not. Provide two-way cleanouts where indicated on drawings, and where required for satisfactory use.
 - a. Provide cleanouts in waste drop from each sink and urinal.
 - b. Provide one wrench for each size and type of cleanout used. Turn over to Owner at completion of the project, and obtain receipt. Place receipt in Operation and Maintenance Manuals.
2. Cleanouts in floor and in concrete sidewalks: Ducco Cast Iron with nickel bronze top, clamping collar and ABS plastic plug: Zurn ZN-1400-KC, or equal, with square or round top to suit floor construction.
3. Cleanouts in composition floors: Zurn ZN-1400-X-DX, or equal (nickel bronze top).
4. Cleanouts in concealed, aboveground cast-iron soil or waste lines: Zurn Z-1440A, or equal, with ABS plastic plug.
5. Cleanouts in walls: Zurn Z-1441 or Z-1443, or equal, with stainless steel cover. Provide long sweep elbow or combination wye at connection to riser and install with surface of cleanout within ½ inch of front face of finished wall.
 - a. Where space does not permit the above installation, provide Zurn Z-1446, or equal, with stainless steel access cover, and vandal resistant screw.
 - b. Install face of cleanout plug within 1/2 inch of front face of finished wall.

B. Floor Drains:

1. Manufacturers: Drawing schedules indicate Basis of Design products. Subject to compliance with requirements, provide product indicated on Drawings, or comparable product by one of the following, or equal:
 - a. J.R. Smith.
 - b. MIFAB.
 - c. Watts.
 - d. Zurn.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions under which plumbing piping systems are to be installed. Do not proceed with Work until unsatisfactory conditions have been corrected in manner acceptable to Contractor.
- B. Make all arrangements for the utilities required. Pay all costs involved in obtaining the services including gas service and meter, water meter, pressure reducing valve, access boxes, street work. Connect to site utilities. Verify the location of all services. No extra cost will be allowed if services are not as shown.
- C. Determine sanitary sewer and storm drain location and elevation at all points of connection before installing any piping. Notify Architect immediately if indicated grades cannot be maintained.
- D. At time of final connection, and prior to opening valve to allow pressurization of water and gas piping from existing systems, on site or off site, perform a pressure test to indicate static pressure of existing systems. If pressure on water piping is greater than 80 psi, or gas pressure is not as indicated on Contract Documents, inform Architect immediately. Do not allow piping systems to be pressurized without written consent of the Architect.

3.2 INSTALLATION OF WATER PIPING

- A. Run all water piping generally level, free of traps or unnecessary bends, arranged to conform to the building requirements, and to suit clearance for other mechanical work such as ducts, flues, conduits, and other work. No piping shall be installed so as to cause unusual noise from the flow of water therein under normal conditions.
- B. Provide manufactured water hammer arrestors, sized and installed in accordance with Plumbing and Drainage Institute Standard PDI WH201.
 1. Locate water hammer arrestors at every plumbing fixture, or, where fixtures are located in groups, at every group of fixtures, and as indicated on Drawings.
 2. Install water hammer arresters above accessible ceilings, or install access doors for service.
- C. Install piping on room side of building insulation.

- D. Check final location of rubber rings within couplings on PVC water piping with gauge or as recommended by manufacturer. Make connection to valves with cast iron adapters connected to water pipe with cast iron couplings. Furnish and install anchors or thrust blocks.

3.3 INSTALLATION OF SANITARY AND STORM DRAINAGE SYSTEMS

- A. Sewer Piping: Run all horizontal sanitary drain piping inside of building on a uniform grade of not less than 1/4 inch per foot unless otherwise noted or later approved. Unless otherwise noted on the plans, piping shall have invert elevations as shown and slope uniformly between given elevations.
- B. Run all drainage piping as straight as possible and provide easy bends with long turns; make all offsets at an angle of 45 degrees or less.
- C. Grade all vent piping so as to free itself quickly of any water condensation.
- D. Where possible, join groups of vent risers together with one enlarged outlet through roof. Maintain minimum of 10 foot horizontal or 3 foot vertical clearance from air intakes.
- E. Hubless Cast Iron Joints: Comply with coupling manufacturer's installation instructions.

3.4 PIPE JOINTS AND CONNECTIONS

- A. General:
 - 1. Cutting: Cut pipe and tubing square, remove rough edges or burrs. Bevel plain ends of steel pipe.
 - 2. Remove scale, slag, dirt and debris from inside and outside of pipe before assembly.
 - 3. Boss or saddle type fittings or mechanically extracted tube joints will not be allowed.
- B. Threaded Pipe: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply thread compound to external pipe threads: Rectorseal No. 5, Permatex No. 1, or equal.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- C. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.
- D. Copper Pipe and Tubing (Except pneumatic control piping): All joints shall be brazed according to ASME Section IX, Welding and Brazing Qualifications, except domestic water piping 1-1/4 inches and smaller when not buried in the ground or concrete and type DWV plumbing piping may be soldered.

1. Soldered joints: Apply water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828.

E. Cast Iron Soil Pipe:

1. No-Hub fittings shall be made with a torque wrench.
2. Hub joints shall be with Ty-Seal couplings.
3. Wrought iron, steel, or copper pipe shall have a ring or part of a coupling screwed on to form a spigot end if caulked into a joint.
4. Connect cast iron sewer piping to outside service pipe with cast iron or vitrified LOP reducers or increasers as required. Caulking of smaller pipe into the larger without a reducer or increaser will not be permitted.

F. Flexible Connections:

1. Furnish and install Thermo Tech., Inc. F/J/R, Metraflex, or equal, flexible couplings with limiter bolts on piping connections to all equipment mounted on anti-vibration bases, on each connection to each base mounted pump and where shown. Couplings shall be suitable for pressure and type of service.
2. Anchor piping securely on the system side of each flexible connection.

3.5 INSTALLATION OF VALVES

A. Install valves as indicated on Drawings and in the following locations:

1. Shutoff Valves: Install on inlet of each plumbing equipment item, and on inlet of each plumbing fixture, and elsewhere as indicated.
2. Drain Valves: Install on each plumbing equipment item located to completely drain equipment for service or repair. Install at base of each riser, at base of each rise or drop in piping system, and elsewhere indicated or required to completely drain potable water system.
3. Provide gate or globe valves on inlet and outlet of each water heater or pump.

B. General:

1. Valves shall be full line size unless indicated otherwise on Drawings.
2. Install horizontal valves with valve stem above horizontal, except butterfly valves.
3. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
4. Locate valves for easy access and provide separate support where necessary.
5. Install valves in position to allow full stem movement.
6. Install exposed polished or enameled connections with special care showing no tool marks or exposed threads.
7. Butterfly valves conforming to the paragraph "Butterfly Valves" may be used in lieu of gate or globe valves for locations above grade.
8. Ball valves conforming to the paragraph "Ball Valves" may be used in lieu of gate valves for locations above grade for services 2-1/2 inches and smaller.
9. Valves 2-1/2 inches and smaller (except ball valves) in nonferrous water piping systems may be solder joint type with bronze body and trim.

10. Rigidly fasten hose bibbs, hydrants, fixture stops, compressed air outlets, and similar items to the building construction.

- C. Valve Adjustment: Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.6 INSTALLATION OF CLEANOUTS

- A. Cleanouts: Install in piping as indicated, as required by California Plumbing Code, at each change in direction of piping greater than 45 degrees. Install at maximum intervals of 50 feet for piping 4 inches and smaller and 100 feet for larger piping inside buildings, and at base of each conductor.
- B. Flashing Flanges: Install flashing flange and clamping device with each cleanout passing through water resistant membrane.

3.7 INSTALLATION OF FLOOR DRAINS AND FLOOR SINKS

- A. Install drains in accordance with manufacturer's written instructions and in locations indicated. Install floor drains with lip of drain slightly below finished floor to ensure drainage. Install floor sinks flush with finished floor. Coordinate with other trades to ensure that floor slopes to drain. Provide flashing flange and clamping device with each drain passing through water resistant membrane.
- B. Install vented P-trap below each drain. Where trap primers are indicated, install trap primer connection in the P-trap.

3.8 TRAP PRIMER INSTALLATION

- A. Install as indicated in manufacturers printed literature, with 1/2 inch, Type L, hard copper piping to trap primer connection on floor drains and floor sinks where indicated on Drawings. At Contractor's option, Type K annealed copper tubing without joints may be used below slab only. See Section 22 00 50 for pipe protection requirements for below slab copper piping/tubing.
- B. Install trap primer piping with 1/4 inch per foot slope, to insure that the line will drain fully to the floor drain or floor sink.
1. Provide ball valve to the inlet at each trap primer location.
- C. Install trap primer and distribution unit exactly as called for in manufacturers printed installation instructions. Connect to domestic water piping from the top of the water line, in order to prevent foreign material from entering directly into primer assembly.
- D. Mount trap primer in wall, in sheet metal box, with Karp or equal access door. Size access door and box to suit valve operation, and solder all seams of box. Seal all penetrations to box with non-hardening waterproof sealant. Provide locking door where installed in occupied spaces.

- E. Where one trap primer will be used for more than one trap, provide a distribution unit with feeder piping for a maximum of four traps sized for equal pressure drop to each trap.

3.9 EQUIPMENT CONNECTIONS

- A. Piping Runouts to Fixtures: Provide hot and cold water piping runouts to fixtures of sizes indicated.
- B. Mechanical Equipment Connections: Connect hot and cold water piping system and gas piping system to mechanical equipment as indicated, and provide with shutoff valve and union for each connection.

3.10 DOMESTIC WATER SYSTEM STERILIZATION

- A. Clean and disinfect new or altered hot and cold water piping connected to domestic water systems using methods prescribed by the Health Authority. If the Health Authority does not prescribe methods, clean and disinfect new or altered hot and cold water piping using methods given in the California Plumbing Code.
 - 1. A water treatment company that has a current state EPA license to apply disinfectant chlorine in potable water shall perform the procedure.

3.11 CARE AND CLEANING

- A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Architect. At completion, carefully clean and adjust equipment, fixtures, and trim that are installed as part of this work. Remove labels from stainless steel sinks, except 316 stainless steel sink labels should be retained to confirm that the correct material has been provided. Leave systems and equipment in satisfactory operating condition.

3.12 OPERATIONAL TESTS

- A. Test each piece of equipment to show that it will operate in accordance with indicated requirements.

3.13 TESTING AND BALANCING

- A. See Section 23 05 93 of Specifications for testing and balancing requirements.

3.14 CLEANING UP

- A. Upon completion of Work remove materials, equipment, apparatus, tools, and the like, and leave premises clean, neat, and orderly.

END OF SECTION 22 10 00

SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water supplies and stops.
 - 2. Plumbing fixture hangers and supports.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 22 00 50 Basic Plumbing Materials and Methods.

1.3 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Product Data: Submit manufacturer's specifications for plumbing fixtures and trim, including catalog cut of each fixture type and trim item furnished.

1.4 INFORMATIONAL SUBMITTALS

- A. Refer to Section 22 00 50, Basic Plumbing Materials and Methods.

1.5 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Maintenance Data: Submit maintenance data and parts lists for each fixture type and trim item, including instructions for care of finishes. Include this data in Operation and Maintenance Manual.

1.6 QUALITY ASSURANCE

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Plumbing Fixture Standards: Comply with applicable portions of the following codes and requirements for all work in this Section:
 - 1. California Building Code – CBC
 - 2. California Plumbing Code – CPC
 - 3. California Health and Safety Code

4. American National Standards Institute - ANSI
 5. Federal Standards - F.S.
 6. National Sanitary Foundation – NSF International
- C. ANSI Standards: Comply with ANSI/NSF 61, “Drinking Water System Components – Health Effects.”
- D. PDI Compliance: Comply with standards established by Plumbing and Drainage Institute pertaining to plumbing fixture supports.
- E. Americans with Disabilities Act (ADA).
- F. California Green Building Standards Code Requirements:
1. Single Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

PART 2 - PRODUCTS

2.1 PLUMBING FIXTURES

- A. General: Provide factory fabricated fixtures of type, style and material indicated. For each type fixture, provide fixture manufacturer's standard trim, carrier, seats, and valves as indicated by their published product information; either as designed and constructed, or as recommended by the manufacturer, and as required for a complete, installation. Where more than one type is dedicated, selection is Contractor's option; but, all fixtures of same type must be furnished by single manufacturer.
1. Take special care with the roughing-in and finished plumbing where batteries of fixtures occur.
 2. Take location and mounting heights for roughing-in from Architectural Drawings.
 3. Follow schedule on Plumbing Drawings for roughing-in connections. Set roughing-in for all fixtures exactly as per measurements furnished by the manufacturers of the fixtures used.
 4. Roughing-in for lavatories and sinks shall be brought in through the wall under the centerline of the drain from the fixture wherever possible and as close to the fixture as possible.

2.2 MATERIALS

- A. Provide materials that have been selected for their surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, foundry sand holes, stains, discoloration, or other surface imperfections on finished units are not acceptable.
- B. Where fittings, trim and accessories are exposed or semi-exposed, provide, chromium plated 17 gauge seamless brass and match faucets and fittings. Provide 17 gauge seamless copper or brass where not exposed.
- C. Handles on all faucets and stops shall be all metal chromium plated.
- D. NSF Standard: Comply with NSF 61 and NSF 372 for supply-fitting materials that will be in contact with potable water.

2.3 PLUMBING FITTINGS, TRIM AND ACCESSORIES

- A. Water Outlets: At locations where water is supplied (by manual, automatic or remote control), provide commercial quality faucets, valves, or dispensing devices, of type and size indicated, and as required to operate as indicated.
 - 1. Include manual shutoff valves and connecting stem pipes to permit outlet servicing without shut-down of water supply piping systems.
- B. P-Traps: Include IAPMO approved removable P-traps where drains are indicated for direct connection to drainage system. P-Traps shall be less trap screw cleanout, and incorporate a chrome plated cast brass body, brass connection nuts, 17 gauge seamless brass wall return and chrome plated wall escutcheon to match trap finish.
- C. Carriers: Provide cast iron supports for fixtures of graphitic gray iron, ductile iron, or malleable iron as indicated. Where the carrier for wall mounted water closets are installed more than 6 inches behind the finished wall, provide water closet support for wide pipe chase.
- D. Fixture Bolt Caps: Provide manufacturer's standard exposed fixture bolt caps finished to match fixture finish.
- E. Escutcheons: Where fixture supplies and drains penetrate walls in exposed location, provide chrome-plated cast brass escutcheons with setscrews.
- F. Aerators: Provide aerators of types approved by Health Departments having jurisdiction. Delete aerators where not allowed by CPC for health care occupancies.
- G. Comply with additional fixture requirements contained in Fixture Schedule shown on the drawings.

2.4 MANUFACTURERS

- A. In accordance with California Plumbing Code, provide indelibly marked or embossed manufacturers name or logo, arranged so as to be visible after installation.
- B. Manufacturers: Drawing schedules indicate Basis of Design products. Subject to compliance with requirements, provide product indicated on Drawings, or comparable product by one of the following:
 - 1. Vitrified China Plumbing Fixtures:
 - a. American Standard, U.S. Plumbing Products.
 - b. Eljer Plumbingware Div., Wallace-Murray Corp.
 - c. Kohler Co.
 - d. VitrA.
 - 2. Plumbing Trim:
 - a. McGuire Manufacturing Co., Inc.
 - b. Delta Commercial.
 - c. Chicago Faucet Co.

- d. T&S Brass and Bronze Works, Inc.
- 3. Flush Valves:
 - a. Sloan Valve Co.
 - b. Zurn Industries, Hydromechanics Div.
 - c. Toto USA, Inc.
- 4. Faucets:
 - a. Chicago Faucet Co.
 - b. Symmons Scott.
 - c. T&S Brass and Bronze Works, Inc.
 - d. Delta Commercial.
- 5. Fixture Seats:
 - a. Church Seat Co.
 - b. Bemis Mfg. Co.
 - c. Beneke Corp.
- 6. Service Sinks:
 - a. American Standard.
 - b. Kohler Co.
 - c. Williams Serviceceptor.
 - d. Florestone.
 - e. Acorn.
- 7. Stainless Steel Sinks:
 - a. Elkay Mfg. Co.
 - b. Just Mfg. Co.
 - c. Haws Corporation.
- 8. Showers:
 - a. Acorn.
 - b. Bradley.
 - c. Symmons.
 - d. Powers.
- 9. Fixture Carriers:
 - a. Josam Mfg. Co.
 - b. J. R. Smith.
 - c. Tyler Pipe; Wade Div.
 - d. Zurn Industries; Hydromechanics Div.
 - e. Mifab, Inc.

2.5 FLUSH VALVE REQUIREMENTS

- A. Electronic flush valves where required and specified shall be non-hold open type with exposed parts chrome plated. Conform to all codes and manufacturers' recommendations. All diaphragms are to have multiple filtered by pass and be chloramine and resistant synthetic rubber with rubber and internal components suitable for 180 degree hot water to 150 pounds pressure, plastic or leather diaphragm not acceptable. All flush valve solenoids and sensors shall be UL listed.

2.6 FIXTURE CONNECTIONS

- A. Make connection between fixtures and flanges on soil pipe absolutely gastight and watertight with neoprene type gaskets (wall hung fixtures) or bowl wax (floor outlet fixtures). Rubber gaskets or putty will not be permitted.
- B. Provide fixtures not having integral traps with P-traps of chromium-plated 17 gauge cast brass, with 17 gauge seamless brass wall return, connected to concealed waste in wall and sanitary fittings. Provide IAPMO approval for trap, and provide less trap screw cleanout.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - a. Dearborn Brass, Commercial series with brass nuts.
 - b. Delta Commercial.
 - c. McGuire Manufacturing Co., Inc.
- C. Connections from stacks or horizontal wastes to wall or floor finish for wastes from lavatories, urinals, sinks, and drinking fountains and connection between floor drains and traps shall be IPS 85 percent red brass pipe.
- D. Unions on waste pipes on fixture side of traps may be slip or flange joints with soft rubber or lead gaskets. Traps shall rough in full size to waste and vent connection, using deep escutcheon plate to cover wall penetration. Compression adaptor extensions or sweat adaptors are not acceptable.

2.7 WATER SUPPLIES AND STOPS

- A. Provide 85 percent IPS threaded red brass nipple, conforming to the lead-free requirements of California Health and Safety Code Section 116875, securely anchored to building construction, for each connection to stops, hose bibbs, etc. Each fixture, except hose bibbs, shall have stop valves installed on water supply lines.
- B. Provide water supplies to fixtures with compression shut-off stops with threaded inlets and lock shield-loose key handles. Provide combination fixtures with compression stop and threaded inlet on each water supply fitting. Provide lock shield-loose key handle for each stop.
- C. Provide 1/2 inch riser tubes with reducing coupling for fixtures, unless otherwise noted.
- D. Provide cast brass escutcheon.
- E. Furnish shut-off valves on hose bibbs where directly connected to mains with no intervening valves.

- F. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:

1. McGuire Manufacturing Company, Inc., model LFH2167LK.
2. T & S Brass and Bronze Works, Inc., model B-1305.

2.8 PLUMBING FIXTURE HANGERS AND SUPPORTS

- A. Floor-affixed supports for off-the-floor plumbing fixtures shall comply with ASME A112.6.1M.
- B. Residential type fixture supports are not acceptable.
- C. Install wall mounted water closets with combination support and waste fittings, with feet of support securely anchored to floor.
- D. Install floor mounted water closets with J.R. Smith, Zurn, or equal government pattern cast iron closet flanges with brass bolts, nuts, washers, and porcelain caps secured with Spackle.
- E. Install the following fixtures on concealed support with feet of support securely anchored to floor. Anchor top of support to wall construction in an approved manner.
 1. Wall hung lavatories.
 2. Wall mounted urinals.

2.9 PLUMBING FIXTURES

- A. Install all plumbing fixtures at height indicated on Architectural Drawings. Where mounting height is not indicated, install at height required by Code.
- B. Special Requirements For Accessible Fixtures:
 1. Operating handle or valve for accessible water closets, urinals, lavatories, and sinks shall operate with less than 5 pounds force. Metering faucets shall be adjusted to operate between 10 and 15 seconds.
 2. Insulate exposed waste piping and domestic water supplies below accessible fixtures with CBC access code compliant molded "closed-cell" vinyl covers. Covers shall be installed using vandal resistant fasteners and must be removable. Covers shall meet flame spread rating not to exceed 25 and smoke density not to exceed 50 when tested in accordance with ASTM E-84, and shall comply with the requirements of California Code of Regulations, Title 24. Plumberex – Handy Shield, Johns Manville – Zeston 2000, or equal.

PART 3 - EXECUTION

3.1 PRODUCT HANDLING AND PROTECTION

- A. Deliver packaged materials in their original, unopened wrapping with labels intact. Protect materials from water, the elements and other damage during delivery, storage and handling.

3.2 PREPARATORY PROVISIONS

- A. The Contractor is responsible for the examination and acceptance of all conditions affecting the proper construction and/or installation of the Work of this Section. Do not proceed until all unsatisfactory conditions have been corrected. Commencing work will be construed as acceptance of all conditions by the Contractor as satisfactory for the construction and/or installation of the Work.

3.3 INSPECTION AND PREPARATION

- A. Examine roughing-in work of domestic water and waste piping systems to verify actual locations of piping connections prior to installing fixtures. Also examine floors and substrates, and conditions under which fixture work is to be accomplished. Correct any incorrect locations of piping, and other unsatisfactory conditions for installation of plumbing fixtures. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Install plumbing fixtures of types indicated where shown and at indicated heights; in accordance with fixture manufacturer's written instructions, roughing-in drawings. Ensure that plumbing fixtures comply with requirements and serve intended purposes. Comply with applicable requirements of the National Standard Plumbing Code pertaining to installation of plumbing fixtures.
- C. Fasten plumbing fixtures securely to supports or building structure; and ensure that fixtures are level and plumb. Secure plumbing supplies to blocking behind or within wall construction so as to be rigid, and not subject to pull or push movement.
- D. Install CBC accessible fixtures in accordance with Chapter 4 California Plumbing Code, and Chapters 11A and 11B California Building Code.
- E. Refer to Division 26 for wiring for electronic flush valves.

3.4 FAUCET INSTALLATION

- A. Provide 85 percent IPS red brass pipe, conforming to lead-free requirements of California Health and Safety Code Section 116875, securely anchored to building construction, for each connection to faucets, stops, hose bibbs, etc. Each fixture, except hose bibbs, shall have a stop valve installed on water supply lines to permit repairs without shutting off water mains.
- B. Adjust metering faucets to run for 10 to 15 seconds.

3.5 CLEAN AND PROTECT

- A. Clean plumbing fixtures of dirt and debris upon completion of installation.
- B. Protect installed fixtures from damage during the remainder of the construction period.
- C. Grout voids between all fixtures and adjacent surfaces with white Dow Silicone Sealant, arranged to shed water.

3.6 FIELD QUALITY CONTROL

- A. Upon completion of installation of plumbing fixtures and after units are water pressurized, test fixtures to demonstrate capability and compliance with requirements. When possible, correct

malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with retesting.

3.7 EXTRA STOCK

- A. General: Furnish special wrenches and other devices necessary for servicing plumbing fixtures and trim to Owner with receipt. Furnish one device for every ten units.

END OF SECTION 22 40 00

SECTION 22 50 00 – PLUMBING EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Commercial electric water heaters.
2. Expansion tanks.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 22 00 50 Basic Plumbing Materials and Methods.

1.3 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Product Data: Submit manufacturer's plumbing equipment specifications, installation and start-up instructions, capacity and ratings, with selection points clearly indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.

1.5 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Maintenance Data: Submit maintenance data and parts lists for each item of plumbing equipment. Include "trouble-shooting" maintenance guides. Include this data in Operation and Maintenance Manual.

1.6 QUALITY ASSURANCE

- A. For additional requirements, refer to Section 22 00 50, Basic Plumbing Materials and Methods.
- B. Trade names or catalog numbers stated herein indicates grade or quality of materials desired.
- C. Dimensions, sizes, and capacities shown are minimum and shall not be changed without permission of Architect.
- D. UL and NEMA Compliance: Provide electric motors and electrical components required as part of plumbing equipment, which have been listed and labeled by Underwriters Laboratories and comply with NEMA standards.

- E. Pump types and sizes regulated by the US Department of Energy's "Energy Conservation Standards for Pumps" 10 CRF Parts 429 and 431 shall be marked with a compliant PEI_{CL} or PEI_{VL} (Pump Energy Index, constant or variable load) value, basic model number, and RPM on the nameplate. Regulated pumps shall be listed in the Hydraulic Institute (HI) Energy Rating database (er.pumps.org) and be assigned an Energy Rating as defined in the HI 40.5 program guide.
- F. CEC Compliance: Comply with California Electrical Code (Title 24, Part 3) as applicable to installation and electrical connections of ancillary electrical components of plumbing equipment.
- G. ASME Relief Valve Stamps: Provide water heaters with safety relief valves bearing ASME valve markings.
- H. California Energy Commission Compliance: Provide written confirmation of listing of all water heaters in the "Appliance Efficiency Database."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver packaged materials in their original, unopened wrapping with labels intact. Protect materials from water, the elements and other damage during delivery, storage and handling.

1.8 WARRANTY

- 1. Commercial Electric Water Heaters: Three-year minimum limited warranty on tank leakage.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. NSF Compliance: Fabricate and label equipment components that will be in contact with potable water to comply with NSF 61 and NSF 372.
- B. Insulation products, including insulation, insulation facings, jackets, adhesives, sealants and coatings shall not contain polybrominated diphenyl ethers (PBDEs) in penta, octa, or deca formulations in amounts greater than 0.1 percent (by mass).

2.2 COMMERCIAL ELECTRIC WATER HEATERS

- A. General: Provide commercial electric water heaters of size, capacity, and electrical characteristics indicated on Drawings. Comply with ASHRAE 90.1 for energy efficiency. Provide UL listing. Relief valve dip tube shall extend to within 3 inches of tank.
- B. Heater: Working pressure of 150 psi, magnesium anode rod; glass lining on internal surfaces exposed to water.
- C. Heating Elements: Heavy-duty, medium watt density, with incoloy sheath or zinc plated copper, thermostat stepped through magnetic contactor.

- D. Safety Controls: Double-pole, manual-reset, high-limit, probe type electric water low water cutoff; both factory wired.
- E. Jacket: Equip with full size control compartments with front panel opening. Insulate tank with vermin resistant polyurethane or glass fiber insulation. Provide outer steel jacket with bonderized undercoat and baked enamel finish.
- F. Provide the following accessories:
 - 1. Brass drain valve.
 - 2. 3/4 inch temperature and pressure relief valve.
 - 3. Thermometer.
- G. Provide equal flow manifold for piping entering and leaving the water heaters. Manifold shall be provided as a standard option for the heaters proposed.
- H. Controls: Adjustable immersion thermostat or surface mounted therm-o-disc; power circuit fusing.
- I. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - 1. Bradford White Corporation.
 - 2. Lochinvar Corporation.
 - 3. PVI Industries, LLC.
 - 4. Rheem Manufacturing Company.
 - 5. Smith, A.O. Water Products Co.; a division of A.O. Smith Corporation.

2.3 EXPANSION TANKS

- A. Provide thermal expansion tanks of size and number as indicated on Drawings, conforming to lead-free requirements of California Health and Safety Code Section 116875. Construct tank of welded steel for working pressure of 125 psi. Provide specially compounded flexible diaphragm securely sealed into tank to permanently separate air charge from system water, to maintain design expansion capacity.
 - 1. Tanks shall be IAPMO approved and listed for use with domestic water systems.
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - 1. Amtrol, Inc.
 - 2. A.O. Smith Water Products Company.
 - 3. Watts Water Technologies, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor shall be responsible for the examination and acceptance of all conditions affecting the proper construction and/or installation of the Work of this Section and shall not proceed until all unsatisfactory conditions have been corrected. Commencing work shall be construed as acceptance of all conditions by the Contractor as satisfactory for the construction and/or installation of the Work.

3.2 ELECTRIC WATER HEATER INSTALLATION

- A. Install electric water heaters as indicated, in accordance with manufacturer's installation instructions and in compliance with applicable codes.
- B. Furnish wiring diagram to Electrical Installer. Refer to Division 26 for wiring of units, not work of this section.
- C. Connect to hot and cold water lines with shutoff valve, check valve, and dielectric union in the cold water line, and ASME standard pressure and temperature relief valve and dielectric union in the hot water line. Connect drain and relief piping as noted on Drawings.
- D. Start-up, test, and adjust electric water heaters in accordance with manufacturer's start-up instructions. Check and calibrate controls.
- E. After installation has been completed, seal bottom of heaters without feet to floor with silicone sealer.

3.3 DEMONSTRATION AND TRAINING

- A. Provide a minimum of hours of training and orientation of Owners staff in proper care and operation of Plumbing Equipment.

3.4 CARE AND CLEANING

- A. Repair or replace broken, damaged, or otherwise defective parts, materials, and work. Leave entire work in condition satisfactory to Architect. At completion, carefully clean and adjust equipment, fixtures, and trim that are installed as part of this work. Leave systems and equipment in satisfactory operating condition.

3.5 OPERATIONAL TESTS

- A. Test each piece of equipment to show that it will operate in accordance with indicated requirements.

3.6 CLEANING UP

- A. Upon completion of Work remove materials, equipment, apparatus, tools, and the like, and leave premises clean, neat, and orderly.

END OF SECTION 22 50 00

SECTION 23 00 50 - BASIC HVAC MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. This Section is a part of each Division 23 Section.

1.2 ADDITIONAL REQUIREMENTS

- A. Furnish and install incidental work not shown or specified necessary to provide a complete and workable system.
- B. Make all temporary connections required to maintain services, including adequate heat and cooling, during the course of the Contract without additional cost to Owner. Notify Owner seven days in advance before disrupting services.
- C. Provide for adjustments or modifications to fan and motor sheaves, belts, damper linkages, and other components as required to achieve specified air balance at no additional cost to Owner.

1.3 REFERENCES AND STANDARDS

- A. Where material or equipment is specified to conform to referenced standards, it shall be assumed that the most recent edition of the standard in effect at the time of bid shall be used.
 - 1. AABC - Associated Air Balance Council
 - 2. AFBMA - Anti Friction Bearing Manufacturer's Association
 - 3. AMCA - Air Moving and Control Association Inc.
 - a. Standard 210 - Laboratory Methods of Testing Fans
 - 4. ANSI - American National Standards Institute
 - 5. ARI - Air-Conditioning and Refrigeration Institute
 - 6. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers
 - 7. ASME - American Society of Mechanical Engineers
 - 8. ASTM - American Society for Testing and Materials
 - 9. CCR - California Code of Regulations
 - a. Title 8 - Division of Industrial Safety, Subchapter 7; General Industry Safety Orders, Articles 31 through 36
 - 10. CSA – Canadian Standards Association International
 - 11. CSFM - California State Fire Marshal
 - 12. NCPWB - National Certified Pipe Welding Bureau
 - 13. NIST - National Institute of Standards and Technology
 - 14. NEMA - National Electrical Manufacturers' Association
 - 15. NFPA - National Fire Protection Association

16. OSHA - Occupational Safety and Health Act
17. SMACNA - Duct Manuals
18. UL - Underwriters' Laboratories, Inc.

B. Requirements of Regulatory Agencies:

1. The publications listed below form part of this specification; comply with provisions of these publications except as otherwise shown or specified.
 - a. California Building Code, 2019.
 - b. California Electrical Code, 2019.
 - c. California Energy Code, 2019.
 - d. California Fire Code, 2019.
 - e. California Green Building Standards Code, 2019.
 - f. California Mechanical Code, 2019.
 - g. California Plumbing Code, 2019.
 - h. California Code of Regulations, Title 24.
 - i. California Health and Safety Code.
 - j. CAL-OSHA.
 - k. California State Fire Marshal, Title 19 CCR.
 - l. National Fire Protection Association.
 - m. Occupational Safety and Health Administration.
 - n. Other applicable state laws.
2. Nothing in Drawings or specifications shall be construed to permit work not conforming to these codes, or to requirements of authorities having jurisdiction. It is not the intent of Drawings or specifications to repeat requirements of codes except where necessary for clarity.

1.4 DRAWINGS

- A. Examine Drawings prior to bidding of work and report discrepancies in writing to Architect.
- B. Drawings showing location of equipment and materials are diagrammatic and job conditions will not always permit installation in location shown. The HVAC Drawings show general arrangement of equipment and materials, etc., and shall be followed as closely as existing conditions, actual building construction, and work of other trades permit.
 1. Architectural and Structural Drawings shall be considered part of the Work. These Drawings furnish Contractor with information relating to design and construction of the Project. Architectural Drawings take precedence over HVAC Drawings.
 2. Because of the small scale of HVAC Drawings, not all offsets, fittings, and accessories required are shown. Investigate structural and finish conditions affecting the Work and arrange Work accordingly. Provide offsets, fittings, and accessories required to meet conditions. Inform Architect immediately when job conditions do not permit installation of equipment and materials in the locations shown. Obtain the Architects approval prior to relocation of equipment and materials.
 3. Relocate equipment and materials installed without prior approval of the Architect. Remove and relocate equipment and materials at Contactors' expense upon Architects' direction.

4. Minor changes in locations of equipment, piping, ducts, etc., from locations shown shall be made when directed by the Architect at no additional cost to the Owner providing such change is ordered before such items of work, or work directly connected to same are installed and providing no additional material is required.

- C. Execute work mentioned in the Specifications and not shown on the Drawings, or vice versa, the same as if specifically mentioned or shown in both.

1.5 FEES AND PERMITS

- A. Obtain and pay for permits and service required in installation of the Work. Arrange for required inspections and secure approvals from authorities having jurisdiction. Comply with requirements of Division 01.

- B. Arrange for utility connections and pay charges incurred, including excess service charges.

- C. Coordination:

1. General:

- a. Coordinate HVAC Work with trades covered in other Specifications Sections to provide a complete, operable and sanitary installation of the highest quality workmanship.

2. Mechanical Coordination:

- a. Coordinate with other trades equipment locations, pipe, duct and conduit runs, electrical outlets and fixtures, air inlets and outlets, and structural and architectural features. Provide information on location of piping and seismic bracing to other trades as required for a completely coordinated project.

1.6 SUBMITTALS - GENERAL

- A. Refer to Division 01 Submittals Section(s) for additional requirements.

- B. Submittal packages may be submitted via email as PDF electronic files, or as printed packages. PDFs shall be legible at actual size (100 percent). Provide seven copies of printed submittal packages.

- C. Provide submittal of materials proposed for use as part of this Project. Product names in Specifications and on Drawings are used as standards of quality. Furnish standard items on specified equipment at no extra cost to the Contract regardless of disposition of submittal data. Other materials or methods shall not be used unless approved in writing by Architect. Architect's review will be required even though "or equal" or synonymous terms are used.

1. Partial or incomplete submittals will not be considered.
2. Quantities are Contractor's responsibility and will not be reviewed.
3. Provide materials of the same brand or manufacturer for each class of equipment or material.
4. Identify each item by manufacturer, brand, trade name, number, size, rating, or other data necessary to properly identify and review materials and equipment. Words "as specified" are not sufficient identification.

5. Identify each submittal item by reference to items' Specification Section number and paragraph, by Drawing and detail number, and by unit tag number.
6. Organize submittals in same sequence as in Specification Sections.
7. Show physical arrangement, construction details, finishes, materials used in fabrications, provisions for piping entrance, access requirements for installation and maintenance, physical size, mechanical characteristics, foundation and support details, and weight.

- a. Submit Shop Drawings, performance curves, and other pertinent data, showing size and capacity of proposed materials.
- b. Specifically indicate, by drawn detail or note, that equipment complies with each specifically stated requirement of Contract Documents.
- c. Drawings shall be drawn to scale and dimensioned (except schematic diagrams). Drawings may be prepared by vendor but must be submitted as instruments of Contractor, thoroughly checked and signed by Contractor before submission to Architect for review.
- d. Catalog cuts and published material may be included with supplemental scaled drawings.

D. Review of submittals will be only for general conformance with design concept and general compliance with information given in Contract Documents. Review will not include quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with work of other trades, or construction safety precautions, which are sole responsibility of Contractor. Review of a component of an assembly does not indicate acceptance of an assembly. Deviations from Contract Documents not clearly identified by Contractor are Contractor's responsibility and will not be reviewed by Architect.

E. Within reasonable time after award of contract and in ample time to avoid delay of construction, submit to Architect shop drawings or submittals on all items of equipment and materials provided. Provide submittal as a complete package.

1. Shop drawings and submittals shall include Specification Section, Paragraph number, and Drawing unit symbol or detail number for reference. Organize submittals into booklets for each Specification section and submit in loose-leaf binders with index. Deviations from the Contract Documents shall be prominently displayed in the front of the submittal package and referenced to the applicable Contract requirement.

F. Furnish to the Project Inspector complete installation instructions on material and equipment before starting installation.

1.7 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for systems materials and products.

1.8 CLOSEOUT SUBMITTALS

- A. Record Drawings:

1. Refer to Division 01 for additional requirements.
2. Upon completion of the Work, deliver to Architect the following:

- a. Originals of drawings showing the Work exactly as installed.
- b. One complete set of reproducible drawings showing the Work exactly as installed.
- c. One compact disc with complete set of drawings in PDF format showing the Work exactly as installed.
- d. Provide Contractor's signature, verifying accuracy of record drawings.
- e. Obtain the signature of the Inspector of Record for Record Drawings.

1.9 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of HVAC systems products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Contractor's Qualifications: Firm with at least 5 years of successful installation experience on projects with HVAC systems work similar to that required for this Project.
- C. Comply with applicable portions of California Mechanical Code pertaining to selection and installation of HVAC materials and products.
- D. All materials and products shall be new.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Protect equipment and materials delivered to Project site from weather, humidity and temperature variations, dirt, dust and other contaminants.

1.11 FIELD CONDITIONS

- A. Contractor shall visit Project site and examine existing conditions in order to become familiar with Project scope. Verify dimensions shown on Drawings at Project site. Bring discrepancies to the attention of Architect. Failure to examine Project site shall not constitute basis for claims for additional work because of lack of knowledge or location of hidden conditions that affect Project scope.
- B. Information on Drawings relative to existing conditions is approximate. Deviations from Drawings necessary during progress of construction to conform to actual conditions shall be approved by the Architect and shall be made without additional cost to the Owner. The Contractor shall be held responsible for damage caused to existing services. Promptly notify the Architect if services are found which are not shown on Drawings.

1.12 WARRANTY

- A. Refer to Division 01 for warranty requirements, and duration and effective date of Contractor's Standard Guarantee.
- B. Repair or replace defective work, material, or part that appears within the warranty period, including damage caused by leaks.
- C. On failure to comply with warranty requirements within a reasonable length of time after notification is given, Architect/Owner shall have repairs made at Contractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials or equipment of the same type shall be of the same brand wherever possible. All materials shall be new and in first class condition.
- B. All sizes, capacities, and efficiency ratings shown are minimum.

2.2 MATERIALS

- A. No material installed as part of this Work shall contain asbestos.

PART 3 - EXECUTION

3.1 EXISTING MATERIALS:

- A. Remove existing equipment, piping, wiring, construction, etc., which interferes with Work of this Contract. Promptly return to service upon completion of work in the area. Replace items damaged by Contractor with new material to match existing.
- B. Removed materials which will not be re-installed and which are not claimed by Owner shall become the property of Contractor and shall be removed from the Project site. Consult Owner before removing any material from the Project site. Carefully remove materials claimed by Owner to prevent damage and deliver to Owner-designated storage location.
- C. Existing piping and wiring not reused and are concealed in building construction may be abandoned in place and all ends shall be capped or plugged. Remove unused piping and wiring exposed in Equipment Rooms or occupied spaces. Material shall be removed from the premises. Disconnect power, water, gas, pump or any other active energy source from piping or electrical service prior to abandoning in place.

3.2 FRAMING, CUTTING, AND PATCHING

- A. Special framing, recesses, chases and backing for Work of this Section, unless otherwise specified, are covered under other Specification Sections.
- B. Contractor is responsible for placement of pipe sleeves, hangers, inserts, supports, and location of openings for the Work.
- C. Cutting, patching, and repairing of existing construction to permit installation of equipment, and materials is the responsibility of Contractor. Repair or replace damage to existing work with skilled mechanics for each trade.
- D. Cut existing concrete construction with a concrete saw. Do not utilize pneumatic devices.
- E. Core openings through existing construction for passage of new piping and conduits. Cut holes of minimum diameter to suit size of pipe and associated insulation installed. Coordinate with building structure, and obtain Structural Engineer's approval prior to coring through existing construction.

3.3 MECHANICAL DEMOLITION

- A. Refer to Division 01 Sections “Cutting and Patching” and “Selective Demolition” for general demolition requirements and procedures.
- B. Disconnect, dismantle and remove mechanical systems, equipment, and components indicated to be removed. Coordinate with all other trades.
 - 1. Ducts to Be Removed: Remove portion of ducts indicated to be removed and cap remaining ducts with same or compatible ductwork material.
 - 2. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
 - 3. Equipment to Be Removed: Drain down and cap remaining services and remove equipment.
 - 4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - 5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.4 CERTIFICATES OF INSTALLATION

- A. Contractor shall complete applicable “Certificates of Installation” forms contained in the California Building Energy Efficiency Standards and submit to the authorities having jurisdiction for approval and issuance of final occupancy permit, as described in the California Energy Code.

3.5 ACCEPTANCE REQUIREMENTS

- A. Contractor shall complete the applicable Acceptance Requirements for Code Compliance contained in the California Building Energy Efficiency Standards. Refer to T-24 compliance forms on Drawings for systems having Acceptance testing requirements. Contractor shall perform Acceptance tests and complete the appropriate “Certificates of Acceptance.” Submit certificates to the authorities having jurisdiction for approval and issuance of final occupancy permit. Contractor shall engage certified HERS Rater to verify duct leakage rate for duct systems indicated on T-24 compliance forms on Drawings as requiring duct leakage rate testing. For additional duct leak testing requirements, refer to Section 238000, “Heating, Ventilating, and Air Conditioning,” Article, “Ductwork Sealing and Leak Testing.”

END OF SECTION 23 00 50

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SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Balancing Air Systems:

- a. Constant-volume air systems.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCES AND STANDARDS

A. Associated Air Balance Council (AABC)

- 1. National Standards for Total System Balance, latest edition.

B. National Environmental Balancing Bureau (NEBB)

- 1. Procedural Standards for Testing and Balancing of Environmental Systems, latest edition.

1.4 DEFINITIONS

- A. The intent of this Section is to use the standards pertaining to the TAB specialist engaged to perform the Work of this Contract, with additional requirements specified in this Section. Contract requirements take precedence over corresponding AABC or NEBB standards requirements. Differences in terminology between the Specifications and the specified TAB organization standards do not relieve the TAB entity engaged to perform the Work of this Contract of responsibility from completing the Work as described in the Specifications.

- B. Similar Terms: The following table is provided for clarification only:

<u>Similar Terms</u>		
Contract Term	AABC Term	NEBB Term
TAB Specialist	TAB Agency	NEBB Certified Firm
TAB Standard	National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems	Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems

TAB Field Supervisor	Test and Balance Engineer	Test and Balance Supervisor
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- C. AABC: Associated Air Balance Council.
- D. NEBB: National Environmental Balancing Bureau.
- E. TAB: Testing, adjusting, and balancing.
- F. TAB Organization: Body governing practices of TAB Specialists.
- G. TAB Specialist: An entity engaged to perform TAB Work.

1.5 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.

1.6 INFORMATIONAL SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.
- B. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB specialist and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
 - 1. Provide list of similar projects completed by proposed TAB field supervisor.
 - 2. Provide copy of completed TAB report, approved by mechanical engineer of record for a completed project with similar system types and of similar complexity.
- C. Contract Documents Examination Report: Within 30 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.
 - 1. Submit examinations report with qualifications data.
- D. Strategies and Procedures Plan: Within 60 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.
- E. Interim Reports. Submit interim reports as specified in Part 3. Include list of system conditions requiring correction and problems not identified in Contract Documents examination report.
- F. Certified TAB reports.
 - 1. Provide three printed copies of final TAB report. Provide one electronic file copy in PDF format.
- G. Sample report forms.
- H. Instrument calibration reports, to include the following:

1. Instrument type and make.
2. Serial number.
3. Application.
4. Dates of use.
5. Dates of calibration.

- a. Instruments to be used for testing and balancing shall have been calibrated within a period of one year, or less if so recommended by instrument manufacturer and be checked for accuracy prior to start of work.

1.7 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.
- B. Certified TAB reports, for inclusion in Operation and Maintenance Manual.

1.8 QUALITY ASSURANCE

- A. Independent TAB Specialist Qualifications: Engage a TAB entity certified by AABC or NEBB.
 1. The certification shall be maintained for the entire duration of TAB work for this Project. If TAB specialist loses certification during this period, the Contractor shall immediately notify the Architect and submit another TAB specialist for approval. All work specified in this Section and in other related Sections performed by the TAB specialist shall be invalidated if the TAB specialist loses certification, and shall be performed by an approved successor.
- B. To secure approval for the proposed TAB specialist, submit information certifying that the TAB specialist is either a first tier subcontractor engaged and paid by the Contractor, or is engaged and paid directly by the Owner. TAB specialist shall not be affiliated with any other entity participating in Work of this Contract, including design, furnishing equipment, or construction. In addition, submit evidence of the following:
 1. TAB Field Supervisor: Full-time employee of the TAB specialist and certified by AABC or NEBB.
 - a. TAB field supervisor shall have minimum 10 years supervisory experience in TAB work.
 2. TAB Technician: Full-time employee of the TAB specialist and who is certified by AABC or NEBB as a TAB technician.
 - a. TAB technician shall have minimum 4 years TAB field experience.
- C. TAB Specialist engaged to perform TAB work in this Project shall be a business limited to and specializing in TAB work, or in TAB work and Commissioning.
- D. TAB specialist engaged to perform TAB work shall not also perform commissioning activities on this Project.

- E. Certified TAB field supervisor or certified TAB technician shall be present at the Project site at all times when TAB work is performed.
 - 1. TAB specialist shall maintain at the Project site a minimum ratio of one certified field supervisor or technician for each non-certified employee at times when TAB work is being performed.
- F. Contractor shall notify Architect in writing within three days of receiving direction resulting in reduction of test and balance scope or other deviations from Contract Documents. Deviations from the TAB plan shall be approved in writing by the mechanical engineer of record for the Project.
- G. TAB Standard:
 - 1. Perform TAB work in accordance with the requirements of the standard under which the TAB agencies' qualifications are approved unless Specifications contain different or more stringent requirements:
 - a. AABC National Standards for Total System Balance, or
 - b. NEBB Procedural Standards for Testing, Adjusting, Balancing of Environmental Systems.
 - 2. All recommendations and suggested practices contained in the TAB standard are mandatory. Use provisions of the TAB standard, including checklists and report forms, to the extent to which they are applicable to this Project.
 - 3. Testing, adjusting, balancing procedures, and reporting required for this Project, and not covered by the TAB standard applicable to the TAB specialist engaged to perform the Work of this Contract, shall be submitted for approval by the design engineer.
- H. Certify TAB field data reports and perform the following:
 - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 - 2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.
- I. TAB Report Forms: Use standard TAB specialist's forms approved by Architect .
- J. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."

1.9 COORDINATION

- A. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.
- B. Perform TAB after leakage and pressure tests on air distribution systems have been satisfactorily completed.
- C. Coordinate TAB work with work of other trades.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Contract Documents Examination Report:

1. TAB specialist shall review Contract Documents, including plans and specifications. Provide report listing conditions that would prevent the system(s) from operating in accordance with the sequence of operations specified, or would prevent accurate testing and balancing:
 - a. Identify each condition requiring correction using equipment designation shown on Drawings. Provide room number, nearest building grid line intersection, or other information necessary to identify location of condition requiring correction.
 - b. Proposed corrective action necessary for proper system operation.

B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine equipment performance data including fan and pump curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.

F. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

G. Examine test reports specified in individual system and equipment Sections.

H. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

I. Report conditions requiring correction discovered before and during performance of TAB procedures.

J. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

- A. Prepare a TAB plan that includes strategies and step-by-step procedures. TAB plan shall be specific to Project and include the following:
 - 1. General description of each air system and sequence(s) of operation.
 - 2. Complete list of measurements to be performed.
 - 3. Complete list of measurement procedures. Specify types of instruments to be utilized and method of instrument application.
 - 4. Qualifications of personnel assigned to Project.
 - 5. Single-line CAD drawings reflecting all test locations (terminal units, grilles, diffusers, traverse locations, etc).
 - 6. Air terminal correction factors for the following:
 - a. Air terminal configuration.
 - b. Flow direction (supply or return/exhaust).
 - c. Effective area of each size and type of air terminal.
 - d. Air density.
- B. Complete system-readiness checks and prepare reports. Verify the following:
 - 1. Permanent electrical-power wiring is complete.
 - 2.
 - 3. Equipment and duct access doors are securely closed.
 - 4. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
 - 5. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance" or NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
 - 1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
 - 2. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section 238000 Heating, Ventilating, and Air Conditioning."
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Test each system to verify building or space operating pressure, including all stages of economizer cycle. Maximum building pressure shall not exceed 0.03 inches of pressure.
- C. Except as specifically indicated in this Specification, Pitot tube traverses shall be made of each duct to measure airflow. Pitot tubes, associated instruments, traverses, and techniques shall conform to ASHRAE Handbook, HVAC Applications, and ASHRAE Handbook, HVAC Systems and Equipment.
 - 1. Use state-of-the-art instrumentation approved by TAB specialists governing agency..
 - 2. Where ducts' design velocity and air quantity are both less than 1000 fpm/CFM, air quantity may be determined by measurements at terminals served.
- D. Test holes shall be placed in straight duct, as far as possible downstream from elbow, bends, take-offs, and other turbulence-generating devices.
- E. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- F. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- G. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- H. Verify that motor starters are equipped with properly sized thermal protection.
- I. Check dampers for proper position to achieve desired airflow path.
- J. Check for airflow blockages.
- K. Check condensate drains for proper connections and functioning.
- L. Check for proper sealing of air-handling-unit components.
- M. Verify that air duct system is sealed as specified in Section 238000 "Heating, Ventilating, and Air Conditioning."
- N. Provide for adjustments or modifications to fan and motor sheaves, belts, damper linkages, and other components as required to achieve specified air balance at no additional cost to Owner.
- O. Automatically operated dampers shall be adjusted to operate as indicated in Contract Documents. Controls shall be checked for proper calibration.

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure total airflow.
 - a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow. Alternative methods shall be examined for determining total CFM, i.e., Pitot-tube traversing of branch ducts, coil or filter velocity profiles, prior to utilizing airflow values at terminal outlets and inlets.
2. Measure fan static pressures as follows to determine actual static pressure:
 - a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
 - b. Measure static pressure directly at the fan outlet.
 - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
 - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
 - a. Report the cleanliness status of filters and the time static pressures are measured.
4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
6. Obtain approval from Architect for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
7. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
 1. Measure airflow of submain and branch ducts.
 - a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
 2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.

3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.
- C. Measure air outlets and inlets without making adjustments.
 1. Measure terminal outlets using a direct-reading digital backflow compensating hood. Use outlet manufacturer's written instructions and calculating factors only when direct-reading hood cannot be used due to physical obstruction or other limiting factors. Final report shall indicate where values listed have not been obtained by direct measurement.
- D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.
 1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents, if included.
 2. Adjust patterns of adjustable outlets for proper distribution without drafts. Terminal air velocity at five feet above finished floor shall not exceed 50 feet per minute in occupied air conditioned spaces.
- E. Do not overpressurize ducts.

3.6 PROCEDURES FOR MOTORS

- A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 1. Manufacturer's name, model number, and serial number.
 2. Motor horsepower rating.
 3. Motor rpm.
 4. Efficiency rating.
 5. Nameplate and measured voltage, each phase.
 6. Nameplate and measured amperage, each phase.
 7. Starter manufacturer's name, model number, size, type, and thermal-protection-element rating.
 - a. Starter strip heater size, type, and rating.

3.7 PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS

- A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.
 1. Measure and record the operating speed, airflow, and static pressure of each fan.
 2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
 3. Check the condition of filters.
 4. Check the condition of coils.
 5. Check the operation of the drain pan and condensate-drain trap.
 6. Check bearings and other lubricated parts for proper lubrication.
 7. Report on the operating condition of the equipment and the results of the measurements taken. Report conditions requiring correction.

- B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
 - 1. New filters are installed.
 - 2. Coils are clean and fins combed.
 - 3. Drain pans are clean.
 - 4. Fans are clean.
 - 5. Bearings and other parts are properly lubricated.
 - 6. Conditions requiring correction noted in the preconstruction report are corrected.
- C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.
 - 1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.
 - 2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
 - 3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
 - 4. Balance each air outlet.

3.8 TOLERANCES

- A. Set HVAC system's air flow rates and water flow rates within the following tolerances:
 - 1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus 10 percent and minus 0 percent .
 - 2. Air Outlets and Inlets: Plus 5 percent and minus 5 percent .
 - 3. Multiple outlets within single room: Plus 5 percent and minus 0 percent for total airflow within room. Tolerance for individual outlets within a single room having multiple outlets shall be as for "Air Outlets and Inlets".

3.9 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
 - 1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing field supervisor. Report shall be co-signed by the Contractor, attesting that he has reviewed the report, and the report has been found to be complete and accurate.
 - 2. The certification sheet shall be followed by sheet(s) listing items for which balancing objectives could not be achieved. Provide explanation for failure to achieve balancing objectives for each item listed.
 - 3. Include a list of instruments used for procedures, along with proof of calibration.
- B. Final Report Contents: In addition to certified field-report data, include the following:

1. Manufacturers' test data.
 2. Field test reports prepared by system and equipment installers.
 3. Other information relative to equipment performance; do not include Shop Drawings and product data.
- C. General Report Data: In addition to form titles and entries, include the following data:
1. Title page.
 2. Name and address of the TAB specialist.
 3. Project name.
 4. Project location.
 5. Project Performance Guaranty
 6. Architect's name and address.
 7. Engineer's name and address.
 8. Contractor's name and address.
 9. Report date.
 10. Signature of TAB supervisor who certifies the report.
 11. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 12. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 13. Nomenclature sheets for each item of equipment.
 14. Test conditions for fans and pump performance forms including the following:
 - a. Other system operating conditions that affect performance.
- D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outdoor, supply, return, and exhaust airflows.
 2. Duct, outlet, and inlet sizes.
- E. Air distribution outlets and inlets shall be shown on keyed plans with designation for each outlet and inlet matching designation used in Contract Documents and TAB test reports. Room numbers shall be included in keyed plans and test reports. Where multiple outlets and inlets are installed within a single room, a designation shall be assigned and listed for each outlet and inlet in addition to room number.
- F. Test Reports – General:
1. All test reports containing air or liquid flow data shall record flow values prior to system adjustment in addition to required data listed for each test report.
- G. Fan Test Reports: For supply, return, and exhaust fans, include the following:
1. Fan Data:

- a. System identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and size.
 - e. Manufacturer's serial number.
 - f. Arrangement and class.
 - g. Sheave make, size in inches, and bore.
 - h. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - g. Number, make, and size of belts.
 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Suction static pressure in inches wg.
- H. Round, Flat-Oval, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
1. Report Data:
 - a. System and air-handling-unit number.
 - b. Location and zone.
 - c. Traverse air temperature in deg F.
 - d. Duct static pressure in inches wg.
 - e. Duct size in inches.
 - f. Duct area in sq. ft..
 - g. Indicated air flow rate in cfm.
 - h. Indicated velocity in fpm.
 - i. Actual air flow rate in cfm.
 - j. Actual average velocity in fpm.
 - k. Barometric pressure in psig.
- I. Air-Terminal-Device Reports:
1. Unit Data:
 - a. System and air-handling unit identification.
 - b. Location and zone.

- c. Apparatus used for test.
- d. Area served.
- e. Make.
- f. Number from system diagram.
- g. Type and model number.
- h. Size.
- i. Effective area in sq. ft.

2. Test Data (Indicated and Actual Values):

- a. Air flow rate in cfm.
- b. Air velocity in fpm.
- c. Preliminary air flow rate as needed in cfm.
- d. Preliminary velocity as needed in fpm.
- e. Final air flow rate in cfm.
- f. Final velocity in fpm.
- g. Space temperature in deg F.

J. Instrument Calibration Reports:

1. Report Data:

- a. Instrument type and make.
- b. Serial number.
- c. Application.
- d. Dates of use.
- e. Dates of calibration.

3.10 INSPECTIONS

A. Final Inspection:

- 1. After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by Architect .
- 2. The TAB specialist's test and balance engineer shall conduct the inspection in the presence of Architect .
- 3. Architect shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.
- 4. If rechecks yield measurements that differ from the measurements documented in the final report by more than 10 percent, the measurements shall be noted as "FAILED."
- 5. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

B. TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
2. If the second final inspection also fails, Owner may contact the TAB specialists' governing organization for remedial action by the governing organization under the workmanship and performance warranty. See article, Warranty.
3. If remedial action is not provided by the TAB specialists' governing organization in a timely manner, Owner may contract the services of another TAB specialist to complete the TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB specialists' final payment.

C. Prepare test and inspection reports.

END OF SECTION 230593

SECTION 23 80 00 – HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Air inlets and outlets.
 - 2. Dampers.
 - 3. Ductwork.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 23 00 50, Basic HVAC Materials and Methods.
- C. Section 23 05 93, Testing, Adjusting, and Balancing for HVAC.

1.3 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.
- B. Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicated, dimensions, weight, corner or mounting point weights, furnished specialties and accessories; and installation and start-up instructions. Product data shall include applicable product listings and standards. Refer to Section 23 00 50, Basic HVAC Material and Methods for additional requirements.
- C. Engineering Data: Submit fan curves and sound power level data for each fan unit. Data shall be at the scheduled capacity. Data shall include the name of the rating agency or independent laboratory.

1.4 INFORMATIONAL SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.

1.5 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 23 00 50, Basic HVAC Materials and Methods.
- B. Record Drawings: Submit Record Drawings of installed ductwork, duct accessories, and outlets and inlets in accordance with requirements of Division 01.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

A. Design Criteria:

1. Supply all equipment and accessories in accordance with requirements of applicable national, state and local codes.
2. All items of a given type shall be products of the same manufacturer.
3. Scheduled equipment performance is minimum capacity required.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Insulation products, including insulation, insulation facings, jackets, adhesives, sealants and coatings shall not contain polybrominated diphenyl ethers (PBDEs) in penta, octa, or deca formulations in amounts greater than 0.1 percent (by mass).

2.2 AIR INLETS AND OUTLETS

- A. Except as otherwise indicated, provide manufacturer's standard inlets and outlets where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.
- B. Ceiling, wall or floor Compatibility: Provide inlets and outlets with border styles that are compatible with adjacent ceiling, wall or floor systems, and that are specifically manufactured to fit into ceiling, wall or floor module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems that will contain each type of air outlet and inlet.
- C. Refer to Schedule on Mechanical Drawings for details of inlets and outlets to be used.

2.3 DAMPERS

- A. Manual Air and Balance Dampers: Provide dampers of single blade type or multi-blade type constructed in accordance with SMACNA, "HVAC Duct Construction Standards," except as noted herein.
1. Rectangular Ductwork:
 - a. Single damper blades may be used in ducts up to 10 inches in height. Dampers shall be 16 gauge minimum. Provide self-locking regulators, equal to Ventlok 641. Provide end bearings equal to Ventlok 607 at each damper. Provide continuous solid 3/8 inch square shafts.
 - b. Multiple blade dampers shall be equal to Ruskin CD35 Standard Control Damper. Maximum width for multiple damper blades for use in rectangular duct shall not exceed 6 inches.
 - c. Where duct velocity may be expected to exceed 1500 fpm, provide Ruskin CD-50, or equal, low leakage dampers with airfoil blades.
 2. Round Ductwork:

- a. Single damper blades may be used in ducts up to 12 inches in diameter. Provide multiple blade opposed blade dampers, with connected linkage, for ductwork larger than 12 inches in diameter.
 - b. Damper blades for round ductwork shall be 20 gauge steel for ducts up to 12 inches diameter and 16 gauge steel for dampers larger than 12 inches diameter. Provide self-locking regulators, equal to Ventlok 641, Durodyne, or equal for operation of dampers. Provide end bearings equal to Ventlok 607 and provide continuous solid 3/8 inch square shafts.
3. Where ductwork is externally insulated, provide self-locking regulators equal to Ventlok 644, Durodyne, or equal for rectangular ductwork, and Ventlok 637, Durodyne, or equal for round ducts.

2.4 DUCTWORK

- A. Construct and install sheet metal ductwork in accordance with the California Mechanical Code for 2 inches static pressure for supply air, and 2 inches minimum for return and exhaust air unless otherwise noted on Drawings.
 1. Where not in conflict with the California Mechanical Code, construct and install all sheet metal ductwork in accordance with SMACNA HVAC Duct Construction Standards (Metal and Flexible). Where applicable for HVAC work, construct and install sheet metal work in accordance with SMACNA Architectural Sheet Metal Manual.
 2. Provide variations in duct size, and additional duct fittings as required to clear obstructions and maintain clearances as approved by the Architect at no extra cost to the Owner.
 3. Gauges, joints and bracing shall be in accordance with the California Mechanical Code.
 4. Provide beading or cross breaking for all ductwork inside building. Provide cross breaking for ductwork exposed to weather.
 5. At the contractor's option, ductwork may be fabricated using the Ductmate, Nexus, Quickduct, Transverse Duct Connection (TDC), Pyramid-Loc duct connection systems, or equal. Fabricate in strict conformance with manufacturer's written installation instructions and in accordance with California Mechanical Code.
 - a. Seal flanged ends with pressure sensitive high density, closed cell neoprene or polyethylene tape gasket, Thermo 440, or equal.
 - b. Provide metal clips for duct connections, except at breakaway connections for fire dampers and fire smoke dampers. Provide corner clips at each corner of duct, through bolted, at all locations except at breakaway connections for fire dampers and fire smoke dampers. Where used on locations exposed to weather, provide continuous metal clip at top and sides of duct, with 1 inch overhang for top side.
- B. Design and installation standards:
 1. SMACNA Compliance: Comply with applicable portions of Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) for all work in this section.
 2. NFPA Compliance: Comply with ANSI/NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems," and ANSI/NFPA 90B, "Standard for the Installation of Warm Air Heating and Air Conditioning Systems."
 3. California Mechanical Code.

- C. Duct sizes indicated are external sizes.
- D. Galvanized Sheet Steel: Lock-forming quality, ASTM A924 and ASTM A653, Coating Designation G 90. Provide mill phosphatized finish for exposed surfaces of ducts exposed to view.
1. Provide mill certification for galvanized material at request of the Project Inspector.
- E. Duct Sealants:
1. Sealant shall have a VOC content of 250 g/L or less.
 2. Sealant shall comply with testing and product requirements of South Coast Air Quality Management District, Rule 1168.
 3. Provide one part, non-sag, synthetic latex sealant, formulated with a minimum of 68 percent solids. Sealant shall comply with ASTM E84, Surface Burning Characteristics.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - 1) Design Polymerics, model DP1010.
 - 2) Polymer Adhesive Sealant Systems Inc, model Airseal #11.
 - 3) McGill Airseal, LLC.
- F. Duct Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, straps, trim, and angles for support of ductwork.
- G. Rectangular Duct Fabrication:
1. Shop fabricate ductwork of gauges and reinforcement complying with the more stringent of the following standards, except as noted herein.
 - a. SMACNA HVAC Duct Construction Standards
 - b. California Mechanical Code
 2. Fabricate ducts for 2 inch pressure class with minimum duct gauges and reinforcement as follows, except as otherwise noted:

<u>Table A</u>		
<u>Duct Dimension</u>	<u>Minimum Gauge</u>	<u>Joint Reinforcement Per CMC</u>
Through 12"	26	Not Required
13" through 18"	24	Not Required
19" through 30"	24	C/4

31" through 42"	22	E/4
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3. Fabricate duct fittings to match adjoining ducts and to comply with duct requirements as applicable to fittings. Except as otherwise indicated, fabricate elbows with center-line radius equal to 1.5 times associated duct width. Fabricate to include single thickness turning vane in elbows where space does not permit the above radius or where square elbows are shown. Limit angular tapers to 30 degrees for contracting tapers and 20 degrees for expanding tapers. Turning vanes shall be E-Z Rail II, Durodyne, or equal.
4. Fabricate round supply connections at rectangular, plenum type fittings using spin-in type fittings, complete with extractor and volume control damper. Refer to Paragraph "DAMPERS" for damper requirements.
5. Provide drive slip or equivalent flat seams for ducts exposed in the conditioned space or where necessary due to space limitations. On ducts with flat seams, provide standard reinforcing on inside of duct. Duct connection to outlet on exposed duct shall be full size of outer perimeter of outlet flange.
6. Ducts exposed in the conditioned space shall be free of dents and blemishes and be mounted tight against adjacent surface with flat hangers. Remove all fabrication labels from ductwork.
7. Provide 20 gauge minimum for ductwork exposed within occupied spaces.

H. Round and Oval Ductwork Fabrication:

1. Round and oval duct and fittings shall be spiral lockseam or longitudinal seam as indicated in table below. Provide couplings to join each length of duct.
 - a. At contractors' option, round or oval ductwork may be utilized in place of rectangular ductwork shown on Drawings, provided available space allows installation of round or oval ductwork without compromising space required for installation of products and systems of other trades.
 - 1) Round or oval ductwork utilized in place of rectangular ductwork shown on Drawings shall be sized to have a static pressure loss equivalent to rectangular duct shown on Drawings.
 - 2) Unlined round or oval duct shall not be utilized in place of rectangular internally lined ductwork shown on Drawings.
2. Fabricate duct fittings to match adjoining ducts and to comply with duct requirements as applicable to fittings. Except as otherwise indicated, fabricate elbows with center-line radius equal to 1.5 times associated duct width. Provide two-piece, die-stamped, 45-degree to 90-degree elbows for sizes up to 12 inches; five-piece, 90-degree elbows for sizes 12 inches and above; conical tees; and conical laterals. All reducers shall be placed after a tap has been made on the duct main. Reducers shall be long-taper style.
3. Round Ductwork: Construct of galvanized sheet steel complying with ANSI/ASTM A 653 by the following methods and in minimum gauges listed.

<u>Diameter</u>	<u>Minimum Gauge</u>	<u>Method of Manufacture</u>
Up to 14"	26	Spiral Lockseam

15" to 23"	24	Spiral Lockseam
24" to 36"	22	Spiral Lockseam

4. Provide locked seams for spiral duct; fusion welded butt seam for longitudinal seam duct.
5. Fittings and Couplings: Construct of minimum gauges listed. Provide continuous welds along seams at exposed ducts. Provide spot weld bonded seams at concealed ducts.

<u>Diameter</u>	<u>Minimum Gauge</u>
3" to 36"	20

6. Ducts exposed in the conditioned space shall be free of dents and blemishes and be mounted tight against adjacent surface with flat hangers. Remove all fabrication labels from ductwork.
7. Provide 20 gauge minimum for ductwork exposed within occupied spaces.

I. Duct Access Doors:

1. Duct Access: Provide hinged access door in rectangular ducts for access to fire dampers, control equipment, etc. Access door size shall be duct diameter wide by duct diameter high for all ducts under 24 inches. Ducts over 24 inches in diameter shall have 24-inch by 18-inch access doors. Minimum size access doors shall be 6 inches by 6 inches.
2. Provide hinged style access doors for round ductwork, NCA Manufacturing, Inc., Model AD-RD-87, Pottorff Series 60, or equal. Access doors shall be 16 gauge galvanized steel with continuous piano hinge. Locks shall be plated steel strike and catch. Provide 1" x 3/8" Polyethylene "Perma Stik" gasket all around door.

J. Flexible Air Ducts:

1. Provide exterior reinforced laminated vapor barrier, fiberglass insulation, encapsulated spring steel wire Helix, and impervious, smooth, non-perforated interior vinyl liner. Individual lengths of flexible ducts shall contain factory fabricated steel connection collars.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following, or equal:
 - 1) C.A. Schroeder, Inc., Cal Flex model 2PMJ.
 - 2) ThermaFlex model M KC.
2. Factory made air ducts shall be approved for the use intended and shall conform to the requirements of UL 181 and NFPA 90A. Each portion of a factory-made air duct system shall be identified by the manufacturer with a label or other suitable identification indicating compliance with UL 181, Class 1. Ducts shall be UL listed Class 1, maximum 25/50 smoke and flame spread and shall be installed in accordance with the terms of their listing and the requirements of SMACNA HVAC Duct Construction Standards (Metal and Flexible). Factory-made air ducts shall have the following minimum R-values: R-6.0 for

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- ductwork installed within the building insulation envelope, R-8.0 for ductwork installed outside the building insulation envelope.
3. Flexible ductwork shall be maximum of 5 feet long, and shall be extended to the fullest possible length, in order to minimize pressure drop in the duct.
 4. Flexible ducts shall be selected for minimum of 6 inch positive static pressure and minimum of 1 inch negative static pressure.
 5. Duct Access Panels:
 - a. Provide duct access panel assembly of the same material and gauge used for the duct. Duct access panels shall conform to the following:
 - 1) Fasteners: Black steel or stainless steel to match material used for the duct. Panel fasteners shall not penetrate duct wall.
 - 2) Gasket: Comply with NFPA 96, grease-tight, high temperature ceramic fiber, rated for minimum 1500 °F.
 - K. Shower exhaust ducts: Provide ducts and supports from stainless steel for a length of 20 feet from exhaust grille or register.

PART 3 - EXECUTION

3.1 AIR INLETS AND OUTLETS INSTALLATION

- A. Provide all air inlets and outlets with gaskets and install so that there will be no streaking of the walls or ceilings due to leakage. Duct connection to outlet on exposed duct shall be full size of outer perimeter of outlet flange.
- B. Unless otherwise indicated on Drawings, provide rectangular galvanized steel plenum on top of each diffuser and ceiling return for connection to ductwork. Line plenum with internal insulation as indicated for lined ductwork. Size plenum to allow full opening into air terminal. Plenum sheet metal gauge shall be equal to gauge for rectangular equivalent of the branch duct serving the air inlet or outlet.
- C. Ceiling-mounted air inlets, outlets, or other services installed in T-Bar type ceiling systems shall be positively attached to the ceiling suspension main runners or to cross runners with the same carrying capacity as the main runners.
 1. Air inlets, outlets, or other services weighing not more than 56 pounds shall have two No. 12 gauge hangers connected from the terminal or service to the structure above. These wires may be slack.
 2. Support air inlets, outlets, or other services weighing more than 56 pounds directly from the structure above by approved hangers. Provide 4 taut 12 gauge wires each, attached to the fixture and to the structure above. The 4 taut 12 gauge wires, including their attachment to the structure above must be capable of supporting 4 times the weight of the unit.
 3. Secure air inlets and outlets to main runners of ceiling suspension system with two No. 8 sheet metal screws at opposing corners.

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- D. Furnish all air inlets and outlets with a baked prime coat unless otherwise noted. Provide off-white baked enamel finish on ceiling-mounted air inlets and outlets. Paint exposed mounting screws to match the material being secured.
- E. Air inlets and outlets shall match all qualities of these specified including appearance, throw, noise level, adjustability, etc.

3.2 DAMPER INSTALLATION

- A. All dampers automatically controlled by damper motors are specified under "Temperature Control System" except those specified with items of equipment.
- B. Provide opposed blade manual air dampers at each branch duct connection and at locations indicated on the drawings and where necessary to control air flow for balancing system. Provide an opposed blade balancing damper in each zone supply duct. Provide an access panel or Ventlok flush type damper regulator on ceiling or wall for each concealed damper.
- C. Provide 18 inch x 12 inch minimum hinged access doors in ductwork and furring for easy access to each fire damper; insulated access doors in insulated ducts. Label access doors with 1/2 inch high red letters.
 - 1. Provide Ventlok Series 100, Durodyne, or equal access doors with hardware for convenient access to all automatic dampers and other components of the system, insulated type in insulated ducts. Provide Ventlok #202 for light duty up to 2 inch thick doors, #260 heavy-duty up to 2 inch thick doors and #310 heavy-duty for greater than 2 inch thick doors. Provide #260 hinges on all hinged and personnel access doors; include gasketing.

3.3 DUCTWORK INSTALLATION

- A. General:
 - 1. Assemble and install ductwork in accordance with recognized industry practices which will achieve air tight and noiseless (no objectionable noise) systems capable of performing each indicated service. Install each run with minimum of joints. Align ductwork accurately at connections within 1/8 inch misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers, and anchors of type which will hold ducts true to shape and to prevent buckling. Where possible, install ductwork to clear construction by 1/4 inch minimum, except at air inlets and outlets. Where ductwork will not clear construction, secure duct firmly to eliminate noise in the system.
 - 2. Duct Joints: Install duct sealers, pop rivets or sheet metal screws at each fitting and joint. Duct sealers shall be fire retardant. Sheet metal screws for joints shall be minimum #10 size galvanized.
 - 3. Where ductwork is left exposed within a room, the same shall be run true to plumb, horizontal, or intended planes. Where possible, uniform margins are to be maintained between parallel lines and/or adjacent wall, floor, or ceiling surfaces.
 - 4. Horizontal runs of ductwork suspended from ceilings shall provide for a maximum headroom clearance. The clearance shall not be less than 6'-6" without written approval from the Architect.
 - 5. Provide sheet metal angle frame at all duct penetrations to wall, floor, roof, or ceiling.
 - 6. Paint inside of ducts, visible through grille, dull black.

7. Where ductwork is installed in finished areas of buildings that do not have ceilings, paint ductwork, support hangers, and air inlets and outlets to match adjacent architectural surfaces, or as directed by Architect.
8. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal, or other methods acceptable to the enforcing agency.

- B. Upper connection of support to wood structure shall be with wood screws or lag screws in shear fastened in the upper one half of the wood structural member. Fasteners shall conform to the following schedule:

For ducts with P/2=30"	#10 x 1-1/2" wood screw
For ducts with P/2=72"	1/4"x 1-1/2" lag screw
For ducts with P/2 over 73"	3/8"x 1-1/2" lag screw

- C. Upper connection in tension to wood shall not be used unless absolutely necessary. Where deemed necessary the contractor shall submit calculations to show the size fastener and penetration required to support loads in tension from wood in accordance with the following schedule:

For ducts with P/2=30"	260 pounds per hanger
For ducts with P/2=72"	320 pounds per hanger
For ducts with P/2=96"	460 pounds per hanger
For duct with P/2 larger than 120"	NOT ALLOWED

- D. Where ducts pass through interior partitions and exterior walls, conceal space between construction opening and duct or duct plus insulation with sheet metal flanges of same gauge as duct. Overlap opening on four sides by at least 1-1/2 inches.
- E. Support ductwork in manner complying with SMACNA "HVAC Duct Construction Standards," hangers and supports sections. Where special hanging of ductwork is detailed or shown on Drawings, Drawings shall be followed. Angles shall be attached to overhead construction in a manner so as to allow a minimum of 2 inches of movement in all directions with no bending or sagging of the angle.
1. Except where modified in individual paragraphs of this Section, provide hanger support with minimum 18 gauge straps, 1 inch wide. Fold duct strap over at bottom of duct.
 2. Install duct supports to rectangular ducts with sheet metal screws. Provide one screw at top of duct and one screw into strap at bottom of duct.
- F. Installation of Flexible Ductwork:

1. Provide flexible ducts with supports at 30 inch centers with 2 inch wide, 26 gauge steel hanger collar attached to the structure with an approved duct hanger. Installation shall minimize sharp radius turns or offsets.
 - a. Supports shall be in accordance with SMACNA HVAC Duct Construction Standards (Metal and Flexible).
 - b. Flexible duct bends shall be not less than 1-1/2 duct diameter bend radius.
2. Make connections to rigid duct and units with Panduit style draw band at inner liner material, and a second draw band over the outer vapor barrier material.
3. Make connection to duct with spin-in fittings, with air scoop and balance damper.

G. Installation of Shower Exhaust Ducts:

1. Slope duct a minimum of 1 percent to drain back to the exhaust grille.

3.4 DUCTWORK SEALING AND LEAK TESTING

- A. All ductwork shall receive a Class A seal.
- B. Seal airtight all joints and seams, including standing seams and manufactured joints and seams, of all supply, return and exhaust ducts except those exposed in conditioned space.
- C. Leakage Classes:

<u>Pressure Class</u>	<u>Leakage Class</u>	
	<u>Round Duct</u>	<u>Rectangular Duct</u>
2"W.G. or less	8	16
4"W.G. or greater	2	4

- D. All duct systems (supply, return, outside air intake, and exhaust), except those identified on compliance forms on Drawings as requiring Acceptance Testing per the requirements of the California Energy Code, shall be tested in accordance with the requirements of SMACNA "HVAC Air Duct Leakage Test Manual." Test pressure shall be equal to the pressure class of the duct. For additional duct leak testing requirements, refer to Section 230050, "Basic HVAC Materials and Methods," Article, "Acceptance Requirements."

3.5 HANGER AND SUPPORT INSTALLATION

- A. General: Support ductwork, equipment and piping so that it is firmly held in place by approved iron hangers and supports, and special hangers. Hanger and support components shall support weight of ductwork, equipment and pipe, fluid, and pipe insulation based on spacing between supports with minimum factor of safety of five based on ultimate strength of material used. Do not exceed manufacturer's load rating. Pipe attachments or hangers, of same size as pipe or tubing on which used, or nearest available. Rigidly fasten hose faucets, fixture stops, compressed air outlets, and similar items to the building construction. The Architect shall approve hanger material before installation. Where building structural members do not match piping and

ductwork support spacing, provide “bridging” support members firmly attached to building structural members in a fashion approved by the structural engineer.

1. Materials, design, and type numbers for support of piping per Manufacturers' Standardization Society (MSS), Standard Practice (SP)-58.
 - a. Provide copper-plated or felt-lined hangers for use on uninsulated copper tubing.
 2. Materials and design for ductwork support shall be per SMACNA “HVAC Duct Construction Standards, Metal and Flexible.”
- B. Hanger components shall be provided by one manufacturer: B-Line, Grinnell, Unistrut, Badger, or equal.
- C. Duct Hanger and Support Spacing: Conform to Requirements of CMC and SMACNA “HVAC Duct Construction Standards, Metal and Flexible.”
- D. Duct Support to Structure:
1. Upper connection of support to wood structure shall be with wood screws or lag screws in shear fastened in the upper one half of the wood structural member. Fasteners shall conform to the following schedule:

For ducts with P/2=30"	#10 x 1-1/2" wood screw
For ducts with P/2=72"	1/4"x 1-1/2" lag screw
For ducts with P/2 over 73"	3/8"x 1-1/2" lag screw

2. Upper connection in tension to wood shall not be used unless absolutely necessary. Where deemed necessary the contractor shall submit calculations to show the size fastener and penetration required to support loads in tension from wood in accordance with the following schedule:

For ducts with P/2=30"	260 pounds per hanger
For ducts with P/2=72"	320 pounds per hanger
For ducts with P/2=96"	460 pounds per hanger
For duct with P/2 larger than 120"	NOT ALLOWED

3. Install concrete inserts for support of ductwork in coordination with formwork as required to avoid delays in work.
4. Upper connection to manufactured truss construction must comply with truss manufacturers published requirements and Structural Engineers requirements.

3.6 TESTING AND BALANCING

- A. For testing and balancing requirements, refer to Section 23 05 93, Testing and Balancing for HVAC.

3.7 CLEANING AND PROTECTION

- A. As each duct section is installed, clean interior of ductwork of dust and debris. Clean external surfaces of foreign substances that might cause corrosive deterioration of metal or where ductwork is to be painted.
- B. Strip protective paper from stainless steel ductwork surfaces, and repair finish wherever it has been damaged.
- C. Temporary Closure: At ends of ducts that are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering that will prevent entrance of dust and debris until connections are to be completed.
- D. As each internally lined duct section is installed, check internal lining for small cuts, tears, or abrasions. Repair all damage with fire retardant adhesive.

END OF SECTION 23 80 00

SECTION 31 10 00 CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 General Requirements

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Supplemental Conditions shall be in addition to the standards provided herein.

1.02 Description

- A. Preserve and protect existing site amenities to remain, including, but not limited to, trees, shrubs, underground utilities and other improvements as shown on the Plans. Protection of work shall include affected improvements on adjoining properties.
- B. Scope of work includes: site preparation, removal of debris, staging of equipment and materials and securing the site for construction.

1.03 Related Work

- A. Section 31 20 00: Earthwork
- B. Section 01 57 23: Storm Water Pollution Control

1.04 Protection/Replacement

- A. Prior to demolition, erect protective fencing a minimum of one foot (1') beyond the canopy of all trees to remain. The radius of the canopy shall be measured from the longest branch furthest from the trunk. Refer to the environmental document for additional requirements for protective fencing on other existing natural features. For work within or near protected trees, a tree permit may be required.
- B. If public use is to be maintained on unaffected portions of the project site, the Contractor shall be responsible for directing pedestrian and vehicular traffic safely around the construction zone. Utilization of temporary fencing, barricades, signage, etc. shall be the responsibility of the Contractor. Safe detours shall be available to the general public at all times during the course of construction.
- C. Protection of existing site improvements shown to remain, including, but not limited to, fencing, signs, benches, picnic tables, play structures, shade structures, drinking fountains, concrete paving, concrete wall and curbs.

- decomposed granite paving, asphalt concrete paving, recreational site improvements, etc. are to be protected and preserved.
- D. The Contractor shall be responsible for any damage to and maintenance of all existing street improvements, drainage facilities and irrigation systems and to re-establish these improvements to their original condition as soon as possible after completion of the work in the area, to the complete satisfaction of the Project Manager and Inspector. Realignment or modifications to the existing facilities as shown on the plans are accepted.
 - E. Survey monuments and markers either shown on the Plans or encountered during the course of construction shall be protected and preserved. The Contractor shall notify the Inspector upon discovery of an unmarked monument, at which time, arrangements for the relocation or adjustment of the monument will be determined. All costs associated with the relocation or adjustment of these monuments shall be the Contractor's responsibility.
 - F. Burning or burying removed material on-site is prohibited.
 - G. Where the removal of specific material creates an open hole, pit, trench or other depression, the Contractor shall immediately backfill and compact the areas consistent with requirements outlined in Section 31 20 00 of these Specifications.
 - H. All items identified in the Plans to remain or identified in the field to remain, removed in error by the Contractor, shall be repaired or replaced to match in equal or better construction, at no cost to the City. The quality of the repair or replacement shall be measured as that existing at contract award.

PART 2 - PRODUCTS

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PART 3 - EXECUTION

3.01 Pre-Construction Site Review

- A. Contractor shall review existing site conditions with the Inspector prior to start of construction and document any conditions which adversely affect the satisfactory execution of the work and final acceptance of the project.
- B. Commencement of work constitutes acceptance of existing conditions. The Contractor shall, at his expense, be responsible for correcting all unsatisfactory and defective work.

3.02 Clearing

- A. Completely remove trees, shrubs, stumps, vines, rubbish/debris, undergrowth, deadwood, structures, and other elements identified to be removed and/or which interfere with the construction as shown on the Plans and as specified.
- B. Obtain verification from the Project Manager for non-identified items scheduled to be removed prior to actual removal.

3.03 Grubbing

- A. Remove all stumps, roots, grasses and weeds in its entirety. Apply systemic weed killer. Confirm weed kill prior to removal.
- B. Once surface material is removed, the Contractor shall stockpile the top twelve inches (12") of topsoil for use during the final grading phase of work. This soil shall be free of rocks, debris, roots and other undesirable material.

3.04 Utilities

- A. Contact USA Alert (800) 642-2444 prior to commencement of any demolition or excavation work. Provide a minimum of 48 hours' notice. Verify all utilities entering into and their locations within the project site.
- B. Where utilities lie within the project site, but are not a part of the project, the Contractor shall cooperate with the agency or utility company having jurisdiction to maintain its use and the integrity of the structure.
- C. Where utilities enter into the project site and taps, connections to or extensions of the utility are identified in the Plans, the Contractor shall coordinate all work with the agency or utility company having jurisdiction to minimize or eliminate disruption of use by the adjacent properties.
- D. Verify that all utilities, shown to be removed on the Plans, are inactive and turned off prior to disconnection and/or re-routing, prior to demolition.

3.05 Debris Removal

- A. All materials removed as a part of this contract shall become the property of the Contractor and shall be legally disposed of off-site, unless otherwise noted on the Plans.
- B. Where a portion of a concrete slab, curb or wall and asphalt concrete paving or curb is to be removed, the concrete shall be cut with a concrete saw at a 90 degree angle so that the edge of the remaining concrete shall form a neat, straight line. Conform to the City of Roseville Design and Construction Standards, latest edition.

END OF SECTION

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SECTION 31 20 00 EARTHWORK

PART 1 - GENERAL

1.01 General Requirements

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Supplemental Conditions shall be in addition to the standards provided herein.
- C. The standards set forth in the Caltrans Standard Specifications, latest edition, shall be in addition to the standards provided herein.
- D. The requirements set forth by CAL OSHA shall be in addition to the standards provided herein.

1.02 Description

- A. Provide all labor, operations and materials necessary for earthwork, including, but not limited to, staking and surveying, grading; excavating; installation of facilities necessary to perform excavation and subsequent removal of such facilities upon completion of work; subgrade preparation; backfilling; and other incidental items necessary for a complete project.
- B. The import or export of material shall be a part of the Contractor's bid price.
- C. The intent of the grading plan is to provide positive drainage and to maintain slopes on walkways as required by the Americans with Disabilities Act and California Title 24 throughout the project site. The Project Manager shall be notified immediately of any discrepancies between the Plans and actual field conditions and/or conflicts between the design and code requirements.

1.03 Related Work

- A. Section 31 10 00: Clearing and Grubbing
- B. Section 33 00 00: Utilities
- C. Section 01 57 23 Storm Water Pollution Control

1.04 Quality Assurance

- A. All work shall conform to local codes and regulations, including standards set forth in the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation (Caltrans), Chapter 70 of the Uniform Building Code and ASTM.
- B. Relative compaction shall be the in-place dry density of soil denoted as a percentage of the maximum dry density of the same material. This shall be as

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determined by ASTM 1557. The optimum moisture is measured by the water content which corresponds to the maximum dry density.

- C. Upon discovery of unforeseen subsurface site conditions, the Contractor shall notify the Inspector immediately.
- D. Upon discovery of hazardous materials, cease all activity and immediately contact the Fire Department.

1.05 Protection

- A. Provide and install all supports, shoring, bracing, underpinning, sheet piling and other methods for the sides of excavations necessary for ensuring safe working conditions for the workmen and to protect adjacent improvements to remain.
- B. Provide any and all protection measures necessary to ensure the protection of the workmen, the general public, including children and the project site. These protection requirements remain the Contractor's sole responsibility throughout the duration of the project, including non-working hours.
- C. Do not obstruct vehicular, bicycle or pedestrian thoroughfares, unless previously accepted by the City. Provide safe and adequate detours around the construction as required by City and State regulations.
- D. Trenches shall be covered at all times when work directly associated with the trenches is not occurring, including non-work hours.
- E. During the course of construction, the Contractor shall ensure that surface drainage does not create a nuisance onto adjacent properties.

1.06 Erosion Control Measures

- A. Construction sites shall have required erosion and sediment control measures in place as required by the Erosion and Sediment Control Plan. If construction is in progress, the Contractor shall ensure that the construction site is prepared prior to the onset of any storm. At a minimum, erosion control measures shall include:
 - 1. Broadcast seed
 - 2. Drainage area protection
 - 3. Dust/mud control
 - 4. Drain inlet filters
 - 5. Silt fence and straw wattles
 - 6. Slope protection
 - 7. Straw bales
 - 8. Silt controlling devices

PART 2 - PRODUCTS

2.01 Base Rock

- A. Class 2 aggregate base per Caltrans Standard Specifications, latest edition.

2.02 Drain Rock

- A. Drain rock shall be Class 2 permeable, washed, unbroken stone or gravel.
Material gradation shall conform to the following:

Sieve Size	Percent Passing
1 inch	100
No. 4	20-50
No. 50	0-10
No. 200	0-5

2.03 Pea Gravel

- A. Pea gravel shall be natural stone, free of clay, shale or organic matter, and shall conform to the following:

Sieve Size	Percent Passing
3/8 inch	100
No. 4	47
No. 8	2
No. 16	1

2.04 Fill

- A. Structural Fill shall conform to Caltrans Standard Specifications or the accepted site-specific geotechnical report generated for the project.
- B. Fill for non-structural areas shall conform to the following standards:
1. Plasticity: ASTM D4318-84
 2. Expansion Index: No greater than twenty (20)
 3. Testing: UBC 29-9 and ASTM D422-72
 4. Particle Size: No greater than one inch (1")

2.05 Topsoil

- A. The top eight to ten inches (8" – 10") of native soil containing more than three percent (3%) organic material. Topsoil shall be free of rocks no larger than one inch (1") in diameter, free from subsoil, roots, heavy or stiff clay, coarse sand, destructive seeds, noxious chemicals, brush, debris, litter and other undesirable materials.
- B. For any import soil to be used in turf/planting areas, submit a soils analysis with soil amendment recommendations (for plant growth) for review and acceptance prior to placement on-site. Soils test information shall be as outlined in Section 32 90 00: Planting – 1.06.

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2.06 Soil Sterilant

- A. Sterilizer shall be standard, quick-acting, short-lived and non-selective weed and grass killer, commonly used under roadway/transportation projects. Application of the sterilant shall pose no short or long term health threats to the installer or the general public. Submit analysis for approval prior to applying.

2.07 Sand

- A. Granular, fine, free of organic matter, mica, loam or clay material.

PART 3 - EXECUTION

3.01 Construction Staking

- A. The layout of all work shall be performed by a California State licensed land surveyor provided by the Contractor.
- B. Notify the Inspector immediately of any discrepancies between actual field conditions and the Plans. Minor field adjustments may be necessary in order to fulfill the intent of the Plans.
- C. Non-notification of discrepancies between actual field conditions and the Plans by the Contractor, in writing, shall indicate his acceptance of such field conditions. Adjustments/modifications to the construction to accommodate the inconsistencies (without notification) shall be at no additional cost to the City.

3.02 Excavation

- A. All excavations shall be as noted on the Plans. Excavations shall include accommodation of base material.
- B. Do not over-excavate. Excavations shall provide appropriate space to install shoring, bracing, formwork, etc, as needed to ensure the safe and proper construction of the work.
- C. Take every precaution to prevent water from entering, softening, and undercutting excavated areas, including, pits, footings, trenches, etc.
- D. Notify the Inspector immediately upon discovery of unsatisfactory soils materials or unforeseen site conditions. Excavation shall include the complete removal of the unsatisfactory material and its legal disposal thereof.

3.03 Site Grading

- A. A grading permit is required to be obtained by the Contractor prior to commencing any earthwork.
- B. Grading shall include adjacent transition areas, new elevations/contours as shown on the Plans. All subgrade areas shall be graded parallel to the finish grades and contours and shall be uniform in slope. Transition areas shall

- provide a smooth connection between new and existing grades and shall not create additional drainage or ponding onto adjoining properties.
- C. Surface grades shall provide for positive drainage away from structures and footings, and shall be uniformly smooth throughout.
 - D. Rough grading shall:
 - 1. Be graded to a tolerance of 0.10 feet, plus or minus for planted and turf areas.
 - 2. Be graded with a tolerance less than .04' from specified grade and cross section for subgrade in which pavement, curbs and other structural elements are to be placed immediately above.
 - 3. Provide a subgrade surface free of exposed rocks, stones and boulders.
 - 4. Provide a subgrade surface free of depressions, pits, etc., with proper backfill and compaction. See paragraph 3.04 below.

3.04 Placement of Fill Material

- A. Prior to placement of fill material, the Contractor shall:
 - 1. Obtain approval of the subgrade surface from the Inspector.
 - 2. Scarify, dry and compact soft and/or wet areas.
 - 3. Remove and replace unsuitable subgrade material to the satisfaction of the Inspector.
 - 4. Take all necessary corrective action.
- B. Do not use topsoil as fill or backfill material, unless otherwise accepted in writing.
- C. Fill shall be placed in the following manner:
 - 1. Accepted engineered fill material for structural slabs and areas to be paved shall be placed in six-inch (6") loose thickness, uniform layers over the entire area.
 - 2. Fill material in planted areas shall be placed in twenty-four inch (24") maximum loose thickness throughout the areas to receive fill.
- D. Aerate or water each lift to obtain the required compaction rate indicated on the Plans. Thoroughly mix material to ensure proper moisture content for compaction. Repeat the operations until grades, as shown on the Plans, are obtained. Jetting of trenches shall be reviewed and accepted by the Inspector prior to performance of work.
- E. Do not place fill when the subgrade is frozen, muddy or wet. Allow conditions to thaw and dry out before resuming operations.
- F. Use hand tampers or vibrating compactors around foundations walls, retaining walls and other structural elements. Do not use large equipment in these areas and do not begin compaction operations until the bearing surfaces have reached its design strength.
- G. Fill around existing trees to remain shall not exceed twelve inches (12").

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1. Minor fill (6" or less) shall utilize topsoil and shall be placed by hand. Do not cover crown of trunk. Feather grades to the extent possible.
 2. Fills between 6" and 12" shall utilize 3/4" pea gravel on grade, placed up to three inches (3") below finish grade. Apply topsoil, by hand, to meet finish grade elevations. Feather grades to the extent possible.
- H. Construct mounds from on-site material. The core of the mound (1' below finish elevations) shall be compacted to 90%. The top twelve inches (12") shall be compacted to 85%. Place topsoil in the top twelve inches (12").
- I. Place topsoil in all turf and planting areas a minimum of twelve (12) inches deep. See Section 31 10 00, 3.03-B: Clearing and Grubbing.

3.05 Trenching, Backfilling and Compacting

- A. For trenches greater than five feet (5') in depth, submit an OSHA permit related to the work.
- B. All trenches shall be straight, true and cut vertical at 90 degrees to the surface plane.
- C. For trenches through existing paved surfaces, use a concrete saw or other tool to achieve straight, clean lines. Replace paved surface to the same or better condition as existing prior to cut.
- D. Do not over-excavate. Maintain bearing surfaces true, level and undisturbed to the extent possible.
- E. Trenches shall be kept dry and frost-free. Do not allow standing water to collect.
- F. Do not allow trenches to remain exposed at any time when work directly related is not occurring. Cover all trenches during non-work hours.
- G. Bedding for all trenches to receive pipes shall be as follows:
1. Bedding material shall be consistent with the City of Roseville Design and Construction Standards, latest edition.
 2. Pipe shall lie completely on bedding. Pipe fittings or joints shall not bear weight.
 3. Bedding shall be uniform throughout the length of pipe.
- H. Initial backfill for storm drains, sewer lines and electrical conduit shall conform the applicable City standard set forth by the Department having jurisdiction.
- I. Backfill beyond the initial operations shall be native soil, placed in twelve-inch (12") lifts. Compaction for trenched areas shall be 95% for parking lot, driveway and roadway areas; 90% for hardscape (i.e. walkways, picnic pads basketball and tennis courts); and 85% in areas to be planted. Place topsoil over trenches in planted areas. Upon completion, all trenches shall be filled flush with adjacent finish grades.
- J. Compaction tests shall be required for trenched areas, hardscape areas and areas where fill over two feet in depth will be placed. The Inspector shall

determine the number of tests and the locations. Re-tests shall be the Contractor's responsibility.

- K. Potholing shall be required in areas where existing utilities are indicated. Hand digging may be required.

3.06 Soil Sterilant

- A. Soil sterilant shall be applied to areas where paving is to be installed. The worker applying the sterilant shall take every precaution to avoid overspray of sterilant onto areas to be planted. The sterilant shall be placed no further than six inches (6") beyond the edge of pavement.
- B. Soil sterilant shall not be applied in inclement weather and windy days.

3.07 Drainage Areas

- A. All bare areas, regardless of slope, within 50 feet of natural drainages shall be covered with straw and pressed in place.
- B. No grading or trenching, except as required for erosion or sediment control, shall occur within 35 feet from the centerline of perennial and intermittent drainage swales between October 5 and April 1 unless approved by the Engineering Division, as well as any other governmental agency which may have additional jurisdiction and/or requirements.

3.08 Dust/Mud Control

- A. Adjacent Streets: Adjacent street frontages shall be swept at least once a day to remove silt and other dirt which is evident from construction activities.
- B. Construction Vehicles: The Contractor is responsible for cleaning construction vehicles leaving the site on a daily basis to prevent dust, silt, mud and dirt from being released or tracked offsite. Adjacent streets shall be swept clean daily.
- C. Grading Spoils: Dry stockpiles of soil shall be watered to prevent the generation of airborne dust. Trucks transporting dry soil shall be covered with tarpaulins.
- D. Water: Water shall be sprayed on all exposed earth surfaces during clearing, grading, earth moving and other site preparation activities. The exposed earth shall be watered throughout the day to minimize dust. The Contractor shall obtain a hydrant permit from the Environmental Utilities Department.
- E. Wind Allowances: Grading activities shall be restricted or halted when winds exceed 15 miles per hour as deemed necessary by the Public Works Inspector.

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SECTION 33 00 00 UTILITIES

PART 1 - GENERAL

1.01 General Requirements

- A. The requirements set forth in the General Conditions shall be in addition to the standards provided herein.
- B. The requirements set forth in the Supplemental Conditions shall be in addition to the standards provided herein.
- C. The standards set forth in the City of Roseville Design and Construction Standards, latest edition, for storm drainage throughout the project and for sanitary sewer installations within the public rights-of-ways, easements, or as shown on the improvement plans shall be in addition to the standards provided herein.
- D. The standards set forth in the latest edition of the California Building Code (CBC) for sanitary sewer installation within the project site, outside of the public right-of-way or easement shall be in addition to the standards provided herein.

1.02 Description

- A. Furnish all labor, materials and equipment for the complete installation of the storm drain system and sanitary sewer pipe, and necessary appurtenances as shown on the Plans and as specified herein.
- B. Submit a materials listing for review and approval prior to commencement of specified work.

1.03 Related Work

- A. Section 31 10 00: Clearing and Grubbing
- B. Section 31 20 00: Earthwork

1.04 Safety Requirements

- A. Furnish, install and maintain required sheeting, shoring, bracing, and other methods to ensure complete and safe work environment for all workers. Upon completion of work, remove all bracing, shoring, etc. in its entirety, unless otherwise directed by the Inspector.
- B. Prior to excavation or trenching, the Contractor shall contact USA Alert (800) 227-2600 to locate all known utilities a minimum of 48 hours prior to start of work. During the course of construction, the Contractor shall take every precaution to maintain and protect utilities noted to remain. Said utilities shall remain operational at all times, unless otherwise noted on the plans.

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- C. The existing utilities are shown on the Plans based on the information available at the time of contract document development. The City shall not assume responsibility for any inaccuracies or incompleteness of the Plans based on such information. The Contractor shall immediately notify, upon damage of any pipeline or facility, the Owner and/or its agents and take every action necessary to repair or replace damaged facilities to the satisfaction of the Inspector, and at no additional cost to the City.
- D. Trenches, excavations and repair of pavement shall be consistent with Section 31 20 00: Earthwork.

1.05 Coordination

- A. The piping system as shown on the Plans is diagrammatic. The Contractor shall make reasonable adjustments to the layout to avoid conflicts, based on actual field conditions. Said changes shall not interfere with the design intent of the system.

1.06 Tolerance

- A. The allowable tolerance for the installation of pipe is 0.05 feet within grades or spot elevations indicated on the Plans.

1.07 Product Storage

- A. Take every precaution to protect the materials and pipes from damage during the delivery, storage and installation of the pipe system. Store in a cool, contained area, protected from direct sunlight and per manufacturer's recommendations. Pipe shall be supported on firm level ground at the site.

1.08 Record Drawings

- A. The Contractor shall keep an accurate record of the as-built conditions of the storm drain and sanitary sewer system. These records shall be updated daily and kept at the construction site. At any time, the Inspector may examine the conditions of the "as-builts" to ensure compliance of the above.

PART 2 - PRODUCTS

2.01 General

- A. All products shall conform to City of Roseville Design and Construction Standards, latest edition, except as noted below.

2.02 Drain Pipe

- A. Solid drainpipe shall be PVC SDR 35 and shall conform to ASTM D1784, or accepted equal. Gasketed connections shall conform to ASTM F477.

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- B. Perforated drainpipe shall be smooth walled PVC, open per Caltrans Section 68-1.02K, or accepted equal.

2.03 Drain Rock

- A. Drain rock shall be Class 2 washed, $\frac{3}{4}$ " diameter.

2.04 Filter Fabric

- A. Filter fabric shall be MiraDRAIN 5000, or accepted equal.

2.05 Drains

- A. Drain Inlets shall be pre-cast and a minimum size of twenty-four inches (24") square or round by Jensen Precast, or accepted equal.
 - 1. Grate shall be heavy duty, cast iron, walk-on, and bolt down.
 - 2. Box extensions shall be Jensen Precast, or accepted equal.
 - 3. The base shall be six inches (6") thick.
 - 4. Walls shall be six inches (6") thick.
 - 5. A "No Dumping" Metal Storm Drain Marker shall be affixed to the concrete color of each drain inlet (See Detail DR-20)
 - 6. Contractor may install cast-in-place drain inlets in lieu of pre-cast drain inlets. Submit shop drawings and concrete mix design for review and approval.
- B. Channel Drains for baseball/softball backstop areas shall be Polycast 600 series pre-sloped trench drains with galvanized steel slotted grates or accepted equal.
- C. Sanitary sewer clean outs shall be as specified in the City of Roseville, Design and Construction Standards, latest edition.

2.06 Manholes

- A. Manholes shall have tongue and groove joints, be forty-eight inches (48") minimum in diameter, meeting ASTM C-478.
- B. Covers shall be cast iron.
- C. All components shall conform to the City of Roseville Design and Construction Standards, latest edition.

2.07 Tracer Wire

- A. Insulated solid copper wire, minimum #12 gauge. Color shall be green.

2.08 Sanitary Sewer Pipe

- A. Vitrified clay pipe (VCP) shall be as specified in Section 91 Sanitary Sewer in the City of Roseville, Design and Construction Standards, latest edition.
- B. PVC SDR 35 may be used for drinking fountain drain applications only, with prior approval, and shall conform to ASTM D3034.

2.09 Potable Water Warning Tape

- A. On sites with both Recycled water and potable water lines. Blue plastic tape, 3 inches wide, with the words "CAUTION: POTABLE WATERLINE" imprinted in minimum 1-inch high, black letters. Imprinting shall be continuous and permanent.

PART 3 - EXECUTION

3.01 General

- A. All pipes shall slope uniformly from given elevations shown on the Plans.
- B. All pipes shall be accurately laid true to line and grade, utilizing accepted construction methods.
- C. Damaged or cracked pipe and fittings shall not be installed and shall be removed from site.
- D. Install all pipe in locations shown on the Plans, except where existing conditions necessitate minor changes.
- E. All pipe and fittings shall be kept clean and closed throughout the course of construction.
- F. Connections to existing sanitary sewer stubs shall be "TV-ed" and air tested prior to the start of construction per the City of Roseville Design and Construction Standards, latest edition.

3.02 Installation

- A. Installation of the specified pipe lines shall conform to the City of Roseville Design and Construction Standards, latest edition.
- B. Notify the Inspector a minimum of 48 hours prior to covering of work to ensure timely inspections.
- C. Cutting of AC or concrete paving shall be clean, vertical and straight, using a saw, or other tool specific to this application. Replace paving to existing or better condition prior to work.
- D. Trench and backfill shall be per City of Roseville Design and Construction Standards, latest edition.
- E. Catch basins and drain inlets shall be installed with a concrete collar with "No Dumping" message and fish symbol depressed into the concrete or bolted in place, consistent with Drawing DR-20 the City of Roseville Design and Construction Standards, latest edition.
- F. Drain inlets installed in mulched planter areas shall have a 12-inch wide collar of 2- to 6-inch river cobble placed over filter fabric.
- G. Channel drains shall be set per manufacturer's instructions. Place slotted grates along the entire length of the backstop, including wing fencing, wherever

concrete is placed adjacent to the backstop system. Provide a below grade piped connection at all gate openings into the infield area. Do not install grated drain sections at these entry/exit points.

- H. Manholes shall be per City of Roseville Design and Construction Standards, latest edition. Install grate flush with finish grade.
- I. Sanitary Sewer Clean-outs shall be installed with 3M ball markers. Install per City of Roseville Design and Construction Standards, latest edition.
- J. Upon completion, thoroughly flush storm drain system in the presence of the Parks Inspector.

3.03 Tracer Wire

- A. Install tracer wire on top of the potable water lines
- B. Tracer wire shall be continuous with no splices.

3.04 Potable Water Warning Tape

- A. To be used on all potable water piping installed within the same project limits as on-site recycled water piping.
- B. Install plastic warning tape in pipe backfill, six inches above pipe, for the entire length of the pipe.

3.05 Cleaning

- A. Keep site clean at all times. Remove from the site all debris and rubbish and legally dispose.

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DRAWINGS

Project: Johnson Poolhouse Renovation (Re-bid)

Johnson Pool House Remodel dated 12/14/22 by
Jeff Katz Architecture.

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TEXT OF AB 626

Assembly Bill No. 626

CHAPTER 810

An act to add and repeal Section 9204 of the Public Contract Code, relating to public contracts.

[Approved by Governor September 29, 2016. Filed with Secretary of State September 29, 2016.]

LEGISLATIVE COUNSEL'S DIGEST

AB 626, Chiu. Public contracts: claim resolution.

Existing law prescribes various requirements regarding the formation, content, and enforcement of state and local public contracts. Existing law applicable to state public contracts generally requires that the resolution of claims related to those contracts be subject to arbitration. Existing law applicable to local agency contracts prescribes a process for the resolution of claims related to those contracts of \$375,000 or less.

This bill would establish, for contracts entered into on or after January 1, 2017, a claim resolution process applicable to any claim by a contractor in connection with a public works project. The bill would define a claim as a separate demand by the contractor for one or more of the following: a time extension for relief from damages or penalties for delay, payment of money or damages arising from work done pursuant to the contract for a public work, or payment of an amount disputed by the public entity, as specified.

This bill would require a public entity, defined to exclude certain state entities, upon receipt of a claim sent by registered or certified mail, to review it and, within 45 days, provide a written statement identifying the disputed and undisputed portions of the claim. The bill would authorize the 45-day period to be extended by mutual agreement. The bill would require any payment due on an undisputed portion of the claim to be processed within 60 days, as specified. The bill would require that the claim be deemed rejected in its entirety if the public entity fails to issue the written statement.

This bill would authorize, if the claimant disputes the public entity's written response or if the public entity fails to respond to a claim within the time prescribed, the claimant to demand to meet and confer for settlement of the issues in dispute. The bill would require any disputed portion of the claim that remains in dispute after the meet and confer conference to be subject to nonbinding mediation, as specified. The bill would provide that unpaid claim amounts accrue interest at 7% per annum. The bill would prescribe a procedure by which a subcontractor or lower tier contractor may make a claim through the contractor.

This bill would require the text of these provisions, or a summary, to be set forth in the plans or specifications for any public work which may give rise to a claim. The bill would specify that a waiver of these rights is void and contrary to public policy, except as specified. The bill would also specify that it does not impose liability on a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

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By increasing the duties of local agencies and officials, this bill would impose a state-mandated local program.

This bill would, on January 1, 2020, repeal the provision establishing the claim resolution process.

This bill would specify that these provisions constitute a matter of statewide concern.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

The people of the State of California do enact as follows:

SECTION 1. Section 9204 is added to the Public Contract Code, to read:

9204. (a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3) (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.

(vii) The High-Speed Rail Authority.

(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each

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party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2020, and as of that date is

repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

SECTION 2.

The Legislature finds and declares that it is of statewide concern to require a charter city, charter county, or charter city and county to follow a prescribed claims resolution process to ensure there are uniform and equitable procurement practices.

SECTION 3.

If the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

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April, 2022

RE: Contractor and Grantee Compliance with Economic Sanctions Imposed in Response to Russia's Actions in Ukraine

Dear Vendor:

On March 4, 2022, Governor Gavin Newsom issued Executive Order N-6-22 (EO) regarding sanctions in response to Russian aggression in Ukraine. The EO is located at <https://www.gov.ca.gov/wp-content/uploads/2022/03/3.4.22-Russia-Ukraine-Executive-Order.pdf>.

The EO directs all agencies and departments that are subject to the Governor's authority to take certain immediate steps, including notifying all contractors and grantees of their obligations to comply with existing economic sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law.

This correspondence serves as a notice under the EO that as a contractor or grantee, compliance with the economic sanctions imposed in response to Russia's actions in Ukraine is required, including with respect to, but not limited to, the federal executive orders identified in the EO and the sanctions identified on the U.S. Department of the Treasury website (<https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information/ukraine-russia-related-sanctions>). Failure to comply may result in the termination of contracts or grants, as applicable.

Please note that for any agreements or grants valued at \$5 million or more you must report to the City of Roseville your compliance with economic sanctions including steps you have taken in response to Russia's actions in Ukraine, including, but not limited to, desisting from making new investments in, or engaging in financial transactions with, Russian entities, not transferring technology to Russia or Russian entities, and directly providing support to the government and people of Ukraine.

Sincerely,

DocuSigned by:

Shannon Wiest

4/25/2022

A3035660A19747F

Shannon Wiest

City of Roseville

Purchasing and Warehouse Manager

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APPENDIX A
CDBG SUPPLEMENT TO CONTRACT FOR CONSTRUCTION

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CDBG Supplement to Contract for Construction (federal funds)

Community Development Block Grant (CDBG) Program

This supplement amends and is made a part of the Contract for Construction made between the City of Roseville and **CONTRACTOR** dated **DATE** for work at **ADDRESS**. The following terms and conditions are required by the federal Community Development Block Grant (CDBG) program which is funding all or part of the work.

Access to Records

Contractor agrees that the City, the Federal Department of Housing and Urban Development (HUD), or their designees will have the right to review, obtain, and copy all records pertaining to performance of the Contract. Contractor agrees to provide the City, HUD, or their designees with any relevant information requested and shall permit the City, HUD, or their designees access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to determining compliance with the terms of the Contract.

Contractor further agrees to maintain such records for a period of not less than five (5) years after final payment under the Contract, or not less than five (5) years from the conclusion or resolution of any disputes related to the performance of the Contract and any amendments hereto, whichever is longer.

Anti-Lobbying

Contractor shall require that the following language be included in all subcontracts entered into in connection with this Contract and that all subcontractors shall certify and disclose accordingly.

"This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and no more than \$100,000 for such failure.

"The undersigned certifies, to the best of his or her knowledge or belief, that:

"A. No Federally appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;

"B. If any funds other than Federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this

Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions."

Prohibition against discrimination in federal programs

Contractor will comply with the following prohibitions against discrimination in federally-assisted programs.

Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.), and implementing regulations in 24 CFR part 1, prohibiting discrimination upon the basis of race, color, religion, ancestry, sex, marital status, mental or physical disability, age, familial status, sexual orientation, or national origin.

Section 109 of the Housing and Community Development Act and HUD's implementing regulations at 24 CFR Part 6 requiring that no person in the United States shall on the grounds of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance made available pursuant to the Act.

Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794), as amended, and with implementing regulations at 24 CFR, Part 8, which prohibit discrimination based on handicap in Federally-assisted and conducted programs and activities.

The Age Discrimination Act of 1975 (42 U.S.C. 6101-07) and implementing regulations at 24 CFR, Part 146, which prohibit discrimination because of age in programs and activities receiving Federal financial assistance.

Drug free workplace

Contractor will comply with The Drug-Free Workplace Act of 1988 and HUD's implementing regulations at 24 CFR, Part 24, Subpart F, requiring provision of drug-free workplace.

Minority and Women-owned Businesses (MBE/WBE)

Contractor will comply with Executive Orders 11625, 12432, and 12138, which state that recipients of federal assistance shall take affirmative action to encourage participation by minority and women-owned business enterprises. Contractor will use its best efforts to afford small businesses, minority business enterprises, and women's business enterprises the maximum practicable opportunity to participate in the performance of this Contract. As used in this Contract, the terms "small business" means a business that meets the criteria set forth in section 3(a) of the Small Business Act, as amended (15 U.S.C. 632), and "minority and women's business enterprise" means a business at least fifty-one (51) percent owned and controlled by minority group members or women.

Section 3 of the Housing and Urban Development Act of 1968

Contractor will comply with the applicable requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 USC 1701. Section 3 is implemented through HUD regulations at 24 CFR 75. The goal of Section 3 is to ensure that to the greatest extent feasible, funds subject to the Act provide employment and contracting opportunities to low-income persons and business owners. Section 3 also requires that any new hiring by the Section 3-covered project include the recruitment of low-income persons living in the project area.

Contractor will also ensure that provisions of 24 CFR, Part 75, are included in all subcontracts.

Federal Labor Standards and Prevailing Wages (Davis-Bacon)

Contractor and all subcontractors under this Contract are subject to the federal labor standards provisions, Davis Bacon and Related Acts as amended (40 USC 3141-5144 and 3146-3148) which govern the payment of wages and the ratio of apprentices and trainees to journey-workers. Under the terms of the Davis-Bacon Act, as supplemented by 29 CFR Part 5, amended, Contractor and all subcontractors are required to pay all laborers and mechanics employed on construction work wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor, and shall pay overtime compensation in accordance with and subject to the provision of the Federal Contract Work Hours and Safety Standards Act (40 USC 3701-3708). Contractor shall comply with all regulations issued pursuant to these Acts and with other applicable Federal laws and regulations pertaining to labor standards, including the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145) as supplemented in Department of Labor regulations (29 CFR Part 3).

The applicable Federal Wage Determination is attached hereto as **Exhibit "C"** and incorporated herein by this reference as though set forth in full. Provided, that if wage rates higher than those required under the regulations are imposed by State or local laws, nothing hereunder is intended to relieve Contractor of its obligation, if any, to pay the higher rate(s).

The provisions of the Federal Contract Work Hours and Safety Standards Act (40 USC 3701-3708) are applicable to construction contracts exceeding \$100,000.

Clean Water, Clean Air, E.O. 11738 and EPA Regulations

Construction contracts and related subcontracts exceeding \$100,000 must comply with Section 306 of the Clean Air Act, as amended, (42 U.S.C. 1857(h)), Section 508 of the Clean Water Act, as amended, (33 U.S.C. 1368), Executive Order 11738, and the Regulations (40 CFR, part 15) of the Environmental Protection Agency with respect thereto the Contractor agrees that:

1. Any facility to be utilized in the performance of this contract or any subcontract shall not be a facility listed on the EPA List of Violating Facilities pursuant to 40 CFR 15.20.5
2. Contractor will comply with all requirements of Section 306 of the Clean Air Act, as amended, and Section 508 of the Clean Water Act, as amended, and all regulations and guidelines issued there under.
3. Contractor will promptly notify City of any notification received from the EPA Office of Federal Activities, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
4. Contractor will include the provisions of paragraph 1 through 4 of this subpart in every nonexempt subcontract, and take such action as the City may direct as a means of enforcing such provisions.

Lead-Based Paint Hazards

Construction or rehabilitation work funded with CDBG is subject to the provisions of Title 24 of the Code of Federal Regulations (CFR), Section 35 "Lead-based Paint Poisoning Prevention in Certain Residential Structures". Contractor and all Subcontractors shall comply with all applicable requirements. These include Disclosure, Rehabilitation, and Methods and Standards for Lead-Paint Hazard Evaluation and Hazard Reduction Activities. See the attached extracts from the CFR for thresholds of applicability.

The following tasks shall be performed by an appropriately licensed and qualified third party using correctly calibrated equipment and methods as described in 24 CFR 35 or as generally accepted if not specified in the regulation.

- Sampling and testing.
- Analysis and reporting.
- Drafting a lead hazard reduction work plan.
- Monitoring compliance with lead hazard reduction work plans and safe work practices.
- Clearance testing.

Contractor must comply with the requirements of the EPA's Lead Renovation, Repair and Painting Rule (RRP Rule) for firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, child care facilities and pre-schools built before 1978. Construction firms must be certified by EPA (or an EPA authorized state), use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices.

Use of debarred, suspended or ineligible contractors

CDBG funds shall not be used directly or indirectly to employ, award contracts to, or otherwise engage the services of, or fund any Contractor or subcontractor during any period of debarment, suspension or placement in ineligibility status under the provisions of 24 CFR Part 24.

Contractor certifies by the signing of this contract that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

Contractor agrees that it shall not knowingly enter into any lower tier transaction with a person or entity that is proposed for debarment under 48 CFR 9, 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in such transaction.

Contractor agrees that it shall include the above certification in all lower tier transactions to which it is a party; and it shall require that each of its subcontractors include the certification in their subcontracts.

Conflict of interest

No member, officer, or employee of the City of Roseville, or its designees or agents; no member of the governing body of the locality in which the program is situated; and no other public official of such locality or localities who exercise any functions or responsibilities with respect to the CDBG program during his/her tenure or for one (1) year thereafter, shall have any interest, direct or indirect, in this Contract or any subcontract, or the proceeds thereof, for activities to be performed in connection with the work performed under this Contract.

No member of or delegate to the Congress of the United States, and no resident commissioner, shall be admitted to any share or part of this Contract or to any benefit to arise from the same.

Contractor shall incorporate or cause to be incorporated a provision prohibiting such interest into all subcontracts.

Exhibits

The following exhibits are made part of this supplement. Exhibits shown in strike-through text are not applicable to this Contract.

- A. Contractor/Subcontractor Prevailing Wage and Federal Labor Standards Certification
- B. HUD Form 4010 - Federal Labor Standards Provisions
- C. Federal wage decision
- ~~D. 24 CFR 35 Lead-based Paint Poisoning Prevention (extracts)~~
- E. HUD Form 92010 Equal Employment Opportunity Certification
- F. Contractors Notice of Subcontracts Awarded
- G. Contractor's List of Federal and Non-Federal Work in Covered Area
- H. MBE-WBE Business Enterprise Certification
- I. Non-Collusion Certification
- J. Anti-Lobbying Certification
- K. Certification for a Drug-Free Workplace Form HUD-50070
- L. Contractor/Subcontractor Certification Regarding Eligibility for Award
- ~~M. Lead-Based Paint and Lead Hazard Reduction Notice (residential only)~~
- N. Section 3 Fact Sheet and Acknowledgement
- O. Section 3 Hiring Plan
- P. Certification of Understanding and Authorization

CDBG Additional Terms - City formatted rev 09/12/2022

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EXHIBIT SUBMISSION

The exhibits shall be submitted as follows:

(Exhibit) Form/information	Submit with bid?	Submit with contract?	Submit pre-construction?
A.Contract/ Subcontractor Prevailing Wage and Federal Labor Standards Certification	Yes. Complete form.	New subs must submit.	New subs must submit.
B.HUD Form 4010 - Federal Labor Standards Provisions	No. Information only.	Yes	
C.Federal wage decision	No. Information only.	Yes	
E.HUD Form 92010 Equal Employment Opportunity Certification	No. Information only.	Yes	
F.Contractors Notice of Subcontracts Awarded	No. Information only.	Yes	Update or state no change.
G.Contractors List of Federal and Non-Federal Work in Covered Area	Yes. Update form or state no change.	Update or state no change.	Update state no change.
H.MBE-WBE Business Enterprise Certification	Yes.	Update or state no change.	Update or state no change.
I.Non-Collusion Certification	Yes		
J.Anti-Lobbying Certification	Yes		
K.Certification for a Drug-Free Workplace form HUD-50070	No. Information only.	Yes	
L.Contract/ Subcontractor Certification Regarding Eligibility for Award	Yes. Also from proposed subs.	New subs must submit.	New subs must submit.
M.Lead Based Paint and Lead Hazard Reduction Notice (residential only)	N/A		
N.Section 3 Fact Sheet and Acknowledgement	Yes, if wish to be considered for preference.	Update or state no change.	Update or state no change.
O.Section 3 Hiring Plan	Yes, if wish to be considered for preference.	Update or state no change.	Update or state no change.
P.Certification of Understanding and Authorization	No	No	Yes, and all subs.

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**City of Roseville Contractor/Subcontractor Prevailing Wage and
Federal Labor Standards Certification and Agreement
Community Development Block Grant (CDBG) Program**

Project	
Prime Contractor	
Firm/CSLB#	
Firm Address	

Having executed a contract with _____ for
(Agency or prime contractor)

(Trade/nature of the work)

in the amount of \$ _____ on _____ / _____ /20 _____

The undersigned certifies the following.

- a) The Federal Labor Standards Provisions (HUD 4010) and the current federal wage decision are included in the contract.
- b) The contractor/subcontractor above has not been designated as an ineligible contractor under the Davis-Bacon and Related Acts: Davis-Bacon Act (40 U.S.C. 276 a to a. 7) as supplemented by Department of Labor Regulations (29 CFR Part 5); nor has any person or entity with a substantial interest in the contracting/subcontracting firm.

The undersigned agrees to the following.

- a) No part of the contract will be subcontracted to a firm that has been designated as an ineligible contractor under the Davis-Bacon and Related Acts: Davis-Bacon Act (40 U.S.C. 276 a to a.7) as supplemented by Department of Labor Regulations (29 CFR Part 5).
- b) Within 10 days of executing any lower tier contract, the undersigned will obtain and forward to contractor a copy of this certification signed by the lower tier subcontractor.

The undersigned is duly authorized to provide these certifications and make this agreement.

Signed		Date	
Name		Title	

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HUD-4010
Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Davis-Bacon and Labor Standards

A. APPLICABILITY

The Project or Program to which the construction work covered by this Contract pertains is being assisted by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) MINIMUM WAGES

- (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment, computed at rates not less than those contained in the wage determination of the Secretary of Labor (which is attached hereto and made a part hereof), regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH1321)) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place, where it can be easily seen by the workers.

(ii) Additional Classifications.

- (A) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:
- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
 - (2) The classification is utilized in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (B) If the contractor, the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division ("Administrator"), Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget ("OMB") under OMB control number 1235-0023.)
- (C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, or HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

(D) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (1)(ii)(B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

(2) **Withholding.** HUD or its designee shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The U.S. Department of Labor shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(3) **Payrolls and basic records.**

(i) **Maintaining Payroll Records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification(s), hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid.

Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1235-0023 and 1215-0018)

(ii) **Certified Payroll Reports.**

(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/agencies/whd/forms> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

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Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the U.S. Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1235-0008.)

- (B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;
 - (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;
 - (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract; and
- (C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (a)(3)(ii)(b).
- (D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph (a)(3)(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the U.S. Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and Trainees.

- (i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate), to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program.

If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed, unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (iii) **Equal employment opportunity.** The utilization of apprentices, trainees, and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

- (5) **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.
- (6) **Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs (1) through (11) in this paragraph (a) and such other clauses as HUD or its designee may, by appropriate instructions, require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.
- (7) **Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- (8) **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this Contract.
- (9) **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.
- (10) **Certification of Eligibility.**
- (i) By entering into this Contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

- (ii) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.
- (iii) Anyone who knowingly makes, presents, or submits a false, fictitious, or fraudulent statement, representation or certification is subject to criminal, civil and/or administrative sanctions, including fines, penalties, and imprisonment (e.g., 18 U.S.C. §§ 287, 1001, 1010, 1012; 31 U.S.C. §§ 3729, 3802).

(11) Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic, to whom the wage, salary, or other labor standards provisions of this Contract are applicable, shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The provisions of this paragraph (b) are applicable where the amount of the prime contract exceeds **\$100,000**. As used in this paragraph, the terms “laborers” and “mechanics” include watchmen and guards.

- (1) Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work, which may require or involve the employment of laborers or mechanics, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek, unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in subparagraph B(1) of this paragraph, the contractor, and any subcontractor responsible therefor, shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph B(1) of this paragraph, **in the sum set by the U.S. Department of Labor at 29 CFR 5.5(b)(2)** for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph B(1) of this paragraph. In accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. § 2461 Note), the DOL adjusts this civil monetary penalty for inflation no later than January 15 each year.
- (3) Withholding for unpaid wages and liquidated damages.** HUD or its designee shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor under any such contract, or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages, as provided in the clause set forth in subparagraph B(2) of this paragraph.
- (4) Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph B(1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs B(1) through (4) of this paragraph.

C. HEALTH AND SAFETY

The provisions of this paragraph (c) are applicable where the amount of the prime contract exceeds **\$100,000**.

- (1)** No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety, as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
- (2)** The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96), 40 U.S.C. § 3701 et seq.
- (3)** The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

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"General Decision Number: CA20220007 09/02/2022

Superseded General Decision Number: CA20210007

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Marin, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba Counties in California.

BUILDING CONSTRUCTION PROJECTS (excluding Amador County only); DREDGING CONSTRUCTION PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the

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	applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	01/14/2022
2	01/21/2022
3	01/28/2022
4	02/04/2022
5	02/18/2022
6	02/25/2022
7	03/25/2022
8	04/01/2022
9	06/03/2022
10	07/01/2022
11	07/15/2022
12	07/22/2022
13	07/29/2022
14	08/05/2022
15	08/19/2022
16	08/26/2022
17	09/02/2022

ASBE0016-001 01/01/2021

AREA 1: MARIN, NAPA, SAN BENITO, SAN FRANCISCO, SOLANO, & SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHEMA, TRINITY, YOLO, & YUBA COUNTIES

Rates

Fringes

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Asbestos Workers/Insulator
(Includes the application of
all insulating materials,
Protective Coverings,
Coatings, and Finishes to all
types of mechanical systems)

Area 1.....	\$ 74.16	23.58
Area 2.....	\$ 46.81	33.50

ASBE0016-007 01/01/2021

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN,
LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA,
SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO
& YUBA COUNTIES

AREA 2: MARIN & NAPA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
AREA 1.....	\$ 30.45	10.60
AREA 2.....	\$ 36.53	9.27

BOIL0549-002 01/01/2021

	Rates	Fringes
BOILERMAKER		
(1) Marin & Solano Counties..	\$ 49.62	41.27
(2) Remaining Counties.....	\$ 45.60	38.99

BRCA0003-001 08/01/2021

	Rates	Fringes
MARBLE FINISHER.....	\$ 37.72	17.64

BRCA0003-004 05/01/2021

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AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
BRICKLAYER		
AREA 1.....	\$ 47.24	22.13
AREA 2.....	\$ 49.78	27.34

SPECIALTY PAY:

- (A) Underground work such as tunnel work, sewer work, manholes, catch basins, sewer pipes and telephone conduit shall be paid \$1.25 per hour above the regular rate. Work in direct contact with raw sewage shall receive \$1.25 per hour in addition to the above.
- (B) Operating a saw or grinder shall receive \$1.25 per hour above the regular rate.
- (C) Guniting nozzle person shall receive \$1.25 per hour above the regular rate.

BRCA0003-008 07/01/2021

	Rates	Fringes
TERRAZZO FINISHER.....	\$ 39.95	18.46
TERRAZZO WORKER/SETTER.....	\$ 53.03	28.34

BRCA0003-010 04/01/2019

	Rates	Fringes
TILE FINISHER		
Area 1.....	\$ 27.31	14.75
Area 2.....	\$ 27.10	16.50
Area 3.....	\$ 29.94	16.38
Area 4.....	\$ 28.06	15.82
Tile Layer		
Area 1.....	\$ 45.51	17.64
Area 2.....	\$ 45.15	19.06
Area 3.....	\$ 49.90	19.16
Area 4.....	\$ 46.77	19.08

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc,

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Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter,
Tehama, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 08/01/2021

	Rates	Fringes
MARBLE MASON.....	\$ 53.17	29.10

CARP0034-001 07/01/2021

	Rates	Fringes
Diver		
Assistant Tender, ROV		
Tender/Technician.....	\$ 54.10	34.69
Diver standby.....	\$ 60.51	34.69
Diver Tender.....	\$ 59.51	34.69
Diver wet.....	\$ 103.62	34.69
Manifold Operator (mixed		
gas).....	\$ 64.51	34.69
Manifold Operator (Standby).	\$ 59.51	34.69

DEPTH PAY (Surface Diving):

050 to 100 ft	\$2.00 per foot
101 to 150 ft	\$3.00 per foot
151 to 220 ft	\$4.00 per foot
221 ft.-deeper	\$5.00 per foot

SATURATION DIVING:

The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:

Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: \$1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be \$1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:

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Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2021

	Rates	Fringes
Piledriver.....	\$ 54.10	34.69

CARP0035-001 08/01/2020

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO, WESTERN EL DORADO (Territory west of an including highway 49 and the territory inside the city limits of Placerville), WESTERN PLACER (Territory west of and including highway 49), & YOLO

AREA 4: ALPINE, BUTTE, COLUSA, EASTERN EL DORADO, GLENN, LASSEN, MODOC, NEVADA, EASTERN PLACER, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, & YUBA

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1.....	\$ 52.65	31.26
Area 3.....	\$ 47.27	31.26
Area 4.....	\$ 45.92	31.26
Drywall Stocker/Scrapper		
Area 1.....	\$ 26.33	18.22
Area 3.....	\$ 23.64	18.22
Area 4.....	\$ 22.97	18.22

CARP0035-009 07/01/2020

Marin County

	Rates	Fringes
CARPENTER		
Bridge Builder/Highway		
Carpenter.....	\$ 52.65	30.82
Hardwood Floorlayer,		
Shingler, Power Saw		
Operator, Steel Scaffold &		
Steel Shoring Erector, Saw		

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Filer.....	\$ 52.80	30.82
Journeyman Carpenter.....	\$ 52.65	30.82
Millwright.....	\$ 52.75	32.41

CARP0035-010 07/01/2020

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Monterey, San Benito and Santa Cruz

AREA 3: Alpine, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo & Yuba counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer.....	\$ 28.76	22.53
Lead Installer.....	\$ 32.21	23.03
Master Installer.....	\$ 36.43	23.03
Area 2		
Installer.....	\$ 26.11	22.53
Lead Installer.....	\$ 29.08	23.03
Master Installer.....	\$ 32.71	23.03
Area 3		
Installer.....	\$ 25.16	22.53
Lead Installer.....	\$ 27.96	23.03
Master Installer.....	\$ 31.38	23.03

CARP0046-001 07/01/2021

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter.....	\$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer.....	\$ 49.12	31.49
Journeyman Carpenter.....	\$ 48.97	31.49
Millwright.....	\$ 51.47	33.08

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes

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territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-002 07/01/2021

Alpine, Colusa, El Dorado (East), Nevada, Placer (East),
Sierra, Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 47.77	31.49
Journeyman Carpenter.....	\$ 47.62	31.49
Millwright.....	\$ 50.12	33.08

CARP0152-003 07/01/2020

Amador County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 52.65	30.82
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 45.57	30.82
Journeyman Carpenter.....	\$ 45.42	30.82
Millwright.....	\$ 47.92	32.41

CARP0180-001 07/01/2021

Solano County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 54.85	31.49
Hardwood Floorlayer,		

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Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 55.00	31.49
Journeyman Carpenter.....	\$ 54.85	31.49
Millwright.....	\$ 54.95	33.08

CARP0751-001 07/01/2021

Napa and Sonoma Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 54.85	31.49
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 55.00	31.49
Journeyman Carpenter.....	\$ 54.85	31.49
Millwright.....	\$ 54.95	33.08

CARP1599-001 07/01/2020

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama
and Trinity Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 52.65	30.82
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 45.57	30.82
Journeyman Carpenter.....	\$ 45.42	30.82
Millwright.....	\$ 47.92	32.41

ELEC0180-001 06/01/2021

NAPA AND SOLANO COUNTIES

	Rates	Fringes
CABLE SPLICER.....	\$ 59.69	3%+24.38

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ELECTRICIAN.....\$ 53.06 3%+24.38

ELEC0180-003 12/01/2021

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 43.71	3%+22.65
Technician.....	\$ 50.27	3%+22.65

SCOPE OF WORK INCLUDES-

SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-

Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0340-002 02/01/2018

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
Communications System		
Sound & Communications		
Installer.....	\$ 29.35	3%+15.35
Sound & Communications		
Technician.....	\$ 33.75	3%+15.35

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission

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and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS

Background foreground music Intercom and telephone interconnect systems, Telephone systems, Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide.

B. FIRE ALARM SYSTEMS

Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems, Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems
Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation)

Inventory Control Systems Digital Data Systems
Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems
WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:

1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in

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conduit.

ELEC0340-003 08/01/2022

ALPINE (West of Sierra Mt. Watershed), AMADOR, BUTTE, COLUSA,
EL DORADO (West of Sierra Mt. Watershed), GLENN, LASSEN, NEVADA
(West of Sierra Mt. Watershed), PLACER, PLUMAS, SACRAMENTO,
SHASTA, SIERRA (West of Sierra Mt. Watershed), SUTTER, TEHAMA,
TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Remaining area.....	\$ 45.06	34.09
Sierra Army Depot, Herlong..	\$ 48.83	18.54
Tunnel work.....	\$ 41.01	18.54

CABLE SPLICER: Receives 110% of the Electrician basic hourly rate.

ELEC0401-005 01/01/2022

ALPINE (east of the main watershed divide), EL DORADO (east of the main watershed divide), NEVADA (east of the main watershed), PLACER (east of the main watershed divide) and SIERRA (east of the main watershed divide) COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 42.50	20.95

ZONE RATE:

70-90 miles - \$8.00 per hour
91+ miles - \$10.00 per hour

ELEC0551-004 06/01/2022

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 55.60	28.06

ELEC0551-005 12/01/2021

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MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 43.71	23.96
Technician.....	\$ 50.27	24.16

SCOPE OF WORK INCLUDES-

SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-

Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0659-006 01/01/2021

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 38.49	17.74

ELEC0659-008 02/01/2020

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer.....	\$ 60.28	4.5%+19.40
(2) Lineman, Pole Sprayer,		
Heavy Line Equipment Man....	\$ 53.82	4.5%+19.40
(3) Tree Trimmer.....	\$ 37.84	4.5%+14.30
(4) Line Equipment Man.....	\$ 53.82	4.5%+19.40
(5) Powdermen,		

Not for Construction
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Re-Bid

Jackhammermen.....	\$ 40.37	4.5%+14.30
(6) Groundman.....	\$ 33.37	4.5%+14.30

ELEC1245-004 06/01/2022

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	\$ 64.40	22.58
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	\$ 50.00	21.30
(3) Groundman.....	\$ 38.23	20.89
(4) Powderman.....	\$ 51.87	18.79

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day,
Independence Day, Labor Day, Veterans Day, Thanksgiving Day
and day after Thanksgiving, Christmas Day

ELEV0008-001 01/01/2022

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 74.54	36.885+a+b

FOOTNOTE:

- a. PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
- b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-008 07/20/2020

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:) AREA 1:		

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(1) Leverman.....	\$ 49.88	34.35
(2) Dredge Dozer; Heavy duty repairman.....	\$ 44.92	34.35
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 43.80	34.35
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 40.50	34.35
AREA 2:		
(1) Leverman.....	\$ 51.88	34.35
(2) Dredge Dozer; Heavy duty repairman.....	\$ 46.92	34.35
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 45.80	34.35
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 42.50	34.35

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED,
NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN,
SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS,
SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2
AS NOTED BELOW:

ALPINE COUNTY:

Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:

Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:

Area 1: North Central part
Area 2: Remainder

Not for Construction
For Council Approval
Re-Bid

FRESNO COUNTY:

Area 1: Remainder

Area 2: Eastern part

GLENN COUNTY:

Area 1: Eastern part

Area 2: Remainder

LASSEN COUNTY:

Area 1: Western part along the Southern portion of border
with Shasta County

Area 2: Remainder

MADERA COUNTY:

Area 1: Except Eastern part

Area 2: Eastern part

MARIPOSA COUNTY

Area 1: Except Eastern part

Area 2: Eastern part

MONTERREY COUNTY

Area 1: Except Southwestern part

Area 2: Southwestern part

NEVADA COUNTY:

Area 1: All but the Northern portion along the border of
Sierra County

Area 2: Remainder

PLACER COUNTY:

Area 1: All but the Central portion

Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion

Area 2: Remainder

SHASTA COUNTY:

Area 1: All but the Northeastern corner

Area 2: Remainder

SIERRA COUNTY:

Area 1: Western part

Area 2: Remainder

SISKIYOU COUNTY:

Area 1: Central part

Area 2: Remainder

Not for Construction
For Council Approval
Re-Bid

SONOMA COUNTY:

Area 1: All but the Northwestern corner

Area 2: Remainder

TEHAMA COUNTY:

Area 1: All but the Western border with Mendocino & Trinity
Counties

Area 2: Remainder

TRINITY COUNTY:

Area 1: East Central part and the Northeastern border with
Shasta County

Area 2: Remainder

TUOLUMNE COUNTY:

Area 1: Except Eastern part

Area 2: Eastern part

ENGI0003-019 06/29/2020

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1.....	\$ 39.95	30.28
AREA 2.....	\$ 41.95	30.28
GROUP 2		
AREA 1.....	\$ 36.35	30.28
AREA 2.....	\$ 38.35	30.28
GROUP 3		
AREA 1.....	\$ 31.74	30.28
AREA 2.....	\$ 33.74	30.28

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving

Not for Construction
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Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 – MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:

Area 1: Northernmost part

Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Except Eastern part

Area 2: Eastern part

COLUSA COUNTY:

Area 1: Eastern part

Area 2: Remainder

DEL NORTE COUNTY:

Area 1: Extreme Southwestern corner

Area 2: Remainder

ELDORADO COUNTY:

Area 1: North Central part

Area 2: Remainder

FRESNO COUNTY

Area 1: Except Eastern part

Area 2: Eastern part

GLENN COUNTY:

Area 1: Eastern part

Area 2: Remainder

HUMBOLDT COUNTY:

Area 1: Except Eastern and Southwestern parts

Area 2: Remainder

Not for Construction
For Council Approval
Re-Bid

LAKE COUNTY:

Area 1: Southern part

Area 2: Remainder

LASSEN COUNTY:

Area 1: Western part along the Southern portion of border
with Shasta County

Area 2: Remainder

MADERA COUNTY

Area 1: Remainder

Area 2: Eastern part

MARIPOSA COUNTY

Area 1: Remainder

Area 2: Eastern part

MENDOCINO COUNTY:

Area 1: Central and Southeastern parts

Area 2: Remainder

MONTEREY COUNTY

Area 1: Remainder

Area 2: Southwestern part

NEVADA COUNTY:

Area 1: All but the Northern portion along the border of
Sierra County

Area 2: Remainder

PLACER COUNTY:

Area 1: All but the Central portion

Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion

Area 2: Remainder

SHASTA COUNTY:

Area 1: All but the Northeastern corner

Area 2: Remainder

SIERRA COUNTY:

Area 1: Western part

Area 2: Remainder

SISKIYOU COUNTY:

Area 1: Central part

Area 2: Remainder

Not for Construction
For Council Approval
Re-Bid

SONOMA COUNTY:

Area 1: All but the Northwestern corner

Area 2: Reaminder

TEHAMA COUNTY:

Area 1: All but the Western border with mendocino & Trinity
Counties

Area 2: Remainder

TRINITY COUNTY:

Area 1: East Central part and the Northeaster border with
Shasta County

Area 2: Remainder

TULARE COUNTY;

Area 1: Remainder

Area 2: Eastern part

TUOLUMNE COUNTY:

Area 1: Remainder

Area 2: Eastern Part

ENGI0003-038 06/29/2020

""AREA 1"" WAGE RATES ARE LISTED BELOW

""AREA 2"" RECEIVES AN ADDITIONAL \$2.00 PER HOUR ABOVE AREA 1
RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1.....	\$ 51.42	31.15
GROUP 2.....	\$ 49.89	31.15
GROUP 3.....	\$ 48.41	31.15
GROUP 4.....	\$ 47.03	31.15
GROUP 5.....	\$ 45.76	31.15
GROUP 6.....	\$ 44.44	31.15
GROUP 7.....	\$ 43.30	31.15
GROUP 8.....	\$ 42.16	31.15
GROUP 8-A.....	\$ 39.95	31.15
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		

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Cranes.....	\$ 52.30	31.15
Oiler.....	\$ 43.79	31.15
Truck crane oiler.....	\$ 46.08	31.15
GROUP 2		
Cranes.....	\$ 50.54	31.15
Oiler.....	\$ 42.83	31.15
Truck crane oiler.....	\$ 45.07	31.15
GROUP 3		
Cranes.....	\$ 48.80	31.15
Hydraulic.....	\$ 44.44	31.15
Oiler.....	\$ 42.55	31.15
Truck crane oiler.....	\$ 44.83	31.15
GROUP 4		
Cranes.....	\$ 45.76	31.15
OPERATOR: Power Equipment		
(Piledriving – AREA 1:)		
GROUP 1		
Lifting devices.....	\$ 52.64	31.15
Oiler.....	\$ 43.38	31.15
Truck Crane Oiler.....	\$ 45.66	31.15
GROUP 2		
Lifting devices.....	\$ 50.82	31.15
Oiler.....	\$ 43.11	31.15
Truck Crane Oiler.....	\$ 45.41	31.15
GROUP 3		
Lifting devices.....	\$ 49.14	31.15
Oiler.....	\$ 42.89	31.15
Truck Crane Oiler.....	\$ 45.12	31.15
GROUP 4		
Lifting devices.....	\$ 47.37	31.15
GROUP 5		
Lifting devices.....	\$ 44.73	31.15
GROUP 6		
Lifting devices.....	\$ 42.50	31.15
OPERATOR: Power Equipment		
(Steel Erection – AREA 1:)		
GROUP 1		
Cranes.....	\$ 53.27	31.15
Oiler.....	\$ 43.72	31.15
Truck Crane Oiler.....	\$ 45.95	31.15
GROUP 2		
Cranes.....	\$ 51.50	31.15
Oiler.....	\$ 43.45	31.15
Truck Crane Oiler.....	\$ 45.73	31.15
GROUP 3		
Cranes.....	\$ 50.02	31.15
Hydraulic.....	\$ 45.07	31.15
Oiler.....	\$ 43.23	31.15
Truck Crane Oiler.....	\$ 45.46	31.15
GROUP 4		

Not for Construction
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Cranes.....	\$ 48.00	31.15
GROUP 5		
Cranes.....	\$ 46.70	31.15
OPERATOR: Power Equipment		
(Tunnel and Underground Work		
- AREA 1:)		
SHAFTS, STOPES, RAISES:		
GROUP 1.....	\$ 47.52	31.15
GROUP 1-A.....	\$ 49.99	31.15
GROUP 2.....	\$ 46.26	31.15
GROUP 3.....	\$ 44.93	31.15
GROUP 4.....	\$ 43.79	31.15
GROUP 5.....	\$ 42.65	31.15
UNDERGROUND:		
GROUP 1.....	\$ 47.42	31.15
GROUP 1-A.....	\$ 49.89	31.15
GROUP 2.....	\$ 46.16	31.15
GROUP 3.....	\$ 44.83	31.15
GROUP 4.....	\$ 43.69	31.15
GROUP 5.....	\$ 42.55	31.15

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: \$.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

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GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with

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attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self-propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signaller; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing machine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signaller; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck-type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

ALL CRANES AND ATTACHMENTS

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GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

Not for Construction
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STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

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TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS, TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

Not for Construction
For Council Approval
Re-Bid

AREA 1: DEL NORTE, HUMBOLDT, LAKE, MENDOCINO
AREA 2 -NOTED BELOW

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS
NOTED BELOW:

DEL NORTE COUNTY:

Area 1: Extreme Southwest corner
Area 2: Remainder

HUMBOLDT COUNTY:

Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:

Area 1: Southern part
Area 2: Remainder

MENDOCINO COUNTY:

Area 1: Central and Southeastern Parts
Area 2: Remainder

IRON0433-006 07/01/2020

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 34.58	24.81
Ornamental, Reinforcing and Structural.....	\$ 41.00	33.45

PREMIUM PAY:

\$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval
Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training
Center-Goldstone, San Clemente Island, San Nicholas Island,
Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine
Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

\$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base,
Naval Post Graduate School - Monterey, Yermo Marine Corps
Logistics Center

\$2.00 additional per hour at the following locations:

Not for Construction
For Council Approval
Re-Bid

Port Hueneme, Port Mugu, U.S. Coast Guard Station – Two Rock

LAB00067-001 06/27/2022

AREA ""A"" – MARIN COUNTY

AREA ""B"" – ALPINE, AMADOR, BUTTE COLUSA EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Asbestos Removal Laborer.....	\$ 27.05	13.50
LABORER (Lead Removal)		
Marin County.....	\$ 35.37	26.95
Remaining Counties.....	\$ 34.37	26.95

LAB00067-005 06/27/2017

AREA ""A"" – ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA ""B"" – ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCED, MODOC, MONTEREY, NEVADA, PLACER, PLUMAS, SANCREMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SIERRA, SHASTA, SISKIYOU, STANISLAUS, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person		
Area A.....	\$ 29.54	22.17
Area B.....	\$ 28.54	22.17
Traffic Control Person I		
Area A.....	\$ 29.84	22.17
Area B.....	\$ 28.84	22.17
Traffic Control Person II		
Area A.....	\$ 27.34	22.17
Area B.....	\$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash

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Re-Bid

cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LAB00185-002 07/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 35.29	25.21

LAB00185-005 07/01/2021

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 42.00	25.71
GROUP 2.....	\$ 41.77	25.71
GROUP 3.....	\$ 41.52	25.71
GROUP 4.....	\$ 41.07	25.71
GROUP 5.....	\$ 40.53	25.71
Shotcrete Specialist.....	\$ 42.52	25.71

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on

Not for Construction
For Council Approval
Re-Bid

slick line; Sandblaster – potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman – primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang – muckers, trackmen; Concrete crew – includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LAB00185-006 06/25/2018

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHIESTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT		
LABORERS – AREA B:)		
Construction Specialist		
Group.....	\$ 30.49	23.20
GROUP 1.....	\$ 29.79	23.20
GROUP 1-a.....	\$ 30.01	23.20
GROUP 1-c.....	\$ 30.01	23.20
GROUP 1-e.....	\$ 30.34	23.20
GROUP 1-f.....	\$ 30.37	23.20
GROUP 2.....	\$ 29.64	23.20
GROUP 3.....	\$ 29.54	23.20
GROUP 4.....	\$ 23.23	23.20
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS,		
HORTICULTURAL & LANDSCAPE		
LABORERS – AREA B:)		
(1) New Construction.....	\$ 29.54	23.20
(2) Establishment Warranty		
Period.....	\$ 23.23	23.20
LABORER (GUNITE – AREA B:)		
GROUP 1.....	\$ 29.75	22.31
GROUP 2.....	\$ 29.25	22.31
GROUP 3.....	\$ 28.66	22.31
GROUP 4.....	\$ 28.54	22.31
LABORER (WRECKING – AREA B:)		
GROUP 1.....	\$ 29.79	23.20
GROUP 2.....	\$ 29.64	23.20

Not for Construction
For Council Approval
Re-Bid

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive \$0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucket; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster;

Not for Construction
For Council Approval
Re-Bid

Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive \$4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shall receive \$5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive \$.25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender,

Not for Construction
For Council Approval
Re-Bid

chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe – under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:

- A: at demolition site for the salvage of the material.
- B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
- C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Guniting laborer

WRECKING WORK LABORER CLASSIFICATIONS

Not for Construction
For Council Approval
Re-Bid

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LAB00185-008 07/01/2021

	Rates	Fringes
Plasterer tender.....	\$ 35.82	28.45
Work on a swing stage scaffold: \$1.00 per hour additional.		

LAB00261-002 06/28/2021

MARIN COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	\$ 34.48	26.21
Traffic Control Person I....	\$ 34.78	26.21
Traffic Control Person II...	\$ 32.28	26.21

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LAB00261-004 07/01/2021

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 42.00	25.71
GROUP 2.....	\$ 41.77	25.71
GROUP 3.....	\$ 41.52	25.71
GROUP 4.....	\$ 41.07	25.71
GROUP 5.....	\$ 40.53	25.71
Shotcrete Specialist.....	\$ 42.52	25.71

TUNNEL AND SHAFT CLASSIFICATIONS

Not for Construction
For Council Approval
Re-Bid

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen – where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner – tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster – potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman – primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang – muckers, trackmen; Concrete crew – includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LAB00261-007 07/01/2018

MARIN AND NAPA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 32.45	22.20

LAB00261-010 06/25/2018

MARIN COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT		
LABORERS – AREA A:)		
Construction Specialist		
Group.....	\$ 31.49	23.20
GROUP 1.....	\$ 30.79	23.20
GROUP 1-a.....	\$ 31.01	23.20
GROUP 1-c.....	\$ 30.84	23.20
GROUP 1-e.....	\$ 31.34	23.20
GROUP 1-f.....	\$ 31.37	23.20

Not for Construction
For Council Approval
Re-Bid

GROUP 2.....	\$ 30.64	23.20
GROUP 3.....	\$ 30.54	23.20
GROUP 4.....	\$ 24.23	23.20

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS,
HORTICULTURAL & LANDSCAPE
LABORERS - AREA A:)

(1) New Construction.....	\$ 30.54	23.20
(2) Establishment Warranty Period.....	\$ 24.23	23.20

LABORER (GUNITE - AREA A:)

GROUP 1.....	\$ 30.75	22.31
GROUP 2.....	\$ 30.25	22.31
GROUP 3.....	\$ 29.66	22.31
GROUP 4.....	\$ 29.54	22.31

LABORER (WRECKING - AREA A:)

GROUP 1.....	\$ 30.79	23.20
GROUP 2.....	\$ 30.64	23.20

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive \$0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucket; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches;

Not for Construction
For Council Approval
Re-Bid

Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive \$4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shall receive \$5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive \$.25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall

Not for Construction
For Council Approval
Re-Bid

apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:

- A: at demolition site for the salvage of the material.
- B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
- C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in

Not for Construction
For Council Approval
Re-Bid

the performance of ""form stripping, cleaning and oiling and moving to the next point of erection"".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Guniting laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LAB00261-015 07/01/2021

	Rates	Fringes
Plasterer tender.....	\$ 35.82	28.45
Work on a swing stage scaffold: \$1.00 per hour additional.		

LAB00324-004 06/28/2021

NAPA, SOLANO, AND SONOMA, COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	\$ 33.48	26.21
Traffic Control Person I....	\$ 33.78	26.21
Traffic Control Person II...	\$ 31.28	26.21

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of

Not for Construction
For Council Approval
Re-Bid

temporary/permanent signs, markers, delineators and crash cushions.

LAB00324-008 06/25/2018

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 37.82	24.11
GROUP 2.....	\$ 37.59	24.11
GROUP 3.....	\$ 37.34	24.11
GROUP 4.....	\$ 36.89	24.11
GROUP 5.....	\$ 36.35	24.11
Shotcrete Specialist.....	\$ 38.34	24.11

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LAB00324-010 07/01/2022

SOLANO AND SONOMA COUNTIES

Rates	Fringes
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Not for Construction
For Council Approval
Re-Bid

LABORER		
Mason Tender-Brick.....	\$ 35.84	25.91

LAB00324-013 06/25/2018

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT		
LABORERS - AREA B:)		
Construction Specialist		
Group.....	\$ 30.49	23.20
GROUP 1.....	\$ 29.79	23.20
GROUP 1-a.....	\$ 30.01	23.20
GROUP 1-c.....	\$ 29.84	23.20
GROUP 1-e.....	\$ 30.34	23.20
GROUP 1-f.....	\$ 29.37	23.20
GROUP 2.....	\$ 29.64	23.20
GROUP 3.....	\$ 29.54	23.20
GROUP 4.....	\$ 23.23	23.20
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS,		
HORTICULTURAL & LANDSCAPE		
LABORERS - AREA B:)		
(1) New Construction.....	\$ 29.54	23.20
(2) Establishment Warranty		
Period.....	\$ 23.23	23.20
LABORER (GUNITE - AREA B:)		
GROUP 1.....	\$ 29.75	22.31
GROUP 2.....	\$ 29.25	22.31
GROUP 3.....	\$ 28.66	22.31
GROUP 4.....	\$ 28.54	22.31
LABORER (WRECKING - AREA B:)		
GROUP 1.....	\$ 29.79	23.20
GROUP 2.....	\$ 29.64	23.20

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive \$0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

Not for Construction
For Council Approval
Re-Bid

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in-place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Lead Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and buckler; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling

Not for Construction
For Council Approval
Re-Bid

of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive \$4.00 per day above Group 1 wage rates. ""Sewer cleaner"" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shall receive \$5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive \$.25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher;

Not for Construction
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Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:

A: at demolition site for the salvage of the material.

B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.

C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Guniting laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LAB00324-019 07/01/2021

	Rates	Fringes
Plasterer tender.....	\$ 35.82	28.45

Not for Construction
For Council Approval
Re-Bid

Work on a swing stage scaffold: \$1.00 per hour additional.

PAIN0016-004 01/01/2021

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:.....	\$ 45.22	25.48

PREMIUMS:

EXOTIC MATERIALS - \$1.25 additional per hour.

SPRAY WORK: - \$0.50 additional per hour.

INDUSTRIAL PAINTING - \$0.25 additional per hour

[Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:

over 50 feet - \$2.00 per hour additional

100 to 180 feet - \$4.00 per hour additional

Over 180 feet - \$6.00 per hour additional

PAIN0016-005 07/01/2021

ALPINE, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Hwy. 395, excluding Honey Lake); MARIN, MODOC, NAPA, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	\$ 50.78	28.09

PAIN0016-007 01/01/2021

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Highway 395, excluding Honey Lake), MODOC, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

Not for Construction
For Council Approval
Re-Bid

	Rates	Fringes
Painters:.....	\$ 35.88	21.16

SPRAY/SANDBLAST: \$0.50 additional per hour.

EXOTIC MATERIALS: \$1.25 additional per hour.

HIGH TIME: Over 50 ft above ground or water level \$2.00 additional per hour. 100 to 180 ft above ground or water level \$4.00 additional per hour. Over 180 ft above ground or water level \$6.00 additional per hour.

* PAIN0016-008 07/01/2022

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 54.25	32.28

PAIN0169-004 01/01/2022

MARIN , NAPA & SONOMA COUNTIES; SOLANO COUNTY (west of a line defined as follows: Hwy. 80 corridor beginning at the City of Fairfield, including Travis Air Force Base and Suisun City; going north of Manakas Corner Rd., continue north on Suisun Valley Rd. to the Napa County line; Hwy. 80 corridor south on Grizzly Island Rd. to the Grizzly Island Management area)

	Rates	Fringes
GLAZIER.....	\$ 54.77	31.45

* PAIN0567-001 07/01/2021

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Painters:		
Brush and Roller.....	\$ 31.80	13.54
Spray Painter & Paperhanger.	\$ 33.39	13.54

Not for Construction
For Council Approval
Re-Bid

PREMIUMS:

Special Coatings (Brush), and Sandblasting = \$0.50/hr

Special Coatings (Spray), and Steeplejack = \$1.00/hr

Special Coating Spray Steel = \$1.25/hr

Swing Stage = \$2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-007 07/01/2020

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains) AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 31.01	15.48

PAIN0567-010 07/01/2020

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Drywall		
(1) Taper.....	\$ 35.20	14.02
(2) Steeplejack - Taper, over 40 ft with open space below.....	\$ 36.70	14.02

PAIN0767-004 01/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

	Rates	Fringes
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Not for Construction
For Council Approval
Re-Bid

GLAZIER.....\$ 41.78 33.09

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day,
President's Day, Memorial Day, Independence Day, Labor Day,
Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee required to wear a body harness shall receive \$1.50
per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2021

HIGHWAY IMPROVEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1.....	\$ 39.48	16.98
GROUP 2.....	\$ 33.56	16.98
GROUP 3.....	\$ 33.95	16.98

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic
stripes and marking; hot thermo plastic; tape, traffic
stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-001 01/01/2021

ALPINE; COLUSA; EL DORADO (west of the Sierra Nevada
Mountains); GLENN; LASSEN (west of Highway 395, beginning at
Stacey and including Honey Lake); MODOC; NEVADA (west of the
Sierra Nevada Mountains); PLACER (west of the Sierra Nevada
Mountains); PLUMAS; SACRAMENTO; SHASTA; SIERRA (west of the
Sierra Nevada Mountains); SISKIYOU; SUTTER; TEHAMA; TRINITY;
YOLO AND YUBA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 41.81	23.39

PLAS0300-003 07/01/2018

Not for Construction
For Council Approval
Re-Bid

	Rates	Fringes
PLASTERER		
AREA 295: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehema, Trinity, Yolo & Yuba Counties.....	\$ 32.70	31.68
AREA 355: Marin.....	\$ 36.73	31.68
AREA 355: Napa & Sonoma Counties.....	\$ 32.70	31.68

PLAS0300-005 07/01/2016

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER....	\$ 32.15	23.27

PLUM0038-002 07/01/2022

MARIN AND SONOMA COUNTIES

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)		
(1) Work on wooden frame structures 5 stories or less excluding high-rise buildings and commercial work such as hospitals, prisons, hotels, schools, casinos, wastewater treatment plants, and resarch facilities as well as refrigeration pipefitting, service and repair work – MARKET RECOVERY RATE.....	\$ 69.70	46.38
(2) All other work – NEW CONSTRUCTION RATE.....	\$ 82.00	48.18

PLUM0038-006 07/01/2022

MARIN & SONOMA COUNTIES

Not for Construction
For Council Approval
Re-Bid

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....	\$ 69.70	33.15

PLUM0228-001 07/01/2022

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA,
SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 44.00	36.99

PLUM0343-001 07/01/2022

NAPA AND SOLANO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial.....	\$ 30.85	20.40
All Other Work.....	\$ 58.00	40.48

DEFINITION OF LIGHT COMMERCIAL:

Work shall include strip shopping centers, office buildings, schools and other commercial structures which the total plumbing bid does not exceed Two Hundred and Fifty Thousand (\$250,000) and the total heating and cooling does not exceed Two Hundred Fifty Thousand (\$250,000); or Any projects bid in phases shall not qualify unless the total project is less than Two Hundred Fifty Thousand (\$250,000) for the plumbing bid; and Two Hundred Fifty Thousand (\$250,000) for the heating and cooling bid. Excluded are hospitals, jails, institutions and industrial projects, regardless size of the project

FOOTNOTES: While fitting galvanized material: \$.75 per hour additional. Work from trusses, temporary staging, unguarded structures 35' from the ground or water: \$.75 per hour additional. Work from swinging scaffolds, boatswains chairs or similar devices: \$.75 per hour additional.

PLUM0350-001 08/01/2021

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

Not for Construction
For Council Approval
Re-Bid

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 47.54	17.11

PLUM0355-001 07/01/2022

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter.....	\$ 32.22	17.55

PLUM0442-003 07/01/2022

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 49.75	34.49

PLUM0447-001 07/01/2022

AMADOR (north of San Joaquin River), EL DORADO (excluding Lake Tahoe area), NEVADA (excluding Lake Tahoe area); PLACER (excluding Lake Tahoe area), SACRAMENTO AND YOLO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Journeyman.....	\$ 58.37	28.00
Light Commercial Work.....	\$ 36.23	17.72

ROOF0081-006 08/01/2022

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer.....	\$ 50.27	20.66

ROOF0081-007 08/01/2022

Not for Construction
For Council Approval
Re-Bid

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA,
PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER,
TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Roofer.....	\$ 43.13	19.71

SFCA0483-003 08/01/2022		

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 73.05	36.39

SFCA0669-003 04/01/2022		

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA,
PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER,
TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER.....	\$ 44.36	26.83

SHEE0104-006 06/29/2020		

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes
Sheet Metal Worker Mechanical Contracts		
\$200,000 or less.....	\$ 55.92	45.29
All other work.....	\$ 64.06	46.83

SHEE0104-009 07/01/2021		

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER,
YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER.....	\$ 47.85	41.90

Not for Construction
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SHEE0104-010 07/01/2020

ALPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	\$ 43.50	37.42

SHEE0104-011 07/01/2020

BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER,
PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA,
YOLO AND YUBA COUNTIES

	Rates	Fringes
Sheet Metal Worker (Metal decking and siding only).....	\$ 44.45	35.55

SHEE0104-014 07/01/2020

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only).....	\$ 44.45	35.55

SHEE0104-019 07/01/2020

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU
AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER Mechanical Jobs \$200,000 & under.....	\$ 35.16	35.88
Mechanical Jobs over \$200,000.....	\$ 46.60	40.21

TEAM0094-001 07/01/2021

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 35.15	31.42
GROUP 2.....	\$ 35.45	31.42

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GROUP 3.....	\$ 35.75	31.42
GROUP 4.....	\$ 36.10	31.42
GROUP 5.....	\$ 36.45	31.42

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.
Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "'A"' frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self-propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil

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trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls – DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbed Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

WELDERS – Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

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Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Not for Construction
For Council Approval
Re-Bid

**Equal Employment
Opportunity Certification**
Excerpt From 41 CFR §60-1.4(b)

U.S. Department of Housing
and Urban Development
Office of Housing
Federal Housing Commissioner

EXHIBIT E
Department of Veterans Affairs
OMB Control No. 2502-0029
(exp. 9/30/2016)

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin, such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
- (3) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- (5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- (6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: **Provided, however,** That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work:

Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally-assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed

Firm Name and Address

By

Title

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upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

Excerpt from HUD Regulations

200.410Definition of term “applicant”.

- (a) In multifamily housing transactions where controls over the mortgagor are exercised by the Commissioner either through the ownership of corporate stock or under the provisions of a regulatory agreement, the term “applicant” as used in this subpart shall mean the mortgagor.
- (b) In transactions other than those specified in paragraph(a) of this section, the term “applicant” as used in this subpart shall mean the builder, dealer or contractor performing the construction, repair or rehabilitation work for the mortgagor or other borrower.

200.420Equal Opportunity Clause to be included in contracts and subcontracts.

- (a) The following equal opportunity clause shall be included in each contract and subcontract which is not exempt:
During the performance of this contract, the contractor agrees as follows:
 - (1) The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of the nondiscrimination clause.
 - (2) The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard race, creed, color, or national origin.
 - (3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided, advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notices in conspicuous places available to employees and applicants for employment.
 - (4) The contractor will comply with all provisions of Executive Order 10925 of March 6 1961, as amended, and of the regulations, and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

(5) The contractor will furnish all information and reports required by Executive Order 10925 of March 6, 1961, as amended, and by the regulations, and orders of the said Committee, or pursuant thereto, and will permit access to his books, records, and accounts by HUD and the Committee for purposes of investigation to ascertain compliance with such regulations, and orders.

(6) In the event of the contractor's non-compliance with the nondiscrimination clause of this contract or with any of the said regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or Federally-assisted construction contracts in accordance with procedures authorized in Executive Order 10925 of March 6, 1961, as amended, and such other sanctions may be imposed and remedies invoked provided in the said Executive Order or by regulations, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

(7) The contractor will include the provisions of Paragraphs(1) through (7) in every subcontract or purchase order unless exempted by regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to Section 303 of Executive Order 10925 of March 6, 1961, as amended, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase orders as HUD may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by HUD, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

- (b) Except in subcontracts for the performance of construction work at the site of construction, the clause is not required to be inserted in subcontracts below the second tier. Subcontracts may incorporate by reference to the equal opportunity clause.

200.425Modification in and exemptions from the regulations in this subpart.

- (a) The following transactions and contracts are exempt from the regulations in this subpart:
 - (1) Loans, mortgages, contracts and subcontracts not exceeding \$10,000.
 - (2) Contract and subcontracts not exceeding \$100,000 for standard commercial supplies or raw material;
 - (3) Contracts and subcontracts under which work is to be or has been performed outside the United States and where no recruitment of workers within the United States is involved. To the extent that work pursuant to such contracts is done within the United States, the equal opportunity clause shall be applicable;
 - (4) Contracts for the sale of Government property where no appreciable amount of work is involved; and
 - (5) Contracts and subcontracts for an indefinite quantity which are not to extend for more than one year if the purchaser determines that the amounts to be ordered under any such contract or subcontract are not reasonably expected to exceed \$100,000 in the case of contracts or subcontracts for standard commercial supplies and raw materials, or \$10,000 in the case of all other contracts and subcontracts.



CONTRACTOR'S NOTIFICATION OF SUBCONTRACTS
Community Development Block Grant (CDBG) Program

COVERED AREA: Placer County, CA

MONTH OF: _____

Subcontractor's Name/Address	Contract Project Number	Contract Amount	Start Date (Estimate)	Completion Date (Estimate)	Crafts to be Covered

The undersigned hereby certifies that: (a) The Equal Opportunity Clauses are indicated in each of the Listed Subcontracts; (b) Each subcontractor or lower tier subcontractor has been notified in writing prior to their beginning construction, of his respective obligations under the Affirmative Action Requirements, if applicable.

Signed		Date	
Name		Title	

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Contractor's List of Federal and Non-Federal Work in Covered Area
Community Development Block Grant (CDBG) Program

COVERED AREA: PLACER COUNTY **CONTRACTOR'S NAME:** _____
DATE: _____ **ADDRESS:** _____

WORK IN PROCESS – FEDERAL FUNDS

Name of Funding Agency	Project Name and Location*	Project Number	Dollar Amount	Start Date	Completion Date

WORK IN PROCESS – NON FEDERAL FUNDS

Contract with Which Agency	Project Name and Location*	Project Number	Dollar Amount	Start Date	Completion Date

*Location must include street address and city.
This format meets the requirements of E.O. 11246, as amended, 5/8/78.

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For Council Approval
Re-Bid



MBE-WBE Business Enterprise Certification
Community Development Block Grant (CDBG) Program

I have taken affirmative action to seek out and consider minority and women's business enterprises for the portions of work to be subcontracted. Such actions are fully documented in my records and available upon request. Results are as follows:

Name and Address of MBE/WBE Firms Contractor Anticipates Utilizing*	Category of Work	Dollar Value of Participation

**Please indicate whether business is owned by a minority or a woman.*

Total Bid Amount: _____

Total Subcontract Amount: _____

MBE/WBE Subcontract Amount: _____

Signed		Date	
Name		Title	

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Bidder Certification of Non-Collusion
Community Development Block Grant (CDBG) Program

Project	
Firm/CSLB#	
Firm Address	

Bidder hereby certifies (s)he has reviewed all bid documents for HUD-funded construction projects, and fully understands all obligations if the project is award to him/her. Bidder further certifies that the proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of project or of any other bidder or to fix any overhead profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the City of Roseville, or any person interested in the proposed contract, and that all statements in said proposal or bid are true.

I hereby certify the above.

Signed		Date	
Name		Title	

08.Section 3 Fact Sheet and Certification rev 08/17/22

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Certification of Lobbying Restrictions
Community Development Block Grant (CDBG) Program

Project	
Firm/CSLB#	
Firm Address	

I, _____, hereby certify on behalf of
(name and title of bidder's official)

_____ that:
(name of bidder)

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit standard Form- LLL, "Disclosure Form to Report Lobbying, " in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Executed this _____ day of _____, _____.

Signed		Date	
Name		Title	

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Certification for a Drug-Free Workplace

U.S. Department of Housing
and Urban Development

EXHIBIT K

Applicant Name

Program/Activity Receiving Federal Grant Funding

Acting on behalf of the above named Applicant as its Authorized Official, I make the following certifications and agreements to the Department of Housing and Urban Development (HUD) regarding the sites listed below:

I certify that the above named Applicant will or will continue to provide a drug-free workplace by:

a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Applicant's workplace and specifying the actions that will be taken against employees for violation of such prohibition.

b. Establishing an on-going drug-free awareness program to inform employees ---

(1) The dangers of drug abuse in the workplace;

(2) The Applicant's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

c. Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph a.;

d. Notifying the employee in the statement required by paragraph a. that, as a condition of employment under the grant, the employee will ---

(1) Abide by the terms of the statement; and

(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

e. Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph d.(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

f. Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph d.(2), with respect to any employee who is so convicted ---

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

g. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs a. thru f.

2. Sites for Work Performance. The Applicant shall list (on separate pages) the site(s) for the performance of work done in connection with the HUD funding of the program/activity shown above: Place of Performance shall include the street address, city, county, State, and zip code. Identify each sheet with the Applicant name and address and the program/activity receiving grant funding.)

Check here ☐ if there are workplaces on file that are not identified on the attached sheets.

I hereby certify that all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.

Warning: HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties.
(18 U.S.C. 1001, 1010, 1012; 31 U.S.C. 3729, 3802)

Name of Authorized Official

Title

Signature

Date

X

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For Council Approval
Re-Bid



Contractor/Subcontractor Certification Regarding Eligibility for Award
Community Development Block Grant (CDBG) Program

Project	
Prime Contractor	
Firm/CSLB#	
Firm Address	

The contractor/subcontractor firm named above certifies that neither the contractor/subcontractor, nor any of its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or excluded from receiving an award of federal funds by any federal agency or department, or by any recipient of a federal award.

Likewise, neither the contractor/subcontractor, nor any of its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or excluded from receiving an award of state funds by any agency or department of the State of California, or by any recipient of a state award.

The contractor/subcontractor shall obtain this certification from all lower tier subcontractors and furnish signed certifications to the City of Roseville.

I hereby certify the above.

Signed		Date	
Name		Title	

11.ContractorSubcontractor Certification Regarding Eligibility for Award rev 08/17/22

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For Council Approval
Re-Bid**

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For Council Approval
Re-Bid

Section 3 Fact Sheet and Acknowledgement

Community Development Block Grant (CDBG) Program

Project	
Prime Contractor	
Firm/CSLB#	
Firm Address	

This project is funded with Community Development Block Grant (CDBG) Program funds. The work is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 USC 1701. Section 3 is implemented through HUD regulations at 24 CFR 135.

The goal is to ensure that to the greatest extent feasible, funds subject to the Act provide employment and contracting opportunities to low-income persons and business owners.

Section 3 also requires that any new hiring by the Section 3-covered project include the recruitment of low-income persons living in the project area.

For the purpose of recruiting local and low-income persons, Section 3 goals are met by directing hiring efforts towards residents of public housing and persons who are low-income according to the published HUD income limit for a low-income household adjusted for family size. (Please see the attached.) Recruitment efforts should be directed towards persons within Roseville and Placer County.

For the purposes of hiring local and low-income persons, Section 3 goals are met by hiring residents of public housing and persons who are low-income according to the published HUD income limit for a low-income household adjusted for family size.

For the purposes of contracting, a business must meet one of the following tests to meet Section 3 goals.

Be majority-owned (51% or more) by Section 3 residents (see above).

Have in its employ permanent, full-time employees, at least 30 percent of whom currently qualify as Section 3 residents, or qualified within three years of the date of first employment.

Provide evidence of a commitment to subcontract at least 25% of the contract value to firms who meet either (1) or (2) above.

Bidders who wish to be considered for Section 3 preference must submit Section 3 Qualification(s) with supporting documentation.

All bidders must submit a Section 3 Questionnaire estimating the number of new hires required.

Section 3 goals and compliance with Section 3 will be part of the construction contract. The awarded bidder will be required to pass-through Section 3 requirements to all subcontractors.

Section 3 eligibility will be verified and compliance will be monitored. Failure to comply or fraudulent statements or documentation may be grounds for disqualification from future contracting opportunities with the City of Roseville. Section 3 firms must be appropriately qualified to perform the subcontracted work. Section 3 firms may not subcontract work and still qualify as Section 3 firms.

The undersigned hereby acknowledges the above Section3 requirements.

Signed		Date	
Name		Title	

13.Section 3 Fact Sheet and Acknowledgement rev 08/17/22

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Section 3 Hiring Plan
Community Development Block Grant (CDBG) Program

Project	
Prime Contractor	
Firm/CSLB#	
Firm Address	

Contractor/Subcontractor	Trade/Work Classification	Workforce Needed (persons)	Existing Workforce	Anticipated New Hires

I hereby certify that the estimates of workforce needs above are as accurate as possible based on the bid specifications provided by the City of Roseville. I also agree to undertake a good faith effort to comply with Section 3 and affirmative hiring requirements for new hires should my firm be awarded a contract for this project.

Signed		Date	
Name		Title	

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For Council Approval
Re-Bid

Not for Construction
For Council Approval
Re-Bid



Certification of Understanding and Authorization
Community Development Block Grant (CDBG) Program

Project	
Prime Contractor	
Firm/CSLB#	
Firm Address	
Employer ID Number (EIN/TIN)	

This is to certify that the principles and the authorized payroll officer have read and understand the Minutes of the Preconstruction Conference and the labor standards clauses pertaining to the subject project.

The following person(s) is designated as the payroll officer for the undersigned and is authorized to sign the Statement of Compliance, which will accompany our weekly certified payroll reports for this project.

Designated Payroll Officer (Name)	
Designated Payroll Officer (Signature)	
Telephone	
Email	

I hereby certify the above and duly authorize the Designated Payroll Officer

Signed		Date	
Name		Title	

Certification of Understanding and Authorization rev 09/08/22

**Not for Construction
For Council Approval
Re-Bid**



COUNCIL COMMUNICATION

CC #: 2521
File #: 0103-32

Title: City Council Law and Regulation Committee - Meeting Amendment
Contact: Mark Wolinski 916-774-5179 mwolinski@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.7.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution establishing the fourth Thursday of the month at 9:00 a.m. as the regular meeting day and time for the Law and Regulation Committee.

BACKGROUND

The City's Council/Boards, Commissions, & Committees Administrative Standards "... serve as the administrative standards for all City of Roseville boards, commissions, committees and City Council members (collectively "public officials") so that expectations and practices are clearly articulated to guide members in their actions, and to provide a uniform frame for conduct. Informational appendices are included."

The Administrative Standards defines the following process for the day and time of the Law and Regulation Committee meetings:

"The regular day and time for meetings for the Law and Regulation Committee shall be established by resolution adopted by the City Council, as amended from time to time."

The Law and Regulation Committee met at the proposed day and time as special meetings for the last four meetings of 2022 and it was an effective time for the community, as evidenced by the attendance of members of the community at several of the meetings, and for the committee members as well. Subsequently, it is recommended that the City Council adopt a resolution establishing the fourth Thursday of the month at 9:00 a.m. as the regular meeting day and time for the Law and Regulation Committee.

The meetings are held in the City Council Chambers and are broadcast on Comcast channel 14, Consolidated Communications channel 73 and AT&T U-verse. They are also live streamed on the City's YouTube channel, and the City's website at Roseville.ca.us/watch and Roseville.ca.us/agenda.

FISCAL IMPACT

There is no financial impact associated with this action.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Adoption of this resolution meets the above criteria and is not subject to CEQA. No additional environmental review is required.

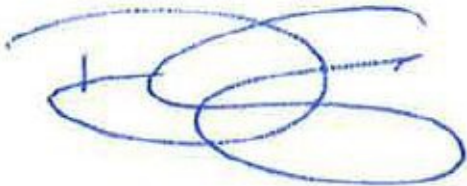
CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal B - Support community engagement and advocacy

Respectfully Submitted,

Mark Wolinski, Government Relations Administrator

Megan Scheid, Deputy City Manager



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-048

RESOLUTION NO. 23-048

ESTABLISHING A REGULAR MEETING DAY AND TIME
FOR THE LAW AND REGULATION COMMITTEE

WHEREAS, the City Council/Boards, Commissions, and Committees Administrative Standards requires the City Council to adopt a resolution establishing a regular day and time for meetings of the Law and Regulation Committee; and

WHEREAS, staff is proposing that the Law and Regulation Committee now meet on the fourth Thursday of each month at 9:00 a.m.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Roseville hereby establishes the fourth Thursday of each month at 9:00 a.m. as the regular meeting day and time for the Law and Regulation Committee.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 20_, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



COUNCIL COMMUNICATION

CC #: 2514
File #: 0704-01

Title: Four Corners Park Project - Notice of Completion
Contact: Joel De Jong 916-774-5924 jdejong@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.8.

RECOMMENDATION TO COUNCIL

Recommend Council accept the Four Corners Park Project as complete and adopt a resolution authorizing the Parks, Recreation & Libraries Director to execute the attached Notice of Completion.

BACKGROUND

The Parks, Recreation & Libraries Department has made a final inspection of the Four Corners Park Project and has found that all contract work has been completed in accordance with the approved plans and specifications. The project is now ready for acceptance.

The project scope of work included installation of a children's play area, swings, a basketball half court, two bocce ball courts, pedestrian pathways with tricycle track, shaded picnic area, open turf areas, landscaping and irrigation. In accordance with our specifications, the Contractor shall guarantee the installation of these improvements for a period of twelve (12) months from the date of this Notice of Completion.

FISCAL IMPACT

Funding for the project was provided through the West Roseville Neighborhood Park Fund and was allocated in the FY2020-21 budget. Maintenance of the park is funded from the Westpark Community Facilities District No. 2 (Public Services). There is no impact to the General Fund.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Acceptance of a Notice of Completion meets the above criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world

Goal C - Maintain a safe and healthy community

Goal D - Enhance economic vitality

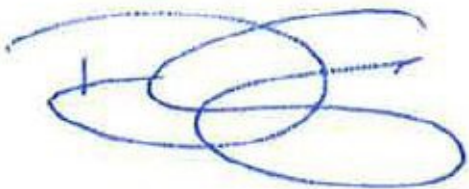
Goal E - Deliver exceptional city services

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Joel De Jong, Park Development Project Manager

Jill Geller, Parks, Recreation & Libraries Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-041

Notice of Completion

RESOLUTION NO. 23-041

ACCEPTING THE PUBLIC WORK KNOWN AS THE FOUR CORNERS PARK PROJECT,
APPROVING THE “NOTICE OF COMPLETION”, AND AUTHORIZING THE PARKS,
RECREATION AND LIBRARIES DIRECTOR TO EXECUTE SAID NOTICE
ON BEHALF OF THE CITY OF ROSEVILLE

BE IT RESOLVED by the City Council of the City of Roseville as follows:

1. The “Notice of Completion” on file in the City Clerk’s Department relative to that public work known as the Four Corners Park Project, has been approved and the public work accepted.
2. The Parks, Recreation and Libraries Director is hereby authorized and directed to execute said Notice on behalf of the City of Roseville.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 20____, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

RECORDING REQUESTED BY AND WHEN
RECORDED MAIL TO:

CITY CLERK
CITY OF ROSEVILLE
311 VERNON STREET
ROSEVILLE, CA 95678

Exempt from recording fees
Pursuant to Gov't Code §27383

NOTICE OF COMPLETION

NOTICE IS HEREBY GIVEN that the public work of improvement known as the _____ Project was completed and accepted by the City of Roseville on _____. The location is situated in the City of Roseville, County of Placer, State of California and is indicated on the attached map, marked as Exhibit "A" and incorporated herein by this reference. The real property herein described is owned by the City of Roseville, 311 Vernon Street, Roseville CA 95678.

The direct/general contractor on said project was _____.

The surety on said project was _____.

_____.

City of Roseville
Owner

ATTEST:

Carmen Avalos, City Clerk

State of California)
County of Placer)

I, _____, being first duly sworn, depose and say: I am the _____ of the City of Roseville, a municipal corporation in the State of California, owner of the property described in the above Notice. I am duly authorized to make this verification for and on behalf of the City of Roseville. I have read the Notice of Completion and know its contents and the facts stated therein are true.

City of Roseville

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.
--

State of California)
County of Placer)

Subscribed and sworn to (or affirmed) before
me on this _____ day of _____,
20____, _____
proved to me on the basis of satisfactory
evidence to be the person(s) who appeared
before me.

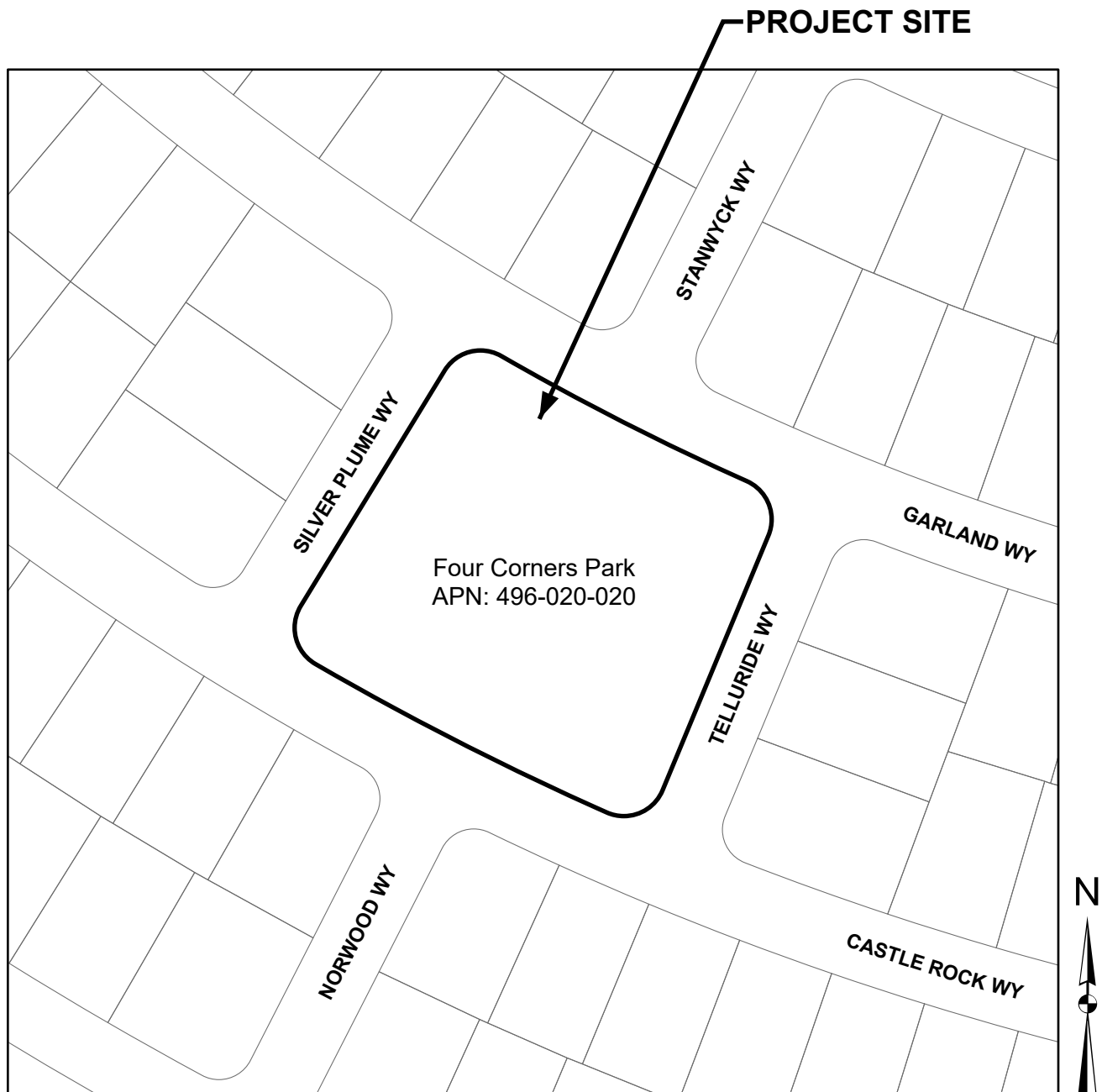
Place Notary Seal and/or Stamp Above

Signature of Notary Public

Exhibit A

Four Corners Park Improvements Project
6101 Garland Way, Roseville, CA 95747

The project scope of work includes a installation of a children's play area, swings, a basketball half court, two bocce ball courts, pedestrian pathways with tricycle track, shaded picnic area, open turf area, landscaping and irrigation.





COUNCIL COMMUNICATION

CC #: 2517

File #: 0704 & 0214

Title: 2018 Parks Bond Act Per Capita Grant Program - Grant Award

Contact: Tara Gee 916-774-5253 tgee@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.9.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council accept the 2018 Parks Bond Act Per Capita (Prop 68) Grant of \$177,952 awarded to the City of Roseville by the State of California – Natural Resources Agency, Department of Park and Recreation's Office of Grants and Local Services to offset costs associated with the Royer Park Play Structure Replacement Project.

BACKGROUND

The State Department of Parks and Recreation has been delegated the responsibility by the Legislature of the State of California for the administration of the Per Capita Grant Program. According to the grant procedures, established by the State Department of Parks and Recreation, a resolution to apply for funds was approved by Council in September 2020. The per capita amount for the City of Roseville is \$177,952 and is being applied to the replacement and upgrade of the Royer Park play structure. While the grant award contract was executed in October 2021, City procedure requires the City Council to formally accept the grant.

FISCAL IMPACT

The amount of the per capita grant of \$177,952 will be applied to the Royer Park play structure replacement associated improvements surrounding the play area. This includes offsets to the play structure, rubber surfacing to ensure ADA access and an expanded picnic area with shade. There will be no additional maintenance costs since costs to maintain the play area are already accounted for in the Parks, Recreation and Libraries operations budget in the General Fund.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Acceptance of the Per Capita (Prop 68) grant award meets the above

criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal C - Maintain a safe and healthy community

Goal E - Deliver exceptional city services

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Tara Gee, Park Planning & Development Manager

Jill Geller, Parks, Recreation & Libraries Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-044

Contract Award

Summary of Award

Vicinity Map

RESOLUTION NO. 23-044

ACCEPTING A 2018 PARKS BOND ACT PER CAPITA GRANT AWARD FROM THE
STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY, DEPARTMENT OF
PARKS AND RECREATION’S OFFICE OF GRANTS AND LOCAL SERVICES

WHEREAS, the Parks, Recreation & Libraries Department was awarded a \$177,952
2018 Parks Bond Act Per Capita grant by the State of California – Natural Resources Agency,
Department of Parks and Recreation’s Office of Grants and Local Services; and

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Roseville
that the City of Roseville accepts the 2018 Parks Bond Act Per Capita grant award from the State
of California – Natural Resources Agency, Department of Parks and Recreation’s Office of
Grants and Local Services and the City Manager is hereby authorized to execute any required
documents.

BE IT FURTHER RESOLVED that as the grant recipient, the City of Roseville agrees to
comply with all conditions and requirements related to the award; and

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of
_____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

State of California - Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

GRANT CONTRACT
2018 Parks Bond Act
Per Capita Grant Program

GRANTEE City of Roseville

THE PROJECT PERFORMANCE PERIOD is from July 01, 2018 through June 30, 2024

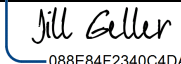
CONTRACT PERFORMANCE PERIOD is from July 01, 2018 through June 30, 2048

The GRANTEE agrees to the terms and conditions of this Contract, and the State of California, acting through its Director of the Department of Parks and Recreation, pursuant to the State of California, agrees to fund the total State grant amount indicated below.

The GRANTEE agrees to complete the GRANT SCOPE(s) as defined in the GRANT SCOPE/Cost Estimate Form or acquisition documentation for the application(s) filed with the State of California.

The General and Special Provisions attached are made a part of and incorporated into the Contract.

City of Roseville DocuSigned by:

By  Jill Geller Grantee
088E84F2340C4DA...
(Signature of Authorized Representative)

STATE OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

Title City of Roseville Director of Parks, Recreation & Libraries

DocuSigned by:
 Jana Clarke
96CAD152004346D

Date 10/4/2021

Date 10/13/2021

CERTIFICATION OF FUNDING
(For State Use Only)

CONTRACT NO C9803006	AMENDMENT NO	FISCAL SUPPLIER I.D. 0000003031			PROJECT NO. 18-31-004
AMOUNT ENCUMBERED BY THIS DOCUMENT \$177,952.00		FUND. Drought, Water, Cln Air, Cstl Protc, Outdoor Fund			
PRIOR AMOUNT ENCUMBERED FOR THIS CONTRACT		ITEM 3790-101-6088	CHAPTER 6	STATUTE 20	FISCAL YEAR 2021/22
TOTAL AMOUNT ENCUMBERED TO DATE \$ 177,952.00		Reporting Structured. 37900091	Account/Alt Account. 5432000-5432000000	ACTIVITY CODE 69808	PROJECT / WORK PHASE

I. RECITALS

This CONTRACT is entered into between the California Department of Parks and Recreation (hereinafter referred to as "GRANTOR," "DEPARTMENT" or "STATE") and City of Roseville (hereinafter referred to as "GRANTEE").

The DEPARTMENT hereby grants to GRANTEE a sum (also referred to as "GRANT MONIES") not to exceed \$177,952, subject to the terms and conditions of this AGREEMENT and the 2020/21 California State Budget, Chapter 6, statutes of 2020, Item number – 3790-101-6088 (appropriation chapter and budget item number hereinafter referred to as "PER CAPITA GRANT"). These funds shall be used for completion of the GRANT SCOPE(S).

The Grant Performance Period is from July 01, 2018 to June 30, 2024.

II. GENERAL PROVISIONS

A. Definitions

As used in this CONTRACT, the following words shall have the following meanings:

1. The term "ACT" means the California Drought, Water, Parks Climate, Coastal Protection, and Outdoor Access for All Act of 2018, as referred to in section I of this CONTRACT.
2. The term "APPLICATION" means the individual project APPLICATION packet for a project pursuant to the enabling legislation and/or grant program process guide requirements.
3. The term "DEPARTMENT" or "STATE" means the California Department of Parks and Recreation.
4. The term "DEVELOPMENT" means capital improvements to real property by means of, but not limited to, construction, expansion, and/or renovation, of permanent or fixed features of the property.
5. The term "GRANTEE" means the party described as the GRANTEE in Section I of this CONTRACT.
6. The term "GRANT SCOPE" means the items listed in the GRANT SCOPE/Cost Estimate Form or acquisition documentation found in each of the APPLICATIONS submitted pursuant to this grant.
7. The term "PROCEDURAL GUIDE" means the document identified as the "Procedural Guide for California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018 Per Capita Program." The

PROCEDURAL GUIDE provides the procedures and policies controlling the administration of the grant.

B. Project Execution

1. Subject to the availability of GRANT MONIES, the STATE hereby grants to the GRANTEE a sum of money not to exceed the amount stated in Section I of this CONTRACT, in consideration of, and on condition that, the sum be expended in carrying out the purposes as set forth in the scope described in the enabling legislation and referenced in the APPLICATION, Section I of this CONTRACT, and under the terms and conditions set forth in this CONTRACT.

The GRANTEE shall assume any obligation to furnish any additional funds that may be necessary to complete the GRANT SCOPE(S).

The GRANTEE agrees to submit any change or alteration from the original GRANT SCOPE(S) in writing to the STATE for prior approval. This applies to any and all changes that occur after STATE has approved the APPLICATION. Changes in the GRANT SCOPE(S) must be approved in writing by the STATE.

2. The GRANTEE shall complete the GRANT SCOPE(S) in accordance with the time of the Performance Period set forth in Section I of this CONTRACT, and under the terms and conditions of this CONTRACT.
3. The GRANTEE shall comply with the California Environmental Quality Act (Public Resources Code, Section 21000, et seq., Title 14, California Code of Regulations, Section 15000 et seq.).
4. The GRANTEE shall comply with all applicable current laws and regulations affecting DEVELOPMENT projects, including, but not limited to, legal requirements for construction contracts, building codes, health and safety codes, and laws and codes pertaining to individuals with disabilities, including but not limited to the Americans With Disabilities Act of 1990 (42 U.S.C. §12101 et seq.) and the California Unruh Act (California Civil Code §51 et seq.).

C. Project Costs

1. GRANTEE agrees to abide by the PROCEDURAL GUIDE.
2. GRANTEE acknowledges that STATE may make reasonable changes to its procedures as set forth in the PROCEDURAL GUIDE. If STATE makes any changes to its procedures and guidelines, STATE agrees to notify GRANTEE within a reasonable time.

D. Project Administration

1. If GRANT MONIES are advanced for DEVELOPMENT projects, the advanced funds shall be placed in an interest bearing account until expended. Interest earned on the advanced funds shall be used on the project as approved by the STATE. If grant monies are advanced and not expended, the unused portion of the

grant and any interest earned shall be returned to the STATE within 60 days after project completion or end of the Grant Performance Period, whichever is earlier.

2. The GRANTEE shall submit written project status reports within 30 calendar days after the STATE has made such a request. In any event, the GRANTEE shall provide the STATE a report showing total final project expenditures within 60 days of project completion or the end of the grant performance period, whichever is earlier. The Grant Performance Period is identified in Section I of this CONTRACT.
3. The GRANTEE shall make property or facilities acquired and/or developed pursuant to this contract available for inspection upon request by the STATE.

E. Project Termination

1. Project Termination refers to the non-completion of a GRANT SCOPE. Any grant funds that have not been expended by the GRANTEE shall revert to the STATE.
2. The GRANTEE may unilaterally rescind this CONTRACT at any time prior to the commencement of the project. The commencement of the project means the date of the letter notifying GRANTEE of the award or when the funds are appropriated, whichever is later. After project commencement, this CONTRACT may be rescinded, modified or amended only by mutual agreement in writing between the GRANTEE and the STATE, unless the provisions of this CONTRACT provide that mutual agreement is not required.
3. Failure by the GRANTEE to comply with the terms of the (a) PROCEDURAL GUIDE, (b) any legislation applicable to the ACT, (c) this CONTRACT as well as any other grant contracts, specified or general, that GRANTEE has entered into with STATE, may be cause for suspension of all obligations of the STATE unless the STATE determines that such failure was due to no fault of the GRANTEE. In such case, STATE may reimburse GRANTEE for eligible costs properly incurred in performance of this CONTRACT despite non-performance of the GRANTEE. To qualify for such reimbursement, GRANTEE agrees to mitigate its losses to the best of its ability.
4. Any breach of any term, provision, obligation or requirement of this CONTRACT by the GRANTEE shall be a default of this CONTRACT. In the case of any default by GRANTEE, STATE shall be entitled to all remedies available under law and equity, including but not limited to: a) Specific Performance; b) Return of all GRANT MONIES; c) Payment to the STATE of the fair market value of the project property or the actual sales price, whichever is higher; and d) Payment to the STATE of the costs of enforcement of this CONTRACT, including but not limited to court and arbitration costs, fees, expenses of litigation, and reasonable attorney fees.
5. The GRANTEE and the STATE agree that if the GRANT SCOPE includes DEVELOPMENT, final payment may not be made until the work described in the GRANT SCOPE is complete and the GRANT PROJECT is open to the public.

F. Budget Contingency Clause

If funding for any fiscal year is reduced or deleted by the budget act for purposes of this program, the STATE shall have the option to either cancel this contract with no liability occurring to the STATE, or offer a CONTRACT amendment to GRANTEE to reflect the reduced grant amount. This Paragraph shall not require the mutual agreement as addressed in Paragraph E, provision 2, of this CONTRACT.

G. Hold Harmless

1. The GRANTEE shall waive all claims and recourse against the STATE including the right to contribution for loss or damage to persons or property arising from, growing out of or in any way connected with or incident to this CONTRACT except claims arising from the concurrent or sole negligence of the STATE, its officers, agents, and employees.
2. The GRANTEE shall indemnify, hold harmless and defend the STATE, its officers, agents and employees against any and all claims, demands, damages, costs, expenses or liability costs arising out of the ACQUISITION, DEVELOPMENT, construction, operation or maintenance of the property described as the project which claims, demands or causes of action arise under California Government Code Section 895.2 or otherwise except for liability arising out of the concurrent or sole negligence of the STATE, its officers, agents, or employees.
3. The GRANTEE agrees that in the event the STATE is named as codefendant under the provisions of California Government Code Section 895 et seq., the GRANTEE shall notify the STATE of such fact and shall represent the STATE in the legal action unless the STATE undertakes to represent itself as codefendant in such legal action in which event the GRANTEE agrees to pay the STATE's litigation costs, expenses, and reasonable attorney fees.
4. The GRANTEE and the STATE agree that in the event of judgment entered against the STATE and the GRANTEE because of the concurrent negligence of the STATE and the GRANTEE, their officers, agents, or employees, an apportionment of liability to pay such judgment shall be made by a court of competent jurisdiction. Neither party shall request a jury apportionment.
5. The GRANTEE shall indemnify, hold harmless and defend the STATE, its officers, agents and employees against any and all claims, demands, costs, expenses or liability costs arising out of legal actions pursuant to items to which the GRANTEE has certified. The GRANTEE acknowledges that it is solely responsible for compliance with items to which it has certified.

H. Financial Records

1. The GRANTEE shall maintain satisfactory financial accounts, documents, including loan documents, and all other records for the project and to make them available to the STATE for auditing at reasonable times. The GRANTEE also agrees to retain such financial accounts, documents and records for five years following project

termination or issuance of final payment, whichever is later.

2. The GRANTEE shall keep such records as the STATE shall prescribe, including records which fully disclose (a) the disposition of the proceeds of STATE funding assistance, (b) the total cost of the project in connection with such assistance that is given or used, (c) the amount and nature of that portion of the project cost supplied by other sources, and (d) any other such records that will facilitate an effective audit.
3. The GRANTEE agrees that the STATE shall have the right to inspect and make copies of any books, records or reports pertaining to this contract or matters related thereto during regular office hours. The GRANTEE shall maintain and make available for inspection by the STATE accurate records of all of its costs, disbursements and receipts with respect to its activities under this contract. Such accounts, documents, and records shall be retained by the GRANTEE for at least five years following project termination or issuance of final payment, whichever is later.
4. The GRANTEE shall use a generally accepted accounting system.

I. Use of Facilities

1. The GRANTEE agrees that the GRANTEE shall operate and maintain the property acquired or developed with the GRANT MONIES, for the duration of the Contract Performance Period.
2. The GRANTEE agrees that, during the Contract Performance Period, the GRANTEE shall use the property acquired or developed with GRANT MONIES under this contract only for the purposes of this grant and no other use, sale, or other disposition or change of the use of the property to one not consistent with its purpose shall be permitted except as authorized by the STATE and the property shall be replaced with property of equivalent value and usefulness as determined by the STATE.
3. The property acquired or developed may be transferred to another entity if the successor entity assumes the obligations imposed under this CONTRACT and with the approval of STATE.
4. Any real Property (including any portion of it or any interest in it) may not be used as security for any debt or mitigation, without the written approval of the STATE provided that such approval shall not be unreasonably withheld as long as the purposes for which the Grant was awarded are maintained. Any such permission that is granted does not make the STATE a guarantor or a surety for any debt or mitigation, nor does it waive the STATE'S rights to enforce performance under the Grant CONTRACT.

5. All real property, or rights thereto, acquired with GRANT MONIES shall be subject to an appropriate form of restrictive title, rights, or covenants approved by the STATE. If the project property is taken by use of eminent domain, GRANTEE shall reimburse STATE an amount at least equal to the amount of GRANT MONIES received from STATE or the pro-rated full market value of the real property, including improvements, at the time of sale, whichever is higher.
6. If eminent domain proceedings are initiated against GRANTEE, GRANTEE shall notify STATE within 10 days of receiving the complaint.

J. Nondiscrimination

1. The GRANTEE shall not discriminate against any person on the basis of sex, race, color, national origin, age, religion, ancestry, sexual orientation, or disability in the use of any property or facility developed pursuant to this contract.
2. The GRANTEE shall not discriminate against any person on the basis of residence except to the extent that reasonable differences in admission or other fees may be maintained on the basis of residence and pursuant to law.
3. All facilities shall be open to members of the public generally, except as noted under the special provisions of this project contract or under provisions of the enabling legislation and/or grant program.

K. Severability

If any provision of this CONTRACT or the application thereof is held invalid, that invalidity shall not affect other provisions or applications of the CONTRACT which can be given effect without the invalid provision or application, and to this end the provisions of this CONTRACT are severable.

L. Liability

1. STATE assumes no responsibility for assuring the safety or standards of construction, site improvements or programs related to the GRANT SCOPE. The STATE'S rights under this CONTRACT to review, inspect and approve the GRANT SCOPE and any final plans of implementation shall not give rise to any warranty or representation that the GRANT SCOPE and any plans or improvements are free from hazards or defects.
2. GRANTEE will secure adequate liability insurance, performance bond, and/or other security necessary to protect the GRANTEE'S and STATE'S interest against poor workmanship, fraud, or other potential loss associated with completion of the grant project.

M. Assignability

Without the written consent of the STATE, the GRANTEE'S interest in and responsibilities under this CONTRACT shall not be assignable by the GRANTEE either in whole or in part.

N. Use of Grant Monies

GRANTEE shall not use any grant funds (including any portion thereof) for the purpose of making any leverage loan, pledge, promissory note or similar financial device or transaction, without: 1) the prior written approval of the STATE; and 2) any financial or legal interests created by any such leverage loan, pledge, promissory note or similar financial device or transaction in the project property shall be completely subordinated to this CONTRACT through a Subordination Agreement provided and approved by the STATE, signed by all parties involved in the transaction, and recorded in the County Records against the fee title of the project property.

O. Section Headings

The headings and captions of the various sections of this CONTRACT have been inserted only for the purpose of convenience and are not a part of this CONTRACT and shall not be deemed in any manner to modify, explain, or restrict any of the provisions of this CONTRACT.

P. Waiver

Any failure by a party to enforce its rights under this CONTRACT, in the event of a breach, shall *not* be construed as a waiver of said rights; and the waiver of any breach under this CONTRACT shall *not* be construed as a waiver of any subsequent breach.

City of Roseville
GRANTEE

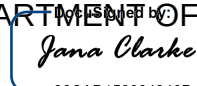
Signed by:

By: 088E84F2340C4DA...
Signature of Authorized Representative

Title: City of Roseville Director of Parks, Recreation & Libraries

Date: 10/4/2021

STATE OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

Signed by:

By: 96CAD152004346D...

Date: 10/13/2021

Certificate Of Completion

Envelope Id: 6E0ECB2C243E405A9CE2185803865059

Status: Completed

Subject: Please DocuSign: C9803006 177952.pdf

Template Code:

Source Envelope:

Document Pages: 8

Signatures: 4

Envelope Originator:

Certificate Pages: 5

Initials: 0

Lydia Willett

AutoNav: Enabled

1416 9th Street, Room 950

Enveloped Stamping: Enabled

Sacramento, CA 95814

Time Zone: (UTC-08:00) Pacific Time (US & Canada)

Lydia.Willett@parks.ca.gov

IP Address: 13.88.65.98

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Status: Original

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10/4/2021 8:52:35 AM

Lydia.Willett@parks.ca.gov

Security Appliance Status: Connected

Pool: StateLocal

Storage Appliance Status: Connected

Pool: California State Department of Parks and Recreation

Location: DocuSign

Signer Events

Jill Geller

jageller@roseville.ca.us

City of Roseville Director of Parks, Recreation & Libraries

Security Level: Email, Account Authentication (None)

Signature

DocuSigned by:

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Signature Adoption: Pre-selected Style

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Signed: 10/4/2021 11:56:43 AM

Electronic Record and Signature Disclosure:

Accepted: 10/4/2021 11:49:10 AM

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Jana Clarke

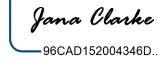
Jana.Clarke@parks.ca.gov

Supervisor

California State Department of Parks and Recreation

Security Level: Email, Account Authentication (None)

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96CAD152004346D...

Signature Adoption: Pre-selected Style

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Signed: 10/13/2021 3:34:14 PM

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In Person Signer Events**Signature****Timestamp****Editor Delivery Events****Status****Timestamp****Agent Delivery Events****Status****Timestamp****Intermediary Delivery Events****Status****Timestamp****Certified Delivery Events****Status****Timestamp****Carbon Copy Events****Status****Timestamp**

Lisa Vigil

Lisa.Vigil@parks.ca.gov

California State Department of Parks and Recreation

Security Level: Email, Account Authentication (None)

COPIED

Sent: 10/13/2021 3:34:15 PM

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Electronic Record and Signature Disclosure:
Not Offered via DocuSign

Witness Events	Signature	Timestamp
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Notary Events	Signature	Timestamp
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Envelope Summary Events	Status	Timestamps
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Signing Complete	Security Checked	10/13/2021 3:34:14 PM
Completed	Security Checked	10/13/2021 3:34:15 PM

Payment Events	Status	Timestamps
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Electronic Record and Signature Disclosure
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ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, California State Department of Parks and Recreation (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a \$0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact California State Department of Parks and Recreation:

You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:

To contact us by email send messages to: marlene.sheufelt@parks.ca.gov

To advise California State Department of Parks and Recreation of your new e-mail address

To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at marlene.sheufelt@parks.ca.gov and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..

In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.

To request paper copies from California State Department of Parks and Recreation

To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to marlene.sheufelt@parks.ca.gov and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.

To withdraw your consent with California State Department of Parks and Recreation

To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

- i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
- ii. send us an e-mail to marlene.sheufelt@parks.ca.gov and in the body of such request you must state your e-mail, full name, US Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically

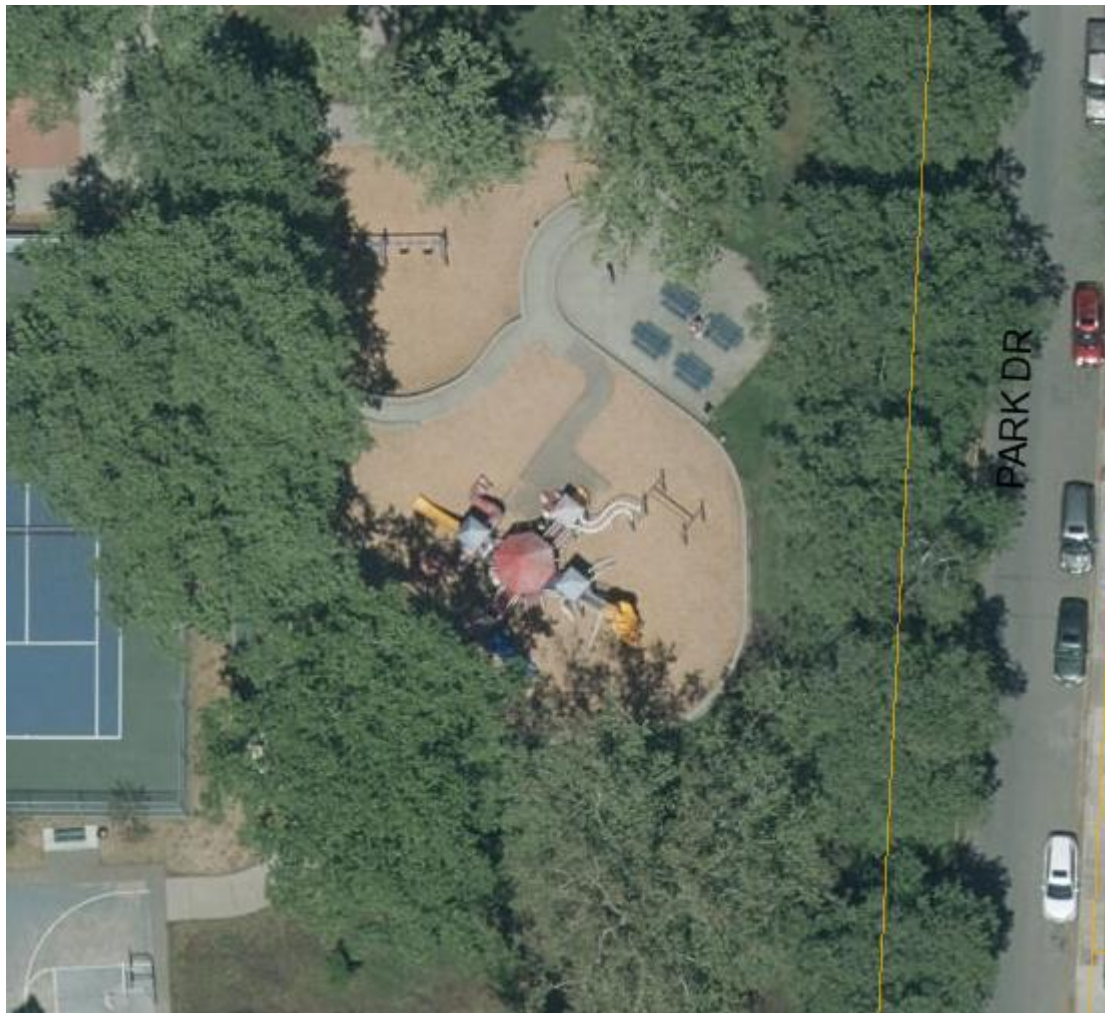
To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please verify that you were able to read this electronic disclosure and that you also were able to print on paper or electronically save this page for your future reference and access or that you were able to e-mail this disclosure and consent to an address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format on the terms and conditions described above, please let us know by clicking the 'I agree' button below.

By checking the 'I Agree' box, I confirm that:

- I can access and read this Electronic CONSENT TO ELECTRONIC RECEIPT OF ELECTRONIC RECORD AND SIGNATURE DISCLOSURES document; and
- I can print on paper the disclosure or save or send the disclosure to a place where I can print it, for future reference and access; and
- Until or unless I notify California State Department of Parks and Recreation as described above, I consent to receive from exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to me by California State Department of Parks and Recreation during the course of my relationship with you.

Vicinity Map – Royer Park

130 Park Drive near Douglas Blvd





COUNCIL COMMUNICATION

CC #: 2524

File #: 0400-04-12-1 & 0800-06

Title: Sierra Vista Specific Plan Baseline Road Segment 3 and a Portion of Segment 2 - Reimbursement Agreement
Contact: Matthew Todd 916-774-5562 mtodd@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.10.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution to approve the Reimbursement Agreement with Lennar Homes of California, LLC and authorize the City Manager to execute it on behalf of the City of Roseville.

BACKGROUND

Lennar Homes of California, LLC (Lennar) is developing Phase 1A Village 3 of the Placer Vineyards Specific Plan, located within Placer County, south of Baseline Road between Market Street and Upland Drive. As part of Lennar's development of Village 3, they are required to widen the south side of Baseline Road fronting their development. Lennar, Placer County, and City of Roseville staff worked together and determined it would be beneficial to all parties to shift Lennar's obligation to the north side of Baseline Road to be consistent with and to continue the Baseline Road widening improvements that have been constructed and are currently under construction with the development of the Sierra Vista Specific Plan. This segment of Baseline Road equates to a portion of Segment 2 and the entirety of Segment 3, as identified in the Sierra Vista Specific Plan.

The widening of Baseline Road within the project will take the roadway from a two (2) lane road to a five (5) lane road with four (4) travel lanes and a center two-way left turn lane. The total improvements to Baseline Road will exceed Lennar's developer obligations and the difference is subject to reimbursement through the City/County Traffic Mitigation Fund (TMF). The City/County TMF is funded through developer fees collected over time.

Staff requests Council approval of a reimbursement agreement with Lennar Homes of California, LLC, for \$1,506,322, to reimburse roadway infrastructure improvements along Baseline Road that are beyond the developer's obligations. The funding source is the City/County Traffic Mitigation Fund, resulting in no impact to the City General Fund.

FISCAL IMPACT

The actions requested as part of this item will have no impact to the City's General Fund. This reimbursement agreement, in the amount of \$1,506,322, is funded through the City/County Traffic Mitigation Fund by developer-paid fees collected over time.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) only applies to projects which have the potential to cause a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. (CEQA Guidelines §15061(b)(3)).

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Matthew Todd, Principal Engineer

Mike Isom, Development Services Director



Dominick Casey, City Manager

ATTACHMENTS:

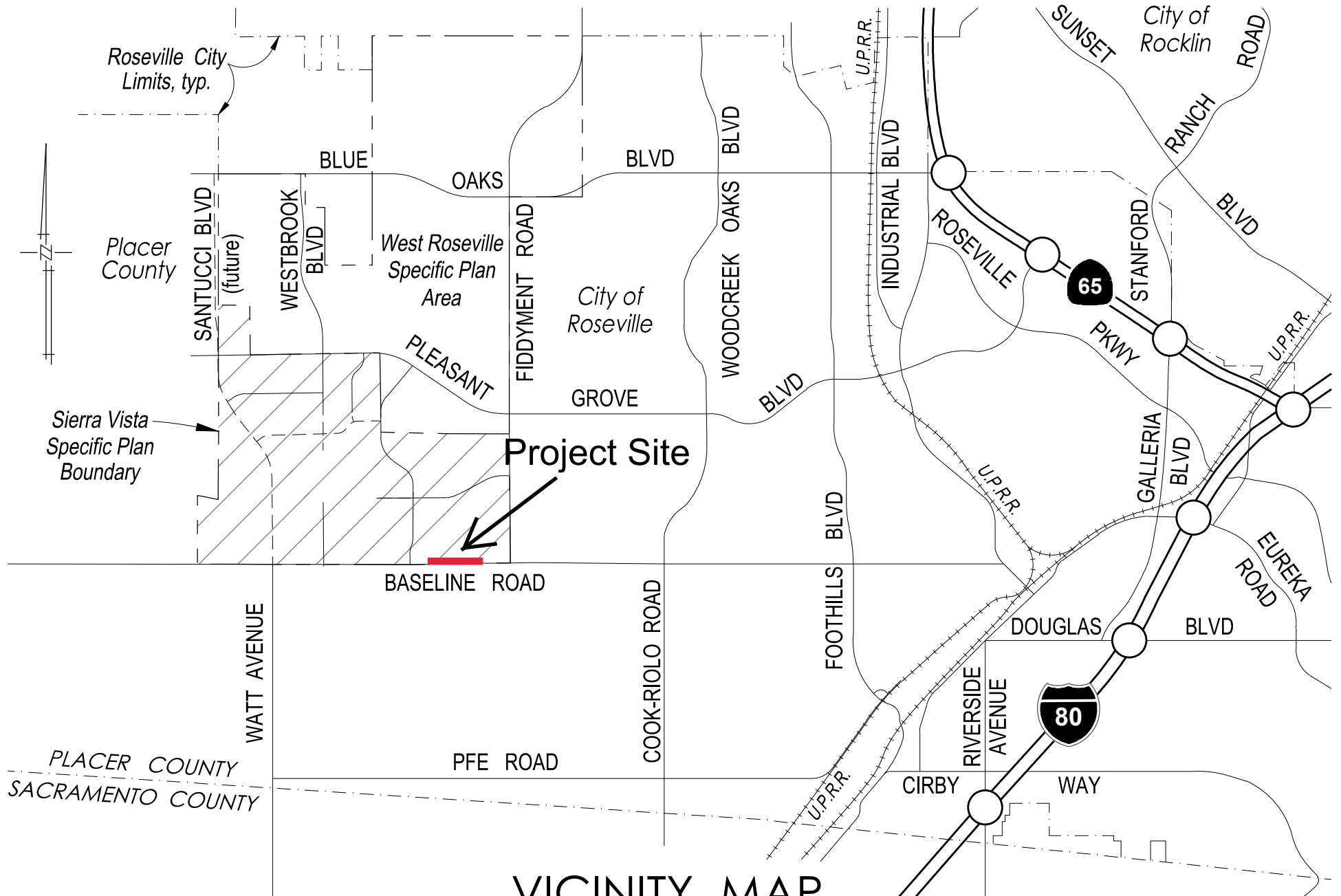
Description

Vicinity Map

Resolution 23-051

Reimbursement Agreement

City of Roseville
Sierra Vista Baseline Rd. Segment 3 and Part of 2
Reimbursement Agreement



RESOLUTION NO. 23-051

APPROVING A REIMBURSEMENT AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND LENNAR HOMES OF CALIFORNIA, LLC, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, a City/Developer Reimbursement Agreement for Sierra Vista Specific Plan – Baseline Road Segment 3 and a Portion of Segment 2 project, by and between the City of Roseville and Lennar Homes of California, LLC, has been reviewed by the City Council.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said Reimbursement Agreement is hereby approved and that the City Manager is authorized to execute it on behalf of the City of Roseville; and

PASSED AND ADOPTED by the Council of the City of Roseville this____day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

CITY/DEVELOPER
REIMBURSEMENT AGREEMENT

(Project: SVSP – Baseline Road Segment 3 and a Portion of Segment 2)

THIS AGREEMENT is made and entered into this ____ day of _____, 20__, by and between the City of Roseville, a municipal corporation, (“CITY”) and Lennar Homes of California, LLC, a California limited liability company (“DEVELOPER”); and

W I T N E S S E T H:

A. DEVELOPER is the owner of a certain parcel of real property under development within the City of Roseville, located at 5400 Baseline Road and described as Assessor’s Parcels Number 498-010-081 (the “SVSP – Baseline Road Segment 3 and a Portion of Segment 2 Property”).

B. DEVELOPER has agreed to construct and install certain Public Improvements as shown within Exhibit “A” and described within Exhibit “B,” attached hereto and made part of this agreement (“Public Improvements”).

C. DEVELOPER and CITY will substantially benefit from the construction and installation of the Public Improvements as described in paragraph B above.

D. The total cost of constructing the Public Improvements as estimated using current prevailing wages and in accordance with the Improvement Plans is estimated as approximately one million five hundred six thousand three hundred twenty-two dollars (\$1,506,322)

(“Improvement Costs”), as more particularly set out in the breakdown of costs (“Breakdown of Costs”), Exhibit “C,” attached and incorporated by this reference.

E. Pursuant to the Breakdown of Costs, the parties have determined that the obligation of Improvement Costs will be allocated between CITY, and DEVELOPER as follows:

CITY/COUNTY TMF	\$1,506,322
TOTAL:	\$1,506,322

F. DEVELOPER and CITY desire to enter into this Agreement providing for the direct installation by DEVELOPER of the Public Improvements in accordance with the approved Improvement Plans, for subsequent reimbursement of the total Improvement Costs by CITY directly to DEVELOPER.

NOW, THEREFORE, in consideration of the covenants set forth herein, CITY and DEVELOPER hereby agree as follows:

1. Construction of the Public Improvements. DEVELOPER shall cause the Public Improvements to be constructed and installed in accordance with the approved Improvement Plans. DEVELOPER is also required, and the specifications and bid and contract documents shall require all contractors and subcontractors, to pay prevailing wages and to otherwise comply with applicable provisions of the California Labor Code, Government Code, and Public Contracts Code relating to public works projects of cities and/or as may be required by CITY standards and procedures.

2. Contractor Registration. No contractor or subcontractor may be listed on a bid proposal for the Public Improvements or work on the Public Improvements unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

DEVELOPER shall be responsible for ensuring that these contractor registration requirements are adhered to since this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

3. Reimbursement of the Costs of the Public Improvements. In consideration of the satisfactory completion of the Public Improvements, CITY shall reimburse DEVELOPER for those portions of the Improvement Costs attributable to CITY as set forth in Recital E, hereof (the "Reimbursable Costs"). CITY and DEVELOPER acknowledge that the actual Reimbursable Costs may vary from the estimated costs, depending upon the actual costs of constructing and installing the Public Improvements. Any variation in costs shall be agreed to by the parties.

The Reimbursable Costs shall include the contract bid amount for the Public Improvements as reflected on the Breakdown of Costs and reasonable change orders, as approved by CITY. DEVELOPER is eligible to receive progress payments from the CITY/County TMF upon completion and conditional acceptance by the CITY of construction milestones.

4. Timing of Reimbursements. CITY shall reimburse DEVELOPER for the total Reimbursable Costs following acceptance by CITY of the Public Improvements and within thirty (30) days after submission by DEVELOPER and approval by CITY of itemized invoices evidencing the costs for which reimbursement is to be provided in accordance with this Agreement.

5. Permits. DEVELOPER shall be responsible for obtaining all necessary permits. CITY shall approve all plans prior to issuing any permit.

6. Changes in the Scope of Work. If during the course of construction field conditions require a change of scope different than contemplated in either Exhibit "A," "B" or "C" as referenced above, and prior to making any changes that will effect the scope of this Agreement, the DEVELOPER shall contact CITY and get approval by CITY for those changes.

7. Prior To Commencement of Work. Prior to commencement of Work, DEVELOPER shall comply with the following: (1) obtain pre-approval from CITY of DEVELOPER's construction documents; (2) cause its contractor to obtain an encroachment permit from City prior to commencement of construction activities in CITY's right of way (and adjacent thereto); and, (3) cause its contractor to provide insurance and related documentation to CITY in accordance with Paragraph 9 of this Agreement. In addition, as required by California Labor Code Section 1773.3, DEVELOPER shall notify the Department of Industrial Relations of the project within five (5) days of the award of a contract to a contractor for the Public Improvements.

8. Indemnification. To the fullest extent allowed by law, DEVELOPER shall defend, indemnify, and save and hold harmless CITY, its officers, agents, employees and volunteers from any claims, suits or actions of every name, kind and description brought forth, or on account of, injuries to or death of any person (including but not limited to workers and the public), or damage to property, resulting from or arising out of DEVELOPER's willful misconduct or negligent act or omission while engaged in the performance of obligations or exercise of rights created by this Agreement, except those matters arising from CITY's sole or active negligence or willful misconduct. The parties intend that this provision shall be broadly construed.

DEVELOPER's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law. The defense and indemnity obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.

9. Insurance. Prior to the issuance of an encroachment permit and commencement of any field construction for those certain improvements as shown on Exhibit "A," the DEVELOPER shall, or shall cause its contractor to, have on file with CITY throughout the duration of construction and maintain in full force the following policies of insurance:

<u>POLICY</u>	<u>LIMITS OF LIABILITY</u>
Commercial General Liability, Including endorsements for comprehensive form, premises operations, products/completed operations, broad form property damage, independent contractors, contractual, personal injury, explosion/collapse and underground hazard	Bodily Injury: \$2,000,000 each occurrence \$4,000,000 aggregate Property Damage: \$2,000,000 each occurrence Personal Injury: \$2,000,000 each occurrence \$4,000,000 aggregate
Workers' Compensation	Statutory
Automobile Liability	\$1,000,000 combined single limit

a. Form. DEVELOPER shall submit a certificate evidencing such coverage for the period covered by this Agreement in a form satisfactory to Risk Management and the City Attorney, prior to undertaking any work hereunder. Any insurance written on a claims made basis is subject to the approval of Risk Management and the City Attorney.

b. Additional Insureds. DEVELOPER shall also provide a separate endorsement form or section of the policy showing CITY, its officers, agents, employees and volunteers as additional insureds for each type of coverage, prior to undertaking any work

hereunder. Such insurance shall specifically cover the contractual liability of DEVELOPER.

The additional insured coverage under the DEVELOPER's policy shall be primary and noncontributory, as evidenced by a separate endorsement or section of the policy, and shall not seek contribution from CITY's insurance or self-insurance. In addition, the additional insured coverage shall be at least as broad as the Insurance Services Office ("ISO") CG 20 01

Endorsement. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

c. Cancellation/Modification. DEVELOPER shall provide ten (10) days written notice to CITY prior to cancellation or modification of any insurance required by this Agreement.

d. Umbrella/Excess Insurance. The limits of insurance required in this Agreement may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of CITY (if agreed to in a written contract) before CITY's own insurance shall be called upon to protect it as a named insured.

e. Contractors. DEVELOPER agrees to include in its contracts with all contractors the same requirements and provisions of this Agreement, including the indemnity and insurance requirements, to the extent they apply to the scope of the contractor's work. Furthermore, DEVELOPER shall require its contractors to agree to be bound to DEVELOPER and CITY in the same manner and to the same extent as DEVELOPER is bound to CITY under

this Agreement. Additionally, DEVELOPER shall obligate its contractors to comply with these same provisions with respect to any subcontractor, regardless of tier. A copy of CITY's indemnity and insurance provisions will be furnished to the contractor or any subcontractor upon request.

f. Self-Insured Retentions. All self-insured retentions ("SIR") must be disclosed to Risk Management for approval and shall not reduce the limits of liability. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or CITY. CITY reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

g. Waiver of Subrogation. DEVELOPER hereby agrees to waive subrogation which any insurer of DEVELOPER may acquire from DEVELOPER by virtue of the payment of any loss under a Workers Compensation, Commercial General Liability or Automobile Liability policy. All Workers Compensation, Commercial General Liability and Automobile Liability policies shall be endorsed with a waiver of subrogation in favor of CITY, its officers, agents, employees and volunteers for all work performed by DEVELOPER, its employees, agents and subcontractors.

h. Liability/Remedies. Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve DEVELOPER of liability in excess of such coverage, nor shall it preclude CITY from taking such other actions as are available to it under any other provisions of this Agreement or law.

10. Obligations Arising From Agreement. Neither the General Fund, nor any other fund or monies of CITY, except for Roseville Traffic Mitigation Fees or similar traffic

mitigation funds or accounts, shall be utilized for payment of any obligations arising from this Agreement. Neither the credit nor the taxing power of CITY is pledged for the payment of any obligations arising from this Agreement. CITY's obligations arising from this Agreement are not a debt of CITY, or a legal or equitable pledge, charge, lien or encumbrance upon any of its property, or upon any of its income, receipts or revenues.

11. Successors and Assigns. Each and every provision of this Agreement shall be binding and inure to the benefit of the successors and assigns of the parties hereto.

12. Attorney's Fees; Venue; Governing Law. If either party commences any legal action against the other party arising out of this Agreement or the performance thereof, the prevailing party in such action shall be entitled to recover its reasonable litigation expenses, including but not limited to, court costs, expert witness fees, discovery expenses, and attorneys' fees. Any action arising out of this Agreement shall be brought in Placer County, California, regardless of where else venue may lie. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

13. Modification. This Agreement and each provision contained herein may be waived, amended, supplemented or eliminated only by mutual written agreement of the parties.

14. Severability. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.

15. Integrated Agreement. This is an integrated agreement and contains all of the terms, considerations, understanding and promises of the parties. It shall be read as a whole.

IN WITNESS WHEREOF, the City of Roseville, a municipal corporation has authorized the execution of this Agreement in duplicate by its City Manager and attested to by its City Clerk under the authority of Resolution No. _____, adopted by the Council of the City of Roseville on the ____ day of _____, 20____, and DEVELOPER has caused this Agreement to be executed.

CITY OF ROSEVILLE, a
municipal corporation

LENNAR HOMES OF CALIFORNIA,
LLC, a California limited liability company

BY: _____
DOMINICK CASEY
City Manager

BY: 
print name: Larry Gulco
its: Vice President

ATTEST:

and

BY: _____
CARMEN AVALOS
City Clerk

BY: _____
print name: _____
its: _____

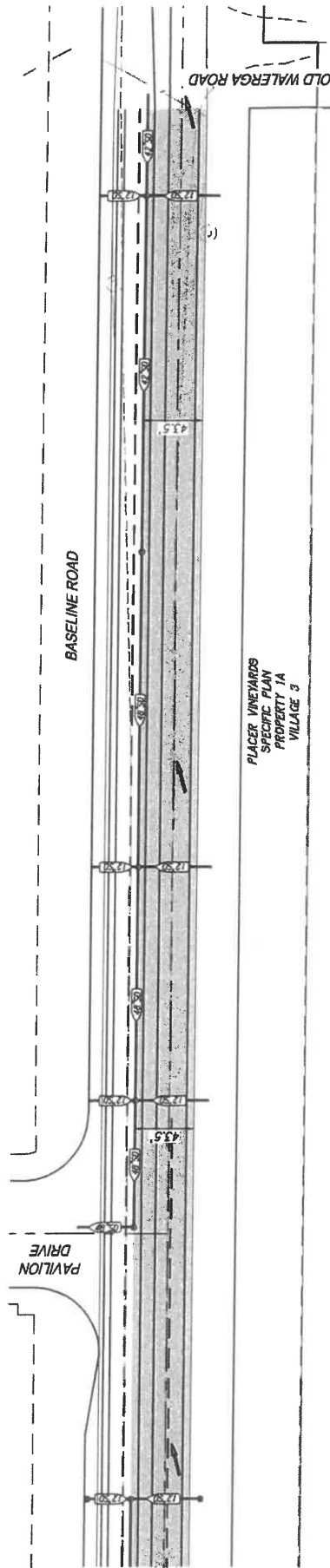
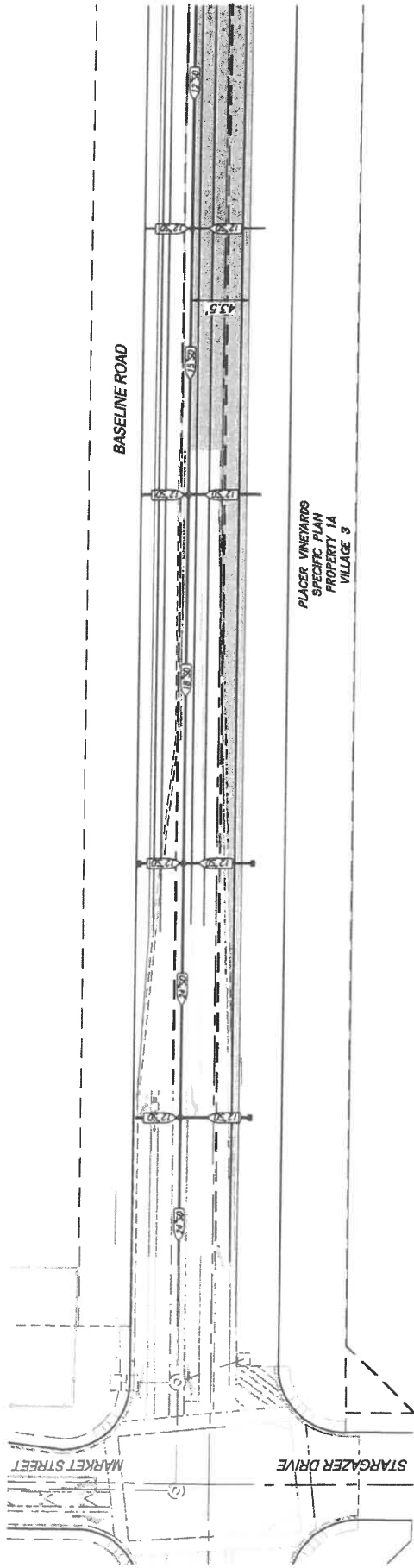
APPROVED AS TO FORM:

BY: _____
MICHELLE SHEIDENBERGER
City Attorney

APPROVED AS TO SUBSTANCE:

BY: 
MARC STOUT
City Engineer

EXHIBIT A



Sierra Vista Specific Plan
Baseline Road Reimbursable Items
City/County Fee Program

Placer Vineyards 1A

Placer County
Scale: 1"=40'

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1022 Crestside Ridge Drive, Suite 101, Roseville, CA 95678 (916) 773-1189

California
December 20, 2022
18156.LEN.1A.3

LEGEND:
CITY/COUNTY REIMBURSABLE
PAVEMENT



EXHIBIT B

DESCRIPTION OF ELIGIBLE FACILITY IMPROVEMENTS

CITY/COUNTY TRAFFIC MITIGATION FUND

REIMBURSABLE IMPROVEMENTS

Lennar Homes of CA

Placer Vineyards Property 1A

November 21, 2022

Sierra Vista Specific Plan - Baseline Road – Segment 3 and a Portion of 2 Improvements

The Public Improvements as shown on Exhibit "A" Baseline Road Reimbursable Items City/County Fee Program are a portion of the work included in the following MacKay & Somps Approved Improvement Plans:

- Improvement Plans for Baseline Road – Segment 3 and a Portion of Segment 2 (EN22-0133), approved May 2022

The reimbursement eligible Public Improvements being constructed for Baseline Road include pavement as described below:

1. The 43.5' wide full pavement section of either 7" AC over 24" AB or 9" AC over 12" Full-Depth Reclamation with Cement will be excavated, constructed, and striped from station 960+07.56 to 980+94.09.

EXHIBIT C

City/County Fee Program Reimbursable Items

**Sierra Vista Specific Plan
Baseline Road
Segment 3 and a Portion of Segment 2**

**Placer Vineyards
Property 1A**

**FOR
Lennar Homes**

within

Placer County, California

December 20, 2022

MACKEY & SOMPS
ENGINEERS PLANNERS SURVEYORS
1025 Creekside Ridge Drive, Suite 150, Roseville, CA 95678 (916) 773-1180

ITEMS ELIGIBLE FOR REIMBURSEMENT
City/County Fee Program
for
Placer Vineyards - Property 1A - Phase 3
Placer County

Baseline Road - Segment 3 and a Portion of Segment 2 (Old Walerga Road to Stargazer Drive)

<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	1,100	CY	Excavation and Offhaul of Soils	\$45.00	\$49,500
2.	31,615	SF	Paving 7" AC on 24" AB	\$13.00	\$410,995
3.	37,042	SF	9" AC over 12" Full-Depth Reclamation with Cement	\$10.00	\$370,420
4.	1	LS	Variable Depth AB Underneath FDR-C	\$156,000.00	\$156,000
5.	685	LF	Pavement Conform per ST-50	\$12.00	\$8,220
6.	68,657	SF	Roadway Subgrade Preparation	\$0.44	\$30,209
7.	1	LS	Signing and Striping	\$50,600.00	\$50,600
SUBTOTAL					\$1,075,944
SOFT COSTS (20%)					\$215,189
CONTINGENCY (20%)					\$215,189
GRAND TOTAL					\$1,506,322



COUNCIL COMMUNICATION

CC #: 2519

File #: 0323

Title: Communication Software Maintenance - License Agreement Amendment

Contact: Claudia Harlan 916-774-5003 charlan@roseville.ca.us
Mark Peinado 916-774-5021 mcpeinado@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.11.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution authorizing the City Manager to execute a License Agreement Amendment with Tyler Technologies Inc., for Brazos annual software maintenance. Additionally, staff requests payment authorization for three (3) additional years, without further City Council approval, pending City Council approval of the budget for each fiscal year.

BACKGROUND

The City has a software licensing agreement with Tyler Technologies Inc. (formerly known as New World Systems), effective November 6, 2014, for the purchase and installation of a public safety computer system, including computer-aided dispatch, police records, fire records, mobile computing and field reporting, related interfaces and services, support and maintenance. In 2018, the Police Department added the Brazos e-Citations software (now called Enforcement Mobile), which is used to issue electronic citations and to help store demographic information as required by the Racial & Identity Profiling Act (RIPA).

The Police Department would like to amend the agreement to include the additional service of annual maintenance and support for Brazos Software to the agreement.

FISCAL IMPACT

The total cost for 4 years of software maintenance is \$140,957.56. The cost for FY2022-23 is \$33,692.67 and funding has been approved in the Information Technology Operations Fund budget. Estimated costs for FY2023-24 are \$34,703.45; FY2024-25 is \$35,744.55; and FY2025-26 is \$36,816.89.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in

a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Approval of an amendment for communication software maintenance meets the above criteria and is not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal C - Maintain a safe and healthy community

Goal E - Deliver exceptional city services

Respectfully Submitted,

Mark Peinado, Management Analyst

Troy Bergstrom, Police Chief



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-046

Signed Contract Amendment

RESOLUTION NO. 23-046

APPROVING A LICENSE AGREEMENT AMENDMENT, BY AND BETWEEN
THE CITY OF ROSEVILLE AND TYLER TECHNOLOGIES INC.

WHEREAS, a License Agreement Amendment for communication software maintenance, by and between the City of Roseville and Tyler Technologies Inc., have been reviewed by the City Council; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said amendment is hereby approved and that the City Manager is authorized to execute it on behalf of the City of Roseville.

BE IT FURTHER RESOLVED, that payment authorization for three (3) additional years is approved, pending City Council approval of the budget for each fiscal year.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



COUNCIL COMMUNICATION

CC #: 2523

File #: 0721-05 & 0201-01

Title: Sierra Vista Solaire Phase 6, Village 5 Bike Trail Project - Reimbursement Agreement and Budget Adjustment

Contact: Cameron Schreiter 916-746-1302 ctschreiter@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.12.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council:

- (1) adopt an ordinance to approve a budget adjustment in the amount of \$282,613 to cover costs to construct the Sierra Vista Solaire Phase 6, Village 5 Bike Trail project within Parcels FD-85, FD-84 and LOT G of FD-5 of the Sierra Vista Specific Plan (SVSP); and
- (2) adopt a resolution authorizing the City Manager to execute the Reimbursement Agreement for Sierra Vista Solaire Phase 6, Village 5 Bike Trail project between the City and Pulte Home Company LLC.

BACKGROUND

Pursuant to the Sierra Vista Specific Plan and Development Agreement, the developer Pulte Home Company LLC is responsible for installing a Class I trail Project within Parcels FD-85, FD-84 and LOT G of FD-5. The trail was designed as part of the Sierra Vista Solaire Phase 6, Village 5 plan set, EN21-0921. Pulte Home Company LLC will pave the Class 1 trail and install post and cable fencing along the open space as required. The developer is requesting reimbursement for these improvements, also pursuant to the Development Agreement. When construction is complete, the trail will be maintained by the City.

FISCAL IMPACT

The developer, Pulte Home Company LLC, will pay upfront costs for the construction of the trail at an estimated cost of \$282,613. Reimbursement will be provided through bike trail development fees collected for the SVSP. Maintenance will be funded by the City's Transportation Fund and Bike Trail Fund. There is no fiscal impact to the General Fund.

ENVIRONMENTAL REVIEW

Development of the multi-use trail was previously evaluated in the Sierra Vista Specific Plan EIR, certified on May 19, 2010 and SCH NO - 2008032115 and identified in the Sierra Vista Specific Plan. Based on results of an initial study, construction of the bike trail is found to be within the project covered by the Sierra Vista Specific Plan Final EIR. As discussed in the Specific Plan EIR, the EIR provides environmental analysis of community infrastructure and facilities, including parks, pedestrian bridges, and bike trails, to the extent applicable. Because the project is consistent with the Sierra Vista Specific Plan Final EIR and Specific Plan, no new effects would be expected to occur and all applicable mitigation measures from the Sierra Vista Specific Plan EIR will be implemented during the design and construction of the Sierra Vista Specific Plan multi-use trail. Because the proposed project meets the requirements identified in the State CEQA Guidelines Section 15183, no additional CEQA review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world

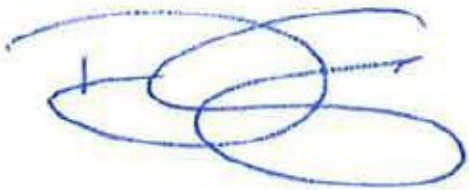
Goal C - Maintain a safe and healthy community

Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Cameron Schreiter, Transportation Grants Analyst

Jason Shykowski, Public Works Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-050

Reimbursement Agreement

Ordinance 6609

Budget Adjustment

RESOLUTION NO. 23-050

APPROVING A REIMBURSEMENT AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND PULTE HOME COMPANY, LLC, AND AUTHORIZING THE CITY MANAGER TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, a City/Developer Reimbursement Agreement for the Sierra Vista Solaire Phase 6, Village 5 Bike Trail project, by and between the City of Roseville and Pulte Home Company, LLC, has been reviewed by the City Council.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that said Reimbursement Agreement is hereby approved and that the City Manager is authorized to execute it on behalf of the City of Roseville; and

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

CITY/DEVELOPER
REIMBURSEMENT AGREEMENT

(Project: Sierra Vista Solaire Phase 6, Village 5 Bike Trail)

THIS AGREEMENT is made and entered into this ____ day of _____, 20__, by and between the City of Roseville, a municipal corporation, ("CITY") and Pulte Home Company, LLC, a Michigan limited liability company ("DEVELOPER"); and

W I T N E S S E T H:

A. DEVELOPER is the owner of a certain parcel of real property under development within the City of Roseville, located at: Sierra Vista Specific Plan, Open Space Parcels FD-85, FD-84 and Lot G of FD-5 and described as Assessor's Parcels Numbers 498-020-031, 498-020-030, 498-020-029, 498-350-031, and 498-020-055.

B. DEVELOPER has agreed to construct and install certain Public Improvements as shown within Exhibit "A" and described within Exhibit "B," attached hereto and made part of this agreement ("Public Improvements").

C. DEVELOPER and CITY will substantially benefit from the construction and installation of the Public Improvements as described in paragraph B above.

D. The total cost of constructing the Public Improvements as estimated using current prevailing wages and in accordance with the Improvement Plans is estimated as approximately two hundred eighty-two thousand six hundred thirteen dollars (\$282,613) ("Improvement

Costs”), as more particularly set out in the breakdown of costs (“Breakdown of Costs”), Exhibit “C,” attached and incorporated by this reference.

E. Pursuant to the Breakdown of Costs, the parties have determined that the obligation of Improvement Costs will be allocated between CITY, and DEVELOPER as follows:

DEVELOPER	\$0
CITY	\$282,613
TOTAL	\$282,613

F. DEVELOPER and CITY desire to enter into this Agreement providing for the direct installation by DEVELOPER of the Public Improvements in accordance with the approved Improvement Plans, for subsequent reimbursement of the total Improvement Costs by CITY directly to DEVELOPER.

NOW, THEREFORE, in consideration of the covenants set forth herein, CITY and DEVELOPER hereby agree as follows:

1. Construction of the Public Improvements. DEVELOPER shall cause the Public Improvements to be constructed and installed in accordance with the approved Improvement Plans. DEVELOPER is also required, and the specifications and bid and contract documents shall require all contractors and subcontractors, to pay prevailing wages and to otherwise comply with applicable provisions of the California Labor Code, Government Code, and Public Contracts Code relating to public works projects of cities and/or as may be required by CITY standards and procedures.

2. Contractor Registration. No contractor or subcontractor may be listed on a bid proposal for the Public Improvements or work on the Public Improvements unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

DEVELOPER shall be responsible for ensuring that these contractor registration requirements are adhered to since this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

3. Reimbursement of the Costs of the Public Improvements. In consideration of the satisfactory completion of the Public Improvements, CITY shall reimburse DEVELOPER for those portions of the Improvement Costs attributable to CITY as set forth in Recital E, hereof (the "Reimbursable Costs"). CITY and DEVELOPER acknowledge that the actual Reimbursable Costs may vary from the estimated costs, depending upon the actual costs of constructing and installing the Public Improvements. Any variation in costs shall be agreed to by the parties.

The Reimbursable Costs shall include the contract bid amount for the Public Improvements as reflected on the Breakdown of Costs and reasonable change orders, as approved by CITY.

4. Timing of Reimbursements. CITY shall reimburse DEVELOPER for the total Reimbursable Costs following acceptance by CITY of the Public Improvements and within thirty (30) days after submission by DEVELOPER and approval by CITY of itemized invoices evidencing the costs for which reimbursement is to be provided in accordance with this Agreement.

5. Permits. DEVELOPER shall be responsible for obtaining all necessary permits. CITY shall approve all plans prior to issuing any permit.

6. Changes in the Scope of Work. If during the course of construction field conditions require a change of scope different than contemplated in either Exhibit "A," "B" or "C" as referenced above, and prior to making any changes that will effect the scope of this Agreement, the DEVELOPER shall contact CITY and get approval by CITY for those changes.

7. Prior To Commencement of Work. Prior to commencement of Work, DEVELOPER shall comply with the following: (1) obtain pre-approval from CITY of DEVELOPER's construction documents; (2) cause its contractor to obtain an encroachment permit from City prior to commencement of construction activities in CITY's right of way (and adjacent thereto); and, (3) cause its contractor to provide insurance and related documentation to CITY in accordance with Paragraph 9 of this Agreement. In addition, as required by California Labor Code Section 1773.3, DEVELOPER shall notify the Department of Industrial Relations of the project within five (5) days of the award of a contract to a contractor for the Public Improvements.

8. Indemnification. To the fullest extent allowed by law, DEVELOPER shall defend, indemnify, and save and hold harmless CITY, its officers, agents, employees and volunteers from any claims, suits or actions of every name, kind and description brought forth, or on account of, injuries to or death of any person (including but not limited to workers and the public), or damage to property, resulting from or arising out of DEVELOPER's willful misconduct or negligent act or omission while engaged in the performance of obligations or exercise of rights created by this Agreement, except those matters arising from CITY's sole or active negligence or willful misconduct. The parties intend that this provision shall be broadly construed.

DEVELOPER's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law. The defense and indemnity obligations of this Agreement are undertaken in addition to, and shall not in any way be limited by, the insurance obligations contained in this Agreement.

9. Insurance. Prior to the issuance of an encroachment permit and commencement of any field construction for those certain improvements as shown on Exhibit "A," the DEVELOPER shall, or shall cause its contractor to, have on file with CITY throughout the duration of construction and maintain in full force the following policies of insurance:

<u>POLICY</u>	<u>LIMITS OF LIABILITY</u>
Commercial General Liability, Including endorsements for comprehensive form, premises operations, products/completed operations, broad form property damage, independent contractors, contractual, personal injury, explosion/collapse and underground hazard	Bodily Injury: \$2,000,000 each occurrence \$4,000,000 aggregate Property Damage: \$2,000,000 each occurrence Personal Injury: \$2,000,000 each occurrence \$4,000,000 aggregate
Workers' Compensation	Statutory
Automobile Liability	\$1,000,000 combined single limit

a. Form. DEVELOPER shall submit a certificate evidencing such coverage for the period covered by this Agreement in a form satisfactory to Risk Management and the City Attorney, prior to undertaking any work hereunder. Any insurance written on a claims made basis is subject to the approval of Risk Management and the City Attorney.

b. Additional Insureds. DEVELOPER shall also provide a separate endorsement form or section of the policy showing CITY, its officers, agents, employees and volunteers as additional insureds for each type of coverage, prior to undertaking any work

hereunder. Such insurance shall specifically cover the contractual liability of DEVELOPER.

The additional insured coverage under the DEVELOPER's policy shall be primary and noncontributory, as evidenced by a separate endorsement or section of the policy, and shall not seek contribution from CITY's insurance or self-insurance. In addition, the additional insured coverage shall be at least as broad as the Insurance Services Office ("ISO") CG 20 01

Endorsement. Any available insurance proceeds in excess of the specified minimum insurance coverage requirements and limits shall be available to the additional insureds. Furthermore, the requirements for coverage and limits shall be: (1) the minimum coverage and limits specified in this Agreement; or (2) the full coverage and maximum limits of any insurance proceeds available to the named insureds, whichever is greater.

c. Cancellation/Modification. DEVELOPER shall provide ten (10) days written notice to CITY prior to cancellation or modification of any insurance required by this Agreement.

d. Umbrella/Excess Insurance. The limits of insurance required in this Agreement may be satisfied by a combination of primary and excess insurance. Any excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and noncontributory basis for the benefit of CITY (if agreed to in a written contract) before CITY's own insurance shall be called upon to protect it as a named insured.

e. Contractors. DEVELOPER agrees to include in its contracts with all contractors the same requirements and provisions of this Agreement, including the indemnity and insurance requirements, to the extent they apply to the scope of the contractor's work. Notwithstanding the foregoing, the limits of liability for commercial general liability insurance maintained by contractors and subcontractors shall be \$1,000,000.00 per

occurrence/\$2,000,000.00 general aggregate. Furthermore, DEVELOPER shall require its contractors to agree to be bound to DEVELOPER and CITY in the same manner and to the same extent as DEVELOPER is bound to CITY under this Agreement. Additionally, DEVELOPER shall obligate its contractors to comply with these same provisions with respect to any subcontractor, regardless of tier. A copy of CITY's indemnity and insurance provisions will be furnished to the contractor or any subcontractor upon request.

f. Self-Insured Retentions. All self-insured retentions ("SIR") must be disclosed to Risk Management for approval and shall not reduce the limits of liability. Policies containing any SIR provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured or CITY. CITY reserves the right to obtain a full certified copy of any insurance policy and endorsements. The failure to exercise this right shall not constitute a waiver of such right.

g. Waiver of Subrogation. DEVELOPER hereby agrees to waive subrogation which any insurer of DEVELOPER may acquire from DEVELOPER by virtue of the payment of any loss under a Workers Compensation, Commercial General Liability or Automobile Liability policy. All Workers Compensation, Commercial General Liability and Automobile Liability policies shall be endorsed with a waiver of subrogation in favor of CITY, its officers, agents, employees and volunteers for all work performed by DEVELOPER, its employees, agents and subcontractors.

h. Liability/Remedies. Insurance coverage in the minimum amounts set forth herein shall not be construed to relieve DEVELOPER of liability in excess of such coverage, nor shall it preclude CITY from taking such other actions as are available to it under any other provisions of this Agreement or law.

10. Obligations Arising From Agreement. Neither the General Fund, nor any other fund or monies of CITY, except for Roseville Traffic Mitigation Fees or similar traffic mitigation funds or accounts, shall be utilized for payment of any obligations arising from this Agreement. Neither the credit nor the taxing power of CITY is pledged for the payment of any obligations arising from this Agreement. CITY's obligations arising from this Agreement are not a debt of CITY, or a legal or equitable pledge, charge, lien or encumbrance upon any of its property, or upon any of its income, receipts or revenues.

11. Successors and Assigns. Each and every provision of this Agreement shall be binding and inure to the benefit of the successors and assigns of the parties hereto.

12. Attorney's Fees; Venue; Governing Law. If either party commences any legal action against the other party arising out of this Agreement or the performance thereof, the prevailing party in such action shall be entitled to recover its reasonable litigation expenses, including but not limited to, court costs, expert witness fees, discovery expenses, and attorneys' fees. Any action arising out of this Agreement shall be brought in Placer County, California, regardless of where else venue may lie. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

13. Modification. This Agreement and each provision contained herein may be waived, amended, supplemented or eliminated only by mutual written agreement of the parties.

14. Severability. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.

15. Integrated Agreement. This is an integrated agreement and contains all of the terms, considerations, understanding and promises of the parties. It shall be read as a whole.

IN WITNESS WHEREOF, the City of Roseville, a municipal corporation has authorized the execution of this Agreement in duplicate by its City Manager and attested to by its City Clerk under the authority of Resolution No. _____, adopted by the Council of the City of Roseville on the ____ day of _____, 20____, and DEVELOPER has caused this Agreement to be executed.

CITY OF ROSEVILLE, a
municipal corporation

PULTE HOME COMPANY, LLC,
a Michigan limited liability company

BY: _____
DOMINICK CASEY
City Manager

BY:  _____
print name: Jon Carus
its: DIRECTOR OF LAND DEVELOPMENT

ATTEST:

and

BY: _____
CARMEN AVALOS
City Clerk

BY: _____
print name: _____
its: _____

APPROVED AS TO FORM:

BY: _____
MICHELLE SHEIDENBERGER
City Attorney

APPROVED AS TO SUBSTANCE:

BY:  _____
JASON SHYKOWSKI
Public Works Director

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Alameda)

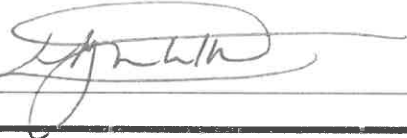
On December 20, 2022 before me, Terri Lynn Lane Llorente
(insert name and title of the officer)

personally appeared Jon F. Cakus,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that he/she/they executed the same in
his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature



(Seal)

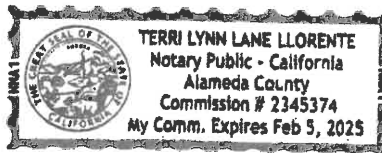


EXHIBIT “A”



Open Space Trail

Mackay & Samps
ENGINEERS PLANNERS
11211 Crestside Ridge Drive, Suite 190, Riverside, CA 92503 (951) 773-1132

California
November 2022
18254.PHC.V5





SHEET 17 OF 19
PROJECT NO. 18294.FD.FDS
CITY OF ROSEVILLE

SIGNING AND STRIPING PLAN

INTERMEDIATE PLAN FOR SOLAR PHASE 2 - PLOT 2

DATE: 10/1/2022
DRAWN BY: J. S. S.
CHECKED BY: J. S. S.
SCALE: 1"=40'

- ### PLAN NOTES
1. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 2. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 3. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 4. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 5. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 6. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
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 8. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 9. ALL LOT LINES SHALL BE SET TO 10' TO 10'.
 10. ALL LOT LINES SHALL BE SET TO 10' TO 10'.

SCALE: 1"=40'



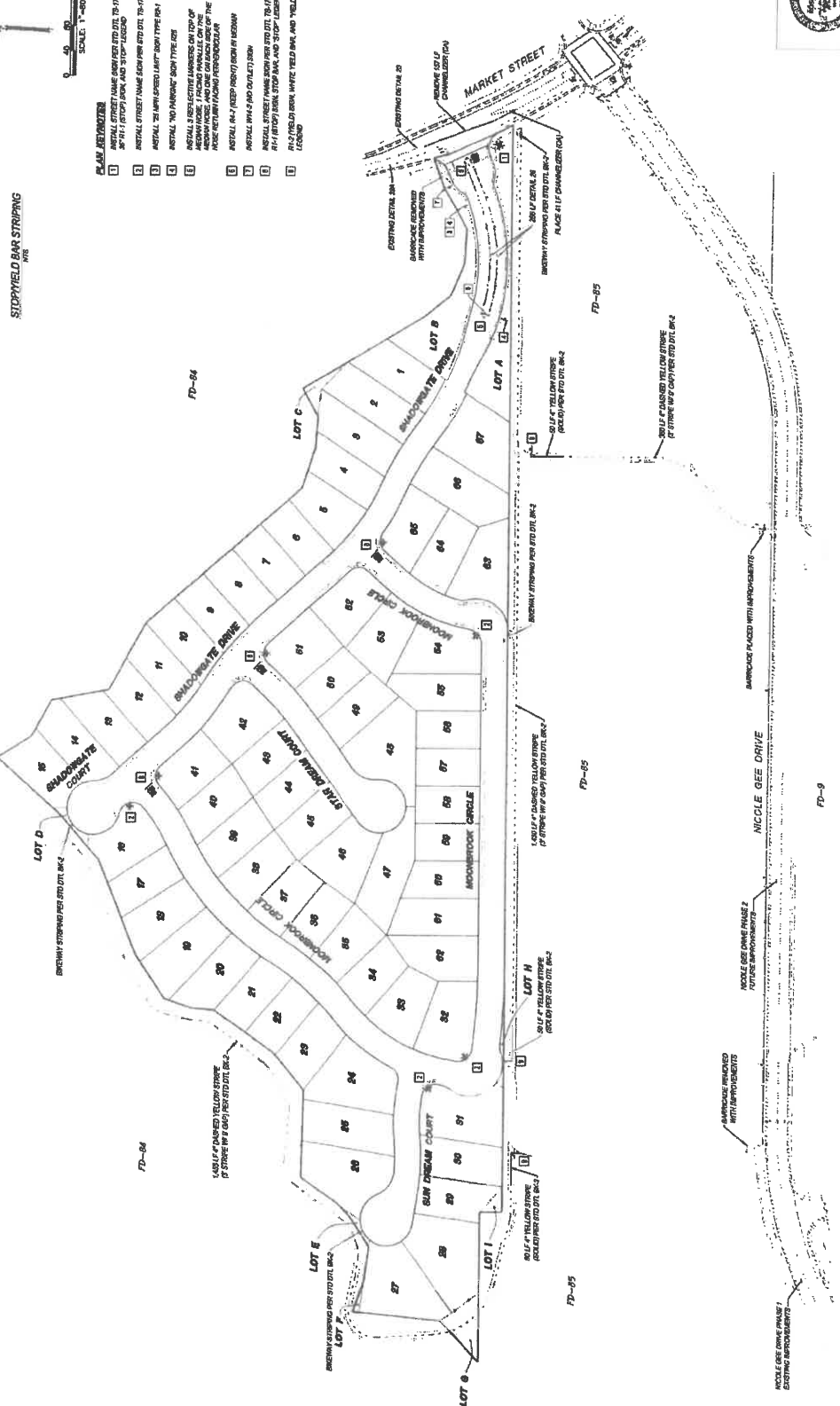
NOTE: THE CITY OF ROSEVILLE REQUIRES ANY AND ALL SIGNAGE TO BE PLACED IN THE PUBLIC RIGHT-OF-WAY. THE CITY OF ROSEVILLE WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL SIGNAGE. THE CITY OF ROSEVILLE WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL SIGNAGE.

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LOT 1, LOT 2, LOT 3, LOT 4, LOT 5, LOT 6, LOT 7, LOT 8, LOT 9, LOT 10, LOT 11, LOT 12, LOT 13, LOT 14, LOT 15, LOT 16, LOT 17, LOT 18, LOT 19, LOT 20, LOT 21, LOT 22, LOT 23, LOT 24, LOT 25, LOT 26, LOT 27, LOT 28, LOT 29, LOT 30, LOT 31, LOT 32, LOT 33, LOT 34, LOT 35, LOT 36, LOT 37, LOT 38, LOT 39, LOT 40, LOT 41, LOT 42, LOT 43, LOT 44, LOT 45, LOT 46, LOT 47, LOT 48, LOT 49, LOT 50, LOT 51, LOT 52, LOT 53, LOT 54, LOT 55, LOT 56, LOT 57, LOT 58, LOT 59, LOT 60, LOT 61, LOT 62, LOT 63, LOT 64, LOT 65, LOT 66, LOT 67, LOT 68, LOT 69, LOT 70, LOT 71, LOT 72, LOT 73, LOT 74, LOT 75, LOT 76, LOT 77, LOT 78, LOT 79, LOT 80, LOT 81, LOT 82, LOT 83, LOT 84, LOT 85, LOT 86, LOT 87, LOT 88, LOT 89, LOT 90, LOT 91, LOT 92, LOT 93, LOT 94, LOT 95, LOT 96, LOT 97, LOT 98, LOT 99, LOT 100.

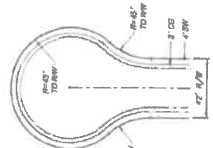
STREET SECTIONS & DETAILS

WAGKAY & SONS

NOTE: DATUM FOR THIS PROJECT IS NGVD 29



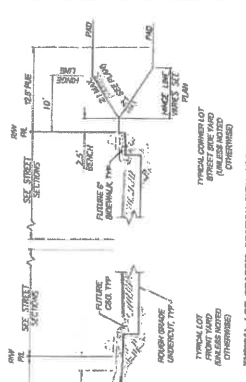
**TYPICAL RADIAL KEY FOR
INTERSECTION
AOS**



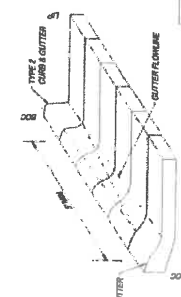
TYPICAL CIL-DE-SAC



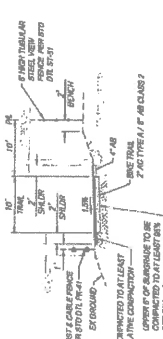
STANDARD ELITE

SIDE AND REAR YARD INTERIOR PROPERTY LINE GRADING
MIS

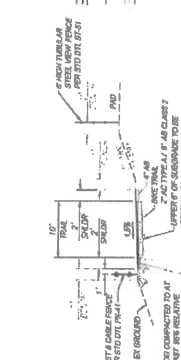
TYPICAL LOT GRADING SECTION WITH SIDEWALK
NOTE



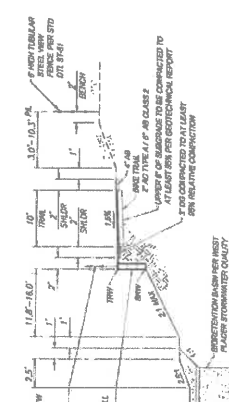
CLUB & GUTTER TRANSITION
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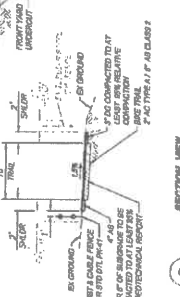
2 SECTION VIEW
NTS



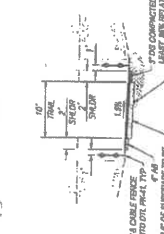
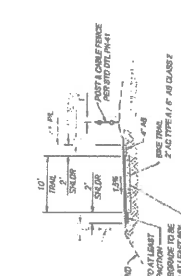
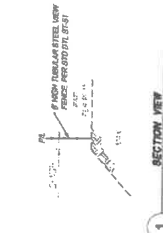
4 SECTION VIEW
PER GEOTECHNICAL
NOTES



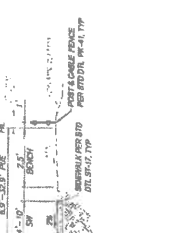
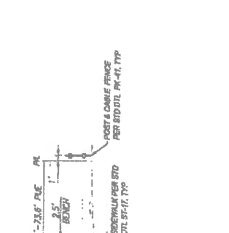
SECTION VIEW
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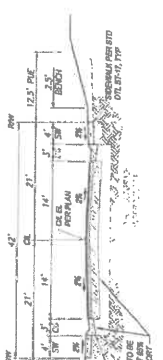
SECTION VIEW
NTS

TO AT LEAST 85%
CLINICAL REPORT—

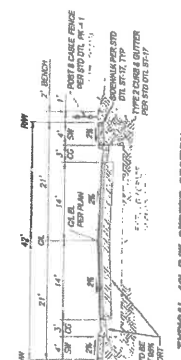
3 SECTION VIEW
NTS



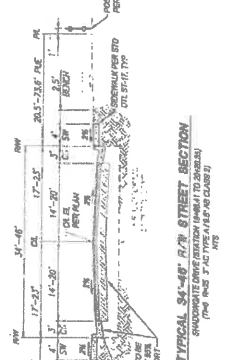
CTIONS WILL BE BASED ON TAKEN AT FINAL SUBGRADE



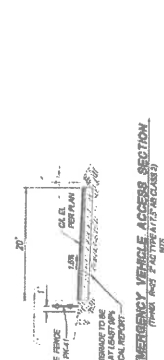
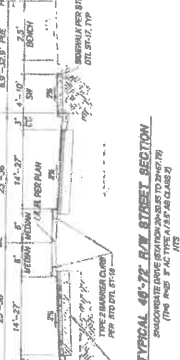
TYPICAL 42" ROW STREET SECTION
ALL STREETS EXCEPT THOSE NOTED OTHERWISE
(TYP. R-205 3" AC TYPE A / 9.5" AB CLASS 2)



NEEDSBROOK (CIRCLE SOUTH)
 (TM6 R=25 3" AC TYPE A / 8.5" AB CLASS 2)
 NTS



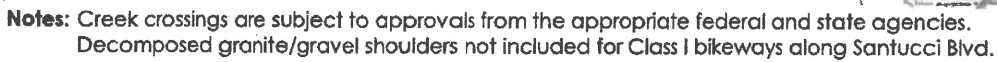
ROW



STREET SECTION NOTES
1. FINAL PAVEMENT SECTION
ACTUAL R-VALUES TAKEN

STREET SECTION NOTES

Baseline Rd.



City of Roseville

DESCRIPTION	PROJECT SEGMENTS
TRAIL 9	23
BRIDGES	3
ADJACENT	10
ENTRY POINTS	52
	43

- SEGMENT 1
- SEGMENT 2
- SEGMENT 3
- SEGMENT 4
- SEGMENT 5
- SEGMENT 6
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- SEGMENT 99
- SEGMENT 100

NORTHERN BIKE TRAIL

SOUTHERN BIKE TRAIL



SCALE 1" = 200'

MAJOR TRAIL SEGMENTATIONS

Sierra Vista

Sierra Vista, California
August 4, 1998
Sheet 1 of 1

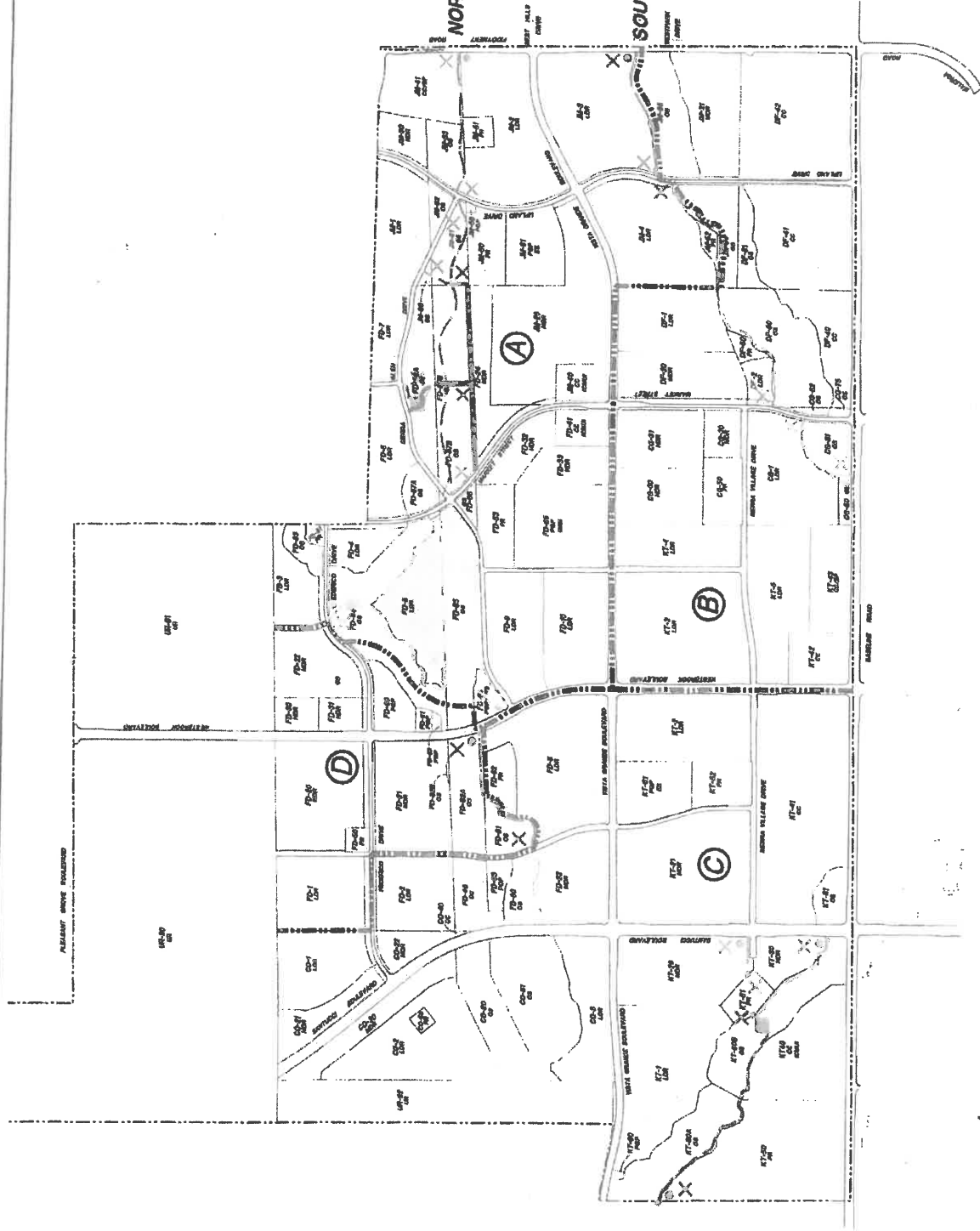


EXHIBIT “B”

Exhibit B

Description of Public Improvements

Developer will construct a 2,985' segment of Class I bike trail consistent with City's design and construction standards located along the western perimeter of Solaire Village 5 (FD-5) in Open Space FD-84; through Lot G; along the southern perimeter of Solaire Village 5 (FD-5) in Open Space of FD-85.

Developer will also construct a 410' segment of Class I bike trail consistent with City's design and constructions from the trail south of Lot 67 leading south through FD-85 Open Space to Nicole Gee Drive in Sierra Vista Specific Plan.

EXHIBIT "C"

			PRELIMINARY OPINION OF QUANTITIES & COSTS FOR SOLAIRE - PHASE 6 VILLAGE 5		
			<i>Based on Approved Improvement Plans</i>		
ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
	BIKE TRAIL				
1.	1,010	SF	Excavation	\$4.25	\$4,293
2.	48,445	SF	Roadway Subgrade Preparation	\$0.50	\$24,223
3.	34,665	SF	Paving 2" AC on 6" AB	\$2.95	\$102,262
4.	6,890	SF	4" AB Shoulder	\$1.50	\$10,335
5.	6,890	SF	3" DG Shoulder	\$1.50	\$10,335
6.	2,520	LF	Post & Cable Fencing	\$16.00	\$40,320
7.	1	LS	Signing and Striping	\$5,000.00	\$5,000
8.	6	EA	Bollards	\$850.00	\$5,100
9.	1.1	AC	Erosion Control	\$2,500.00	\$2,750
			SUBTOTAL BIKE TRAIL		\$201,867
			20% CONTINGENCY		\$40,373
			20% SOFT COSTS		\$40,373
			TOTAL		\$282,613

ORDINANCE NO. 6609

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE
AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23
BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY
EFFECTIVE AS AN APPROPRIATION MEASURE

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. The City of Roseville Annual Budget, Fiscal Year 2022-23, is hereby amended as listed on the attached budget adjustment for the Sierra Vista Solaire Phase 6, Village 5 Bike Trail Project.

SECTION 2. This ordinance is hereby declared to be an appropriation measure, immediately effective pursuant to the provisions of Section 5.03 of the Charter.

SECTION 3. The City Clerk is hereby authorized and directed to post a true copy of the foregoing ordinance in each of three (3) conspicuous locations in the City and she shall immediately after such posting enter in the ordinance book, under the record of the ordinance, a certificate under her hand stating the time and place of such publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville, this _____
day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



REQUEST FOR BUDGET ADJUSTMENT

REQUESTER NAME & TITLE: Ed Scofield, Alternative Transportation Manager FISCAL YEAR: 2022-23
PREPARER NAME & TITLE: Cameron Schreiter, Transportation Grants Analyst COUNCIL DATE (if applicable): 2/1/2023
DEPARTMENT/DIVISION: PW / Alternative Transportation ORDINANCE: _____

EXPENDITURES/EXPENSES/TRANSFERS OUT

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
3319	6587	84001	500321	282,613	Establish Capital Outlay - CIP Projects budget for the Sierra Vista Solaire Phase 6, Village 5 Bike Trail
TOTAL				282,613	

REVENUES/TRANSFERS IN

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
TOTAL				-	

NET ADJUSTMENT	282,613
----------------	---------

FUND BALANCE

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
3319	3601	0		(282,613)	Reduce Neighborhood Park - Sierra Vista Fund Balance
TOTAL				(282,613)	

Justification for Budget Adjustment:

This budget adjustment is requested to establish project # 500321- Sierra Vista Solaire Phase 6, Village 5 Bike Trail. This budget will pay for the reimbursement agreement with Pulte Home Company LLC to construct a Class I trail in Sierra Vista Specific Plan Parcels FD-85, FD-84 and LOT G of FD-5. The funding for this trail project comes from fees collected in Fund 3319 - Neighborhood Park - Sierra Vista Fund. There is no impact or cost to the General Fund for this project.

 12-20-22		REQUIRED APPROVALS:		Nancy Rothlisberger Digitally signed by Nancy Rothlisberger Date: 2022.12.21 08:37:56 -08'00'					
REQUESTING DEPARTMENT HEAD / DESIGNEE		DATE		BUDGET MANAGER / DESIGNEE					
Dennis Kauffman		Digitally signed by Dennis Kauffman Date: 2022.12.21 11:43:21 -08'00'							
CHIEF FINANCIAL OFFICER / DESIGNEE		DATE		CITY MANAGER / DESIGNEE					
BUDGET DEPARTMENT USE ONLY:									
POSTED BY		DATE							

Revised: June 24, 2019



COUNCIL COMMUNICATION

CC #: 2520

File #: 0214 & 0201-01

Title: Edward Byrne Memorial Justice Assistance Grant Program - Grant Award and Budget Adjustment

Contact: Mark Peinado 916-774-5021 mcpeinado@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 7.13.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt a resolution accepting a \$21,343 FY 2022 Edward Byrne Memorial Justice Assistance Grant (JAG) and authorizing the Mayor to execute the required documents on behalf of the City of Roseville. Additionally, staff recommends that City Council adopt an ordinance to approve a budget adjustment of \$21,343 to appropriate the grant award and establish a budget for a temporary Marketing Technician that will be funded by the FY 2022 JAG and a previously approved FY 2021 JAG.

BACKGROUND

The City of Roseville has been allocated a grant from the U.S. Department of Justice Office of Justice Programs. The Edward Byrne Memorial Justice Assistance Grant Program allocates funds annually to states and local jurisdictions for law enforcement and criminal justice purposes. The amount of the grant is determined by a formula comprised of the jurisdiction's population and crime rate. This year, the City has been allocated \$21,343. The Police Department recommends using the grant to support the department's crime prevention, marketing, and public outreach efforts.

The grant will support a current part-time temporary Marketing Technician position within the Police Department. The position assists in coordinating the many crime prevention, marketing, and public education programs that enhance the safety and economic viability of our City. If the Police Department does not receive the Justice Assistance Grant in the future, this position will be eliminated from the Department budget and the position will not be filled.

FISCAL IMPACT

The recommended budget adjustment included in this communication will appropriate the FY 2022 JAG grant of \$21,343. It will also establish the budget for the temporary Marketing Technician position at \$26,565. Staff recommends utilizing \$18,854 of the FY 2022 JAG grant to fund this position partially in FY2022-23. The balance of the funding will come from the remaining

funds in a previous City Council-approved FY 2021 JAG grant award (\$7,711).

The remaining balance of the FY 2022 JAG grant will provide partial funding for the temporary position in FY2023-24. If the City is awarded an FY 2023 JAG Grant, these funds will be used to fund the remaining balance of this position. This position will be eliminated if the City doesn't receive future JAG awards.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA State Guidelines §15060(c)(3) and §15378. Acceptance of a grant award and approval of a budget adjustment meet the above criteria and are not subject to CEQA. No additional environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal B - Support community engagement and advocacy

Respectfully Submitted,

Mark Peinado, Management Analyst

Troy Bergstrom, Police Chief



Dominick Casey, City Manager

ATTACHMENTS:

Description

Resolution 23-047

Grant Award

Certifications and Assurances form

Ordinance 6607

Budget Adjustment

RESOLUTION NO. 23-047

ACCEPTING A GRANT AWARD FROM THE UNITED STATES DEPARTMENT OF JUSTICE, OFFICE OF JUSTICE PROGRAMS AND AUTHORIZING THE MAYOR TO EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, each year Congress allocates funds to the Edward Byrne Memorial Justice Assistance Grant program for law enforcement; and

WHEREAS, funds are distributed to local government according to a population and crime rate-based formula; and

WHEREAS, the City of Roseville has been allocated \$21,343;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Roseville that the grant award is hereby accepted.

BE IT FURTHER RESOLVED that the Mayor is authorized to execute the grant award and any other related documents on behalf of the City of Roseville.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 20__, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

✓ Award Letter

September 22, 2022

Dear Dominick Casey,

On behalf of Attorney General Merrick B. Garland, it is my pleasure to inform you the Office of Justice Programs (OJP) has approved the application submitted by ROSEVILLE, CITY OF for an award under the funding opportunity entitled 2022 BJA FY 22 Edward Byrne Memorial Justice Assistance Grant Program - Local Solicitation. The approved award amount is \$21,343.

Review the Award Instrument below carefully and familiarize yourself with all conditions and requirements before accepting your award. The Award Instrument includes the Award Offer (Award Information, Project Information, Financial Information, and Award Conditions) and Award Acceptance. For COPS Office and OVW funding the Award Offer also includes any Other Award Documents.

Please note that award requirements include not only the conditions and limitations set forth in the Award Offer, but also compliance with assurances and certifications that relate to conduct during the period of performance for the award. These requirements encompass financial, administrative, and programmatic matters, as well as other important matters (e.g., specific restrictions on use of funds). Therefore, all key staff should receive the award conditions, the assurances and certifications, and the application as approved by OJP, so that they understand the award requirements. Information on all pertinent award requirements also must be provided to any subrecipient of the award.

Should you accept the award and then fail to comply with an award requirement, DOJ will pursue appropriate remedies for non-compliance, which may include termination of the award and/or a requirement to repay award funds.

Prior to accepting the award, your Entity Administrator must assign a Financial Manager, Grant Award Administrator, and Authorized Representative(s) in the Justice Grants System (JustGrants). The Entity Administrator will need to ensure the assigned Authorized Representative(s) is current and has the legal authority to accept awards and bind the entity to the award terms and conditions. To accept the award, the Authorized Representative(s) must accept all parts of the Award Offer in the Justice Grants System (JustGrants), including by executing the required declaration and certification, within 45 days from the award date.

To access your funds, you will need to enroll in the Automated Standard Application for Payments (ASAP) system, if you haven't already completed the enrollment process in ASAP. The Entity Administrator should have already received an email from ASAP to initiate this process.

Congratulations, and we look forward to working with you.

Maureen Henneberg
Deputy Assistant Attorney General

Office for Civil Rights Notice for All Recipients

The Office for Civil Rights (OCR), Office of Justice Programs (OJP), U.S. Department of Justice (DOJ) has been delegated the responsibility for ensuring that recipients of federal financial assistance from the OJP, the Office of Community Oriented Policing Services (COPS), and the Office on Violence Against Women (OVW) are not engaged in discrimination prohibited by law. Several federal civil rights laws, such as Title VI of the Civil Rights Act of 1964 and Section 504 of the

Rehabilitation Act of 1973, require recipients of federal financial assistance to give assurances that they will comply with those laws. Taken together, these civil rights laws prohibit recipients of federal financial assistance from DOJ from discriminating in services and employment because of race, color, national origin, religion, disability, sex, and, for grants authorized under the Violence Against Women Act, sexual orientation and gender identity. Recipients are also prohibited from discriminating in services because of age. For a complete review of these civil rights laws and nondiscrimination requirements, in connection with DOJ awards, see <https://ojp.gov/funding/Explore/LegalOverview/CivilRightsRequirements.htm>.

Under the delegation of authority, the OCR investigates allegations of discrimination against recipients from individuals, entities, or groups. In addition, the OCR conducts limited compliance reviews and audits based on regulatory criteria. These reviews and audits permit the OCR to evaluate whether recipients of financial assistance from the Department are providing services in a nondiscriminatory manner to their service population or have employment practices that meet equal-opportunity standards.

If you are a recipient of grant awards under the Omnibus Crime Control and Safe Streets Act or the Juvenile Justice and Delinquency Prevention Act and your agency is part of a criminal justice system, there are two additional obligations that may apply in connection with the awards: (1) complying with the regulation relating to Equal Employment Opportunity Programs (EEOs); and (2) submitting findings of discrimination to OCR. For additional information regarding the EEO requirement, see 28 CFR Part 42, subpart E, and for additional information regarding requirements when there is an adverse finding, see 28 C.F.R. §§ 42.204(c), .205(c)(5).

The OCR is available to help you and your organization meet the civil rights requirements that are associated with DOJ grant funding. If you would like the OCR to assist you in fulfilling your organization's civil rights or nondiscrimination responsibilities as a recipient of federal financial assistance, please do not hesitate to contact the OCR at askOCR@ojp.usdoj.gov.

Memorandum Regarding NEPA

NEPA Letter Type

OJP - Ongoing NEPA Compliance Incorporated into Further Developmental Stages

NEPA Letter

The Edward Byrne Memorial Justice Assistance Grant Program (JAG) allows states and local governments to support a broad range of activities to prevent and control crime and to improve the criminal justice system, some of which could have environmental impacts. All recipients of JAG funding must assist BJA in complying with NEPA and other related federal environmental impact analyses requirements in the use of grant funds, whether the funds are used directly by the grantee or by a subgrantee or third party. Accordingly, prior to obligating funds for any of the specified activities, the grantee must first determine if any of the specified activities will be funded by the grant.

The specified activities requiring environmental analysis are:

- a. New construction;
- b. Any renovation or remodeling of a property located in an environmentally or historically sensitive area, including properties located within a 100-year flood plain, a wetland, or habitat for endangered species, or a property listed on or eligible for listing on the National Register of Historic Places;
- c. A renovation, lease, or any proposed use of a building or facility that will either (a) result in a change in its basic prior use or (b) significantly change its size;

- d. Implementation of a new program involving the use of chemicals other than chemicals that are (a) purchased as an incidental component of a funded activity and (b) traditionally used, for example, in office, household, recreational, or education environments; and
- e. Implementation of a program relating to clandestine methamphetamine laboratory operations, including the identification, seizure, or closure of clandestine methamphetamine laboratories.

Complying with NEPA may require the preparation of an Environmental Assessment and/or an Environmental Impact Statement, as directed by BJA. Further, for programs relating to methamphetamine laboratory operations, the preparation of a detailed Mitigation Plan will be required. For more information about Mitigation Plan requirements, please see <https://www.bja.gov/Funding/nepa.html>.

NEPA Coordinator

First Name	Middle Name	Last Name
Orbin	—	Terry

▼ Award Information

This award is offered subject to the conditions or limitations set forth in the Award Information, Project Information, Financial Information, and Award Conditions.

 Recipient Information

Recipient Name

ROSEVILLE, CITY OF

UEI

W49TKZLUYCJ3

Street 1

311 VERNON ST

Street 2

City

ROSEVILLE

State/U.S. Territory

California

Zip/Postal Code

95678

Country

United States

County/Parish

Province



Award Details

Federal Award Date

9/22/22

Award Type

Initial

Award Number

15PBJA-22-GG-02597-JAGX

Supplement Number

00

Federal Award Amount

\$21,343.00

Funding Instrument Type

Grant

Assistance Listing Number Assistance Listings Program Title

16.738

Edward Byrne Memorial Justice Assistance Grant Program

Statutory Authority

Title I of Pub. L. No. 90-351 (generally codified at 34 U.S.C. 10101-10726), including subpart 1 of part E (codified at 34 U.S.C. 10151 - 10158); see also 28 U.S.C. 530C(a)

☐ I have read and understand the information presented in this section of the Federal Award Instrument.

Project Information

This award is offered subject to the conditions or limitations set forth in the Award Information, Project Information, Financial Information, and Award Conditions.

Solicitation Title

2022 BJA FY 22 Edward Byrne Memorial

Awarding Agency

OJP

Justice Assistance Grant Program - Local
Solicitation

Program Office
BJA

Application Number

GRANT13669025

Grant Manager Name **Phone Number**

Elaine Vanlandingham
202-305-0034

E-mail Address

Elaine.Vanlandingham@usdoj.gov

Project Title

Crime reduction through education and increased public awareness

**Performance Period Start
Date**

10/01/2021

**Performance Period End
Date**

09/30/2023

Budget Period Start Date

10/01/2021

Budget Period End Date

09/30/2023

Project Description

The Edward Byrne Memorial Justice Assistance Grant (JAG) Program allows units of local government, including tribes, to support a broad range of activities to prevent and control crime based on their own state and local needs and conditions. Grant funds can be used for state and local initiatives, technical assistance, training, personnel, equipment, supplies, contractual support, and information systems for criminal justice or civil proceedings, including for any one or more of the following program areas: 1) law enforcement programs; 2) prosecution and court programs; 3) prevention and education programs; 4) corrections and community corrections programs; 5) drug treatment and enforcement programs; 6) planning, evaluation, and technology improvement programs; 7) crime victim and witness programs (other than compensation); 8) mental health programs and related law enforcement and corrections programs, including behavioral programs and crisis intervention teams; and 9) implementation of state crisis intervention court proceedings and related programs or initiatives, including but not limited to: mental health courts; drug courts; veterans courts; and extreme risk protection order programs.



I have read and understand the information presented in this section of the Federal Award Instrument.

✓ Financial Information

This award is offered subject to the conditions or limitations set forth in the Award Information, Project Information, Financial Information, and Award Conditions.

☐ *I have read and understand the information presented in this section of the Federal Award Instrument.*

✓ Award Conditions

This award is offered subject to the conditions or limitations set forth in the Award Information, Project Information, Financial Information, and Award Conditions.



Compliance with general appropriations-law restrictions on the use of federal funds (FY 2022)

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable restrictions on the use of federal funds set out in federal appropriations statutes. Pertinent restrictions, including from various "general provisions" in the Consolidated Appropriations Act, 2022, are set out at <https://www.ojp.gov/funding/Explore/FY22AppropriationsRestrictions.htm>, and are incorporated by reference here.

Should a question arise as to whether a particular use of federal funds by a recipient (or a subrecipient) would or might fall within the scope of an appropriations-law restriction, the recipient is to contact OJP for guidance, and may not proceed without the express prior written approval of OJP.



Applicability of Part 200 Uniform Requirements

The Uniform Administrative Requirements, Cost Principles, and Audit Requirements in 2 C.F.R. Part 200, as adopted and supplemented by DOJ in 2 C.F.R. Part 2800 (together, the "Part 200 Uniform Requirements") apply to this FY 2022 award from OJP.

The Part 200 Uniform Requirements were first adopted by DOJ on December 26, 2014. If this FY 2022 award supplements funds previously awarded by OJP under the same award number (e.g., funds awarded during or before December 2014), the Part 200 Uniform Requirements apply with respect to all funds under that award number (regardless of the award date, and regardless of whether derived from the initial award or a supplemental award) that are obligated on or after the acceptance date of this FY 2022 award.

For more information and resources on the Part 200 Uniform Requirements as they relate to OJP awards and subawards ("subgrants"), see the OJP website at <https://ojp.gov/funding/Part200UniformRequirements.htm>.

Record retention and access: Records pertinent to the award that the recipient (and any subrecipient ("subgrantee") at any tier) must retain -- typically for a period of 3 years from the date of submission of the final expenditure report (SF 425), unless a different retention period applies -- and to which the recipient

(and any subrecipient ("subgrantee") at any tier) must provide access, include performance measurement information, in addition to the financial records, supporting documents, statistical records, and other pertinent records indicated at 2 C.F.R. 200.334.

In the event that an award-related question arises from documents or other materials prepared or distributed by OJP that may appear to conflict with, or differ in some way from, the provisions of the Part 200 Uniform Requirements, the recipient is to contact OJP promptly for clarification.

3

Requirement to report actual or imminent breach of personally identifiable information (PII)

The recipient (and any "subrecipient" at any tier) must have written procedures in place to respond in the event of an actual or imminent "breach" (OMB M-17-12) if it (or a subrecipient) -- (1) creates, collects, uses, processes, stores, maintains, disseminates, discloses, or disposes of "Personally Identifiable Information (PII)" (2 CFR 200.1) within the scope of an OJP grant-funded program or activity, or (2) uses or operates a "Federal information system" (OMB Circular A-130). The recipient's breach procedures must include a requirement to report actual or imminent breach of PII to an OJP Program Manager no later than 24 hours after an occurrence of an actual breach, or the detection of an imminent breach.

4

OJP Training Guiding Principles

Any training or training materials that the recipient -- or any subrecipient ("subgrantee") at any tier -- develops or delivers with OJP award funds must adhere to the OJP Training Guiding Principles for Grantees and Subgrantees, available at <https://www.ojp.gov/funding/implement/training-guiding-principles-grantees-and-subgrantees>.

5

Required training for Grant Award Administrator and Financial Manager

The Grant Award Administrator and all Financial Managers for this award must have successfully completed an "OJP financial management and grant administration training" by 120 days after the date of the recipient's acceptance of the award. Successful completion of such a training on or after October 15, 2020, will satisfy this condition.

In the event that either the Grant Award Administrator or a Financial Manager for this award changes during the period of performance, the new Grant Award Administrator or Financial Manager must have successfully completed an "OJP financial management and grant administration training" by 120 calendar days after the date the Entity Administrator enters updated Grant Award Administrator or Financial Manager information in JustGrants. Successful completion of such a training on or after January 1, 2020, will satisfy this condition.

A list of OJP trainings that OJP will consider "OJP financial management and grant administration training" for purposes of this condition is available at <https://www.ojp.gov/training/fmts.htm>. All trainings that satisfy this condition include a session on grant fraud prevention and detection.

The recipient should anticipate that OJP will immediately withhold ("freeze") award funds if the recipient fails to comply with this condition. The recipient's failure to comply also may lead OJP to impose additional appropriate conditions on this award.

6

Effect of failure to address audit issues

The recipient understands and agrees that the DOJ awarding agency (OJP or OVW, as appropriate) may withhold award funds, or may impose other related requirements, if (as determined by the DOJ awarding agency) the recipient does not satisfactorily and promptly address outstanding issues from audits required

by the Part 200 Uniform Requirements (or by the terms of this award), or other outstanding issues that arise in connection with audits, investigations, or reviews of DOJ awards.



Requirements of the award; remedies for non-compliance or for materially false statements

The conditions of this award are material requirements of the award. Compliance with any assurances or certifications submitted by or on behalf of the recipient that relate to conduct during the period of performance also is a material requirement of this award.

Limited Exceptions. In certain special circumstances, the U.S. Department of Justice ("DOJ") may determine that it will not enforce, or enforce only in part, one or more requirements otherwise applicable to the award. Any such exceptions regarding enforcement, including any such exceptions made during the period of performance, are (or will be during the period of performance) set out through the Office of Justice Programs ("OJP") webpage entitled "Legal Notices: Special circumstances as to particular award conditions" (ojp.gov/funding/Explore/LegalNotices-AwardReqs.htm), and incorporated by reference into the award.

By signing and accepting this award on behalf of the recipient, the authorized recipient official accepts all material requirements of the award, and specifically adopts, as if personally executed by the authorized recipient official, all assurances or certifications submitted by or on behalf of the recipient that relate to conduct during the period of performance.

Failure to comply with one or more award requirements -- whether a condition set out in full below, a condition incorporated by reference below, or an assurance or certification related to conduct during the award period -- may result in OJP taking appropriate action with respect to the recipient and the award. Among other things, the OJP may withhold award funds, disallow costs, or suspend or terminate the award. DOJ, including OJP, also may take other legal action as appropriate.

Any materially false, fictitious, or fraudulent statement to the federal government related to this award (or concealment or omission of a material fact) may be the subject of criminal prosecution (including under 18 U.S.C. 1001 and/or 1621, and/or 34 U.S.C. 10271-10273), and also may lead to imposition of civil penalties and administrative remedies for false claims or otherwise (including under 31 U.S.C. 3729-3730 and 3801-3812).

Should any provision of a requirement of this award be held to be invalid or unenforceable by its terms, that provision shall first be applied with a limited construction so as to give it the maximum effect permitted by law. Should it be held, instead, that the provision is utterly invalid or -unenforceable, such provision shall be deemed severable from this award.



Compliance with DOJ regulations pertaining to civil rights and nondiscrimination - 28 C.F.R. Part 38

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements of 28 C.F.R. Part 38 (as may be applicable from time to time), specifically including any applicable requirements regarding written notice to program beneficiaries and prospective program beneficiaries.

Currently, among other things, 28 C.F.R. Part 38 includes rules that prohibit specific forms of discrimination on the basis of religion, a religious belief, a refusal to hold a religious belief, or refusal to attend or participate in a religious practice. Part 38, currently, also sets out rules and requirements that pertain to recipient and subrecipient ("subgrantee") organizations that engage in or conduct explicitly religious activities, as well as rules and requirements that pertain to recipients and subrecipients that are faith-based or religious organizations.

The text of 28 C.F.R. Part 38 is available via the Electronic Code of Federal Regulations (currently accessible at <https://www.ecfr.gov/cgi-bin/ECFR?page=browse>), by browsing to Title 28-Judicial Administration, Chapter 1, Part 38, under e-CFR "current" data.



Compliance with DOJ regulations pertaining to civil rights and nondiscrimination - 28 C.F.R. Part 42

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements of 28 C.F.R. Part 42, specifically including any applicable requirements in Subpart E of 28 C.F.R. Part 42 that relate to an equal employment opportunity program.



Compliance with DOJ regulations pertaining to civil rights and nondiscrimination - 28 C.F.R. Part 54

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements of 28 C.F.R. Part 54, which relates to nondiscrimination on the basis of sex in certain "education programs."



Compliance with 41 U.S.C. 4712 (including prohibitions on reprisal; notice to employees)

The recipient (and any subrecipient at any tier) must comply with, and is subject to, all applicable provisions of 41 U.S.C. 4712, including all applicable provisions that prohibit, under specified circumstances, discrimination against an employee as reprisal for the employee's disclosure of information related to gross mismanagement of a federal grant, a gross waste of federal funds, an abuse of authority relating to a federal grant, a substantial and specific danger to public health or safety, or a violation of law, rule, or regulation related to a federal grant.

The recipient also must inform its employees, in writing (and in the predominant native language of the workforce), of employee rights and remedies under 41 U.S.C. 4712.

Should a question arise as to the applicability of the provisions of 41 U.S.C. 4712 to this award, the recipient is to contact the DOJ awarding agency (OJP or OVW, as appropriate) for guidance.



Compliance with applicable rules regarding approval, planning, and reporting of conferences, meetings, trainings, and other events

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable laws, regulations, policies, and official DOJ guidance (including specific cost limits, prior approval and reporting requirements, where applicable) governing the use of federal funds for expenses related to conferences (as that term is defined by DOJ), including the provision of food and/or beverages at such conferences, and costs of attendance at such conferences.

Information on the pertinent DOJ definition of conferences and the rules applicable to this award appears in the DOJ Grants Financial Guide (currently, as section 3.10 of "Postaward Requirements" in the "DOJ Grants Financial Guide").



Requirement for data on performance and effectiveness under the award

The recipient must collect and maintain data that measure the performance and effectiveness of work under this award. The data must be provided to OJP in the manner (including within the timeframes) specified by OJP in the program solicitation or other applicable written guidance. Data collection supports compliance with the Government Performance and Results Act (GPRA) and the GPRA Modernization Act of 2010, and other applicable laws.



Requirements related to "de minimis" indirect cost rate

A recipient that is eligible under the Part 200 Uniform Requirements and other applicable law to use the "de minimis" indirect cost rate described in 2 C.F.R. 200.414(f), and that elects to use the "de minimis" indirect cost rate, must advise OJP in writing of both its eligibility and its election, and must comply with all associated requirements in the Part 200 Uniform Requirements. The "de minimis" rate may be applied only to modified total direct costs (MTDC) as defined by the Part 200 Uniform Requirements.

15

Determination of suitability to interact with participating minors

SCOPE. This condition applies to this award if it is indicated -- in the application for the award (as approved by DOJ)(or in the application for any subaward, at any tier), the DOJ funding announcement (solicitation), or an associated federal statute -- that a purpose of some or all of the activities to be carried out under the award (whether by the recipient, or a subrecipient at any tier) is to benefit a set of individuals under 18 years of age.

The recipient, and any subrecipient at any tier, must make determinations of suitability before certain individuals may interact with participating minors. This requirement applies regardless of an individual's employment status.

The details of this requirement are posted on the OJP web site at <https://ojp.gov/funding/Explore/Interact-Minors.htm> (Award condition: Determination of suitability required, in advance, for certain individuals who may interact with participating minors), and are incorporated by reference here.

16

Requirement to disclose whether recipient is designated "high risk" by a federal grant-making agency outside of DOJ

If the recipient is designated "high risk" by a federal grant-making agency outside of DOJ, currently or at any time during the course of the period of performance under this award, the recipient must disclose that fact and certain related information to OJP by email at OJP.ComplianceReporting@ojp.usdoj.gov. For purposes of this disclosure, high risk includes any status under which a federal awarding agency provides additional oversight due to the recipient's past performance, or other programmatic or financial concerns with the recipient. The recipient's disclosure must include the following: 1. The federal awarding agency that currently designates the recipient high risk, 2. The date the recipient was designated high risk, 3. The high-risk point of contact at that federal awarding agency (name, phone number, and email address), and 4. The reasons for the high-risk status, as set out by the federal awarding agency.

17

Compliance with DOJ Grants Financial Guide

References to the DOJ Grants Financial Guide are to the DOJ Grants Financial Guide as posted on the OJP website (currently, the "DOJ Grants Financial Guide" available at <https://ojp.gov/financialguide/DOJ/index.htm>), including any updated version that may be posted during the period of performance. The recipient agrees to comply with the DOJ Grants Financial Guide.

18

Encouragement of policies to ban text messaging while driving

Pursuant to Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving," 74 Fed. Reg. 51225 (October 1, 2009), DOJ encourages recipients and subrecipients ("subgrantees") to adopt and enforce policies banning employees from text messaging while driving any vehicle during the course of performing work funded by this award, and to establish workplace safety policies and conduct education, awareness, and other outreach to decrease crashes caused by distracted drivers.

19

Potential imposition of additional requirements

The recipient agrees to comply with any additional requirements that may be imposed by the DOJ awarding agency (OJP or OVW, as appropriate) during the period of performance for this award, if the recipient is designated as "high-risk" for purposes of the DOJ high-risk grantee list.

20

Employment eligibility verification for hiring under the award

1. The recipient (and any subrecipient at any tier) must--

A. Ensure that, as part of the hiring process for any position within the United States that is or will be funded (in whole or in part) with award funds, the recipient (or any subrecipient) properly verifies the employment eligibility of the individual who is being hired, consistent with the provisions of 8 U.S.C. 1324a(a)(1).

B. Notify all persons associated with the recipient (or any subrecipient) who are or will be involved in activities under this award of both--

(1) this award requirement for verification of employment eligibility, and

(2) the associated provisions in 8 U.S.C. 1324a(a)(1) that, generally speaking, make it unlawful, in the United States, to hire (or recruit for employment) certain aliens.

C. Provide training (to the extent necessary) to those persons required by this condition to be notified of the award requirement for employment eligibility verification and of the associated provisions of 8 U.S.C. 1324a(a)(1).

D. As part of the recordkeeping for the award (including pursuant to the Part 200 Uniform Requirements), maintain records of all employment eligibility verifications pertinent to compliance with this award condition in accordance with Form I-9 record retention requirements, as well as records of all pertinent notifications and trainings.

2. Monitoring

The recipient's monitoring responsibilities include monitoring of subrecipient compliance with this condition.

3. Allowable costs

To the extent that such costs are not reimbursed under any other federal program, award funds may be obligated for the reasonable, necessary, and allocable costs (if any) of actions designed to ensure compliance with this condition.

4. Rules of construction

A. Staff involved in the hiring process

For purposes of this condition, persons "who are or will be involved in activities under this award" specifically includes (without limitation) any and all recipient (or any subrecipient) officials or other staff who are or will be involved in the hiring process with respect to a position that is or will be funded (in whole or in part) with award funds.

B. Employment eligibility confirmation with E-Verify

For purposes of satisfying the requirement of this condition regarding verification of employment eligibility, the recipient (or any subrecipient) may choose to participate in, and use, E-Verify (www.e-verify.gov), provided an appropriate person authorized to act on behalf of the recipient (or subrecipient) uses E-Verify (and follows the proper E-Verify procedures, including in the event of a "Tentative Nonconfirmation" or a

"Final Nonconfirmation") to confirm employment eligibility for each hiring for a position in the United States that is or will be funded (in whole or in part) with award funds.

C. "United States" specifically includes the District of Columbia, Puerto Rico, Guam, the Virgin Islands of the United States, and the Commonwealth of the Northern Mariana Islands.

D. Nothing in this condition shall be understood to authorize or require any recipient, any subrecipient at any tier, or any person or other entity, to violate any federal law, including any applicable civil rights or nondiscrimination law.

E. Nothing in this condition, including in paragraph 4.B., shall be understood to relieve any recipient, any subrecipient at any tier, or any person or other entity, of any obligation otherwise imposed by law, including 8 U.S.C. 1324a(a)(1).

Questions about E-Verify should be directed to DHS. For more information about E-Verify visit the E-Verify website (<https://www.e-verify.gov/>) or email E-Verify at E-Verify@dhs.gov. E-Verify employer agents can email E-Verify at E-VerifyEmployerAgent@dhs.gov.

Questions about the meaning or scope of this condition should be directed to OJP, before award acceptance.

21

Restrictions and certifications regarding non-disclosure agreements and related matters

No recipient or subrecipient ("subgrantee") under this award, or entity that receives a procurement contract or subcontract with any funds under this award, may require any employee or contractor to sign an internal confidentiality agreement or statement that prohibits or otherwise restricts, or purports to prohibit or restrict, the reporting (in accordance with law) of waste, fraud, or abuse to an investigative or law enforcement representative of a federal department or agency authorized to receive such information.

The foregoing is not intended, and shall not be understood by the agency making this award, to contravene requirements applicable to Standard Form 312 (which relates to classified information), Form 4414 (which relates to sensitive compartmented information), or any other form issued by a federal department or agency governing the nondisclosure of classified information.

1. In accepting this award, the recipient--

a. represents that it neither requires nor has required internal confidentiality agreements or statements from employees or contractors that currently prohibit or otherwise currently restrict (or purport to prohibit or restrict) employees or contractors from reporting waste, fraud, or abuse as described above; and

b. certifies that, if it learns or is notified that it is or has been requiring its employees or contractors to execute agreements or statements that prohibit or otherwise restrict (or purport to prohibit or restrict), reporting of waste, fraud, or abuse as described above, it will immediately stop any further obligations of award funds, will provide prompt written notification to the federal agency making this award, and will resume (or permit resumption of) such obligations only if expressly authorized to do so by that agency.

2. If the recipient does or is authorized under this award to make subawards ("subgrants"), procurement contracts, or both--

a. it represents that--

(1) it has determined that no other entity that the recipient's application proposes may or will receive award funds (whether through a subaward ("subgrant"), procurement contract, or subcontract under a procurement contract) either requires or has required internal confidentiality agreements or statements from employees or contractors that currently prohibit or otherwise currently restrict (or purport to prohibit or restrict) employees or contractors from reporting waste, fraud, or abuse as described above; and

(2) it has made appropriate inquiry, or otherwise has an adequate factual basis, to support this

representation; and

b. it certifies that, if it learns or is notified that any subrecipient, contractor, or subcontractor entity that receives funds under this award is or has been requiring its employees or contractors to execute agreements or statements that prohibit or otherwise restrict (or purport to prohibit or restrict), reporting of waste, fraud, or abuse as described above, it will immediately stop any further obligations of award funds to or by that entity, will provide prompt written notification to the federal agency making this award, and will resume (or permit resumption of) such obligations only if expressly authorized to do so by that agency.

22

Reclassification of various statutory provisions to a new Title 34 of the United States Code

On September 1, 2017, various statutory provisions previously codified elsewhere in the U.S. Code were editorially reclassified (that is, moved and renumbered) to a new Title 34, entitled "Crime Control and Law Enforcement." The reclassification encompassed a number of statutory provisions pertinent to OJP awards (that is, OJP grants and cooperative agreements), including many provisions previously codified in Title 42 of the U.S. Code.

Effective as of September 1, 2017, any reference in this award document to a statutory provision that has been reclassified to the new Title 34 of the U.S. Code is to be read as a reference to that statutory provision as reclassified to Title 34. This rule of construction specifically includes references set out in award conditions, references set out in material incorporated by reference through award conditions, and references set out in other award requirements.

23

All subawards ("subgrants") must have specific federal authorization

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements for authorization of any subaward. This condition applies to agreements that -- for purposes of federal grants administrative requirements -- OJP considers a "subaward" (and therefore does not consider a procurement "contract").

The details of the requirement for authorization of any subaward are posted on the OJP web site at <https://ojp.gov/funding/Explore/SubawardAuthorization.htm> (Award condition: All subawards ("subgrants") must have specific federal authorization), and are incorporated by reference here.

24

Requirements related to System for Award Management and Universal Identifier Requirements

The recipient must comply with applicable requirements regarding the System for Award Management (SAM), currently accessible at <https://www.sam.gov/>. This includes applicable requirements regarding registration with SAM, as well as maintaining the currency of information in SAM.

The recipient also must comply with applicable restrictions on subawards ("subgrants") to first-tier subrecipients (first-tier "subgrantees"), including restrictions on subawards to entities that do not acquire and provide (to the recipient) the unique entity identifier required for SAM registration.

The details of the recipient's obligations related to SAM and to unique entity identifiers are posted on the OJP web site at <https://ojp.gov/funding/Explore/SAM.htm> (Award condition: System for Award Management (SAM) and Universal Identifier Requirements), and are incorporated by reference here.

This condition does not apply to an award to an individual who received the award as a natural person (i.e., unrelated to any business or non-profit organization that he or she may own or operate in his or her name).

 25**Restrictions on "lobbying"**

In general, as a matter of federal law, federal funds awarded by OJP may not be used by the recipient, or any subrecipient ("subgrantee") at any tier, either directly or indirectly, to support or oppose the enactment, repeal, modification, or adoption of any law, regulation, or policy, at any level of government. See 18 U.S.C. 1913. (There may be exceptions if an applicable federal statute specifically authorizes certain activities that otherwise would be barred by law.)

Another federal law generally prohibits federal funds awarded by OJP from being used by the recipient, or any subrecipient at any tier, to pay any person to influence (or attempt to influence) a federal agency, a Member of Congress, or Congress (or an official or employee of any of them) with respect to the awarding of a federal grant or cooperative agreement, subgrant, contract, subcontract, or loan, or with respect to actions such as renewing, extending, or modifying any such award. See 31 U.S.C. 1352. Certain exceptions to this law apply, including an exception that applies to Indian tribes and tribal organizations.

Should any question arise as to whether a particular use of federal funds by a recipient (or subrecipient) would or might fall within the scope of these prohibitions, the recipient is to contact OJP for guidance, and may not proceed without the express prior written approval of OJP.

 26

Specific post-award approval required to use a noncompetitive approach in any procurement contract that would exceed \$250,000

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements to obtain specific advance approval to use a noncompetitive approach in any procurement contract that would exceed the Simplified Acquisition Threshold (currently, \$250,000). This condition applies to agreements that -- for purposes of federal grants administrative requirements -- OJP considers a procurement "contract" (and therefore does not consider a subaward).

The details of the requirement for advance approval to use a noncompetitive approach in a procurement contract under an OJP award are posted on the OJP web site at <https://ojp.gov/funding/Explore/NoncompetitiveProcurement.htm> (Award condition: Specific post-award approval required to use a noncompetitive approach in a procurement contract (if contract would exceed \$250,000)), and are incorporated by reference here.

 27

Requirements pertaining to prohibited conduct related to trafficking in persons (including reporting requirements and OJP authority to terminate award)

The recipient, and any subrecipient ("subgrantee") at any tier, must comply with all applicable requirements (including requirements to report allegations) pertaining to prohibited conduct related to the trafficking of persons, whether on the part of recipients, subrecipients ("subgrantees"), or individuals defined (for purposes of this condition) as "employees" of the recipient or of any subrecipient.

The details of the recipient's obligations related to prohibited conduct related to trafficking in persons are posted on the OJP web site at <https://ojp.gov/funding/Explore/ProhibitedConduct-Trafficking.htm> (Award condition: Prohibited conduct by recipients and subrecipients related to trafficking in persons (including reporting requirements and OJP authority to terminate award)), and are incorporated by reference here.

 28

Requirement to report potentially duplicative funding

If the recipient currently has other active awards of federal funds, or if the recipient receives any other award of federal funds during the period of performance for this award, the recipient promptly must determine whether funds from any of those other federal awards have been, are being, or are to be used (in whole or in part) for one or more of the identical cost items for which funds are provided under this award. If so, the

recipient must promptly notify the DOJ awarding agency (OJP or OVW, as appropriate) in writing of the potential duplication, and, if so requested by the DOJ awarding agency, must seek a budget-modification or change-of-project-scope Grant Award Modification (GAM) to eliminate any inappropriate duplication of funding.

29

Reporting potential fraud, waste, and abuse, and similar misconduct

The recipient, and any subrecipients ("subgrantees") at any tier, must promptly refer to the DOJ Office of the Inspector General (OIG) any credible evidence that a principal, employee, agent, subrecipient, contractor, subcontractor, or other person has, in connection with funds under this award-- (1) submitted a claim that violates the False Claims Act; or (2) committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct.

Potential fraud, waste, abuse, or misconduct involving or relating to funds under this award should be reported to the OIG by--(1) online submission accessible via the OIG webpage at <https://oig.justice.gov/hotline/contact-grants.htm> (select "Submit Report Online"); (2) mail directed to: U.S. Department of Justice, Office of the Inspector General, Investigations Division, ATTN: Grantee Reporting, 950 Pennsylvania Ave., NW, Washington, DC 20530; and/or (3) by facsimile directed to the DOJ OIG Investigations Division (Attn: Grantee Reporting) at (202) 616-9881 (fax).

Additional information is available from the DOJ OIG website at <https://oig.justice.gov/hotline>.

30

FFATA reporting: Subawards and executive compensation

The recipient must comply with applicable requirements to report first-tier subawards ("subgrants") of \$30,000 or more and, in certain circumstances, to report the names and total compensation of the five most highly compensated executives of the recipient and first-tier subrecipients (first-tier "subgrantees") of award funds. The details of recipient obligations, which derive from the Federal Funding Accountability and Transparency Act of 2006 (FFATA), are posted on the OJP web site at <https://ojp.gov/funding/Explore/FFATA.htm> (Award condition: Reporting Subawards and Executive Compensation), and are incorporated by reference here.

This condition, including its reporting requirement, does not apply to-- (1) an award of less than \$30,000, or (2) an award made to an individual who received the award as a natural person (i.e., unrelated to any business or non-profit organization that he or she may own or operate in his or her name).

31

The recipient agrees to comply with OJP grant monitoring guidelines, protocols, and procedures, and to cooperate with BJA and OCFO on all grant monitoring requests, including requests related to desk reviews, enhanced programmatic desk reviews, and/or site visits. The recipient agrees to provide to BJA and OCFO all documentation necessary to complete monitoring tasks, including documentation related to any subawards made under this award. Further, the recipient agrees to abide by reasonable deadlines set by BJA and OCFO for providing the requested documents. Failure to cooperate with BJA's/OCFO's grant monitoring activities may result in sanctions affecting the recipient's DOJ awards, including, but not limited to: withholdings and/or other restrictions on the recipient's access to grant funds; referral to the Office of the Inspector General for audit review; designation of the recipient as a DOJ High Risk grantee; or termination of an award(s).

32

Required monitoring of subawards

The recipient must monitor subawards under this award in accordance with all applicable statutes, regulations, award conditions, and the DOJ Grants Financial Guide, and must include the applicable

conditions of this award in any subaward. Among other things, the recipient is responsible for oversight of subrecipient spending and monitoring of specific outcomes and benefits attributable to use of award funds by subrecipients. The recipient agrees to submit, upon request, documentation of its policies and procedures for monitoring of subawards under this award.

33

Use of program income

Program income (as defined in the Part 200 Uniform Requirements) must be used in accordance with the provisions of the Part 200 Uniform Requirements. Program income earnings and expenditures both must be reported on the quarterly Federal Financial Report, SF 425.

34

Justice Information Sharing

Information sharing projects funded under this award must comply with DOJ's Global Justice Information Sharing Initiative (Global) guidelines. The recipient (and any subrecipient at any tier) must conform to the Global Standards Package (GSP) and all constituent elements, where applicable, as described at: https://it.ojp.gov/gsp_grantcondition. The recipient (and any subrecipient at any tier) must document planned approaches to information sharing and describe compliance with the GSP and appropriate privacy policy that protects shared information, or provide detailed justification for why an alternative approach is recommended.

35

Avoidance of duplication of networks

To avoid duplicating existing networks or IT systems in any initiatives funded by BJA for law enforcement information sharing systems which involve interstate connectivity between jurisdictions, such systems shall employ, to the extent possible, existing networks as the communication backbone to achieve interstate connectivity, unless the recipient can demonstrate to the satisfaction of BJA that this requirement would not be cost effective or would impair the functionality of an existing or proposed IT system.

36

Compliance with 28 C.F.R. Part 23

With respect to any information technology system funded or supported by funds under this award, the recipient (and any subrecipient at any tier) must comply with 28 C.F.R. Part 23, Criminal Intelligence Systems Operating Policies, if OJP determines this regulation to be applicable. Should OJP determine 28 C.F.R. Part 23 to be applicable, OJP may, at its discretion, perform audits of the system, as per the regulation. Should any violation of 28 C.F.R. Part 23 occur, the recipient may be fined as per 34 U.S.C. 10231(c)-(d). The recipient may not satisfy such a fine with federal funds.

37

Protection of human research subjects

The recipient (and any subrecipient at any tier) must comply with the requirements of 28 C.F.R. Part 46 and all OJP policies and procedures regarding the protection of human research subjects, including obtainment of Institutional Review Board approval, if appropriate, and subject informed consent.

38

Confidentiality of data

The recipient (and any subrecipient at any tier) must comply with all confidentiality requirements of 34 U.S.C. 10231 and 28 C.F.R. Part 22 that are applicable to collection, use, and revelation of data or information. The recipient further agrees, as a condition of award approval, to submit a Privacy Certificate that is in accord with requirements of 28 C.F.R. Part 22 and, in particular, 28 C.F.R. 22.23.

39

The award recipient agrees to participate in a data collection process measuring program outputs and outcomes. The data elements for this process will be outlined by the Office of Justice Programs.

40

The recipient agrees to cooperate with any assessments, national evaluation efforts, or information or data collection requests, including, but not limited to, the provision of any information required for the assessment or evaluation of any activities within this project.

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☐ *I have read and understand the information presented in this section of the Federal Award Instrument.*

✓ Award Acceptance

Declaration and Certification to the U.S. Department of Justice as to Acceptance

By checking the declaration and certification box below, I--

A. Declare to the U.S. Department of Justice (DOJ), under penalty of perjury, that I have authority to make this declaration and certification on behalf of the applicant.

B. Certify to DOJ, under penalty of perjury, on behalf of myself and the applicant, to the best of my knowledge and belief, that the following are true as of the date of this award acceptance: (1) I have conducted or there was conducted (including by applicant's legal counsel as appropriate and made available to me) a diligent review of all terms and conditions of, and all supporting materials submitted in connection with, this award, including any assurances and certifications (including anything submitted in connection therewith by a person on behalf of the applicant before, after, or at the time of the application submission and any materials that accompany this acceptance and certification); and (2) I have the legal authority to accept this award on behalf of the applicant.

C. Accept this award on behalf of the applicant.

D. Declare the following to DOJ, under penalty of perjury, on behalf of myself and the applicant: (1) I understand that, in taking (or not taking) any action pursuant to this declaration and certification, DOJ will rely upon this declaration and certification as a material representation; and (2) I understand that any materially false, fictitious, or fraudulent information or statement in this declaration and certification (or concealment or omission of a material fact as to either) may be the subject of criminal prosecution (including under 18 U.S.C. §§ 1001 and/or 1621, and/or 34 U.S.C. §§ 10271-10273), and also may subject me and the applicant to civil penalties and administrative remedies under the federal False Claims Act (including under 31 U.S.C. §§ 3729-3730 and/or §§ 3801-3812) or otherwise.

Agency Approval

Title of Approving Official	Name of Approving Official	Signed Date And Time
Deputy Assistant Attorney General	Maureen Henneberg	9/18/22 3:14 PM

Authorized Representative



Entity Acceptance

Title of Authorized Entity Official

Signed Date And Time

**U.S. DEPARTMENT OF JUSTICE
OFFICE OF JUSTICE PROGRAMS**

Edward Byrne Justice Assistance Grant Program FY 2022 Local Solicitation

Certifications and Assurances by the Chief Executive of the Applicant Government

On behalf of the applicant unit of local government named below, in support of that locality's application for an award under the FY 2022 Edward Byrne Justice Assistance Grant ("JAG") Program, and further to 34 U.S.C. § 10153(a), I certify to the Office of Justice Programs ("OJP"), U.S. Department of Justice ("USDOJ"), that all of the following are true and correct:

1. I am the chief executive of the applicant unit of local government named below, and I have the authority to make the following representations on my own behalf as chief executive and on behalf of the applicant unit of local government. I understand that these representations will be relied upon as material in any OJP decision to make an award, under the application described above, to the applicant unit of local government.
2. I certify that no federal funds made available by the award (if any) that OJP makes based on the application described above will be used to supplant local funds, but will be used to increase the amounts of such funds that would, in the absence of federal funds, be made available for law enforcement activities.
3. I assure that the application described above (and any amendment to that application) was submitted for review to the governing body of the unit of local government (*e.g.*, city council or county commission), or to an organization designated by that governing body, not less than 30 days before the date of this certification.
4. I assure that, before the date of this certification— (a) the application described above (and any amendment to that application) was made public; and (b) an opportunity to comment on that application (or amendment) was provided to citizens and to neighborhood or community-based organizations, to the extent applicable law or established procedure made such an opportunity available.
5. I assure that, for each fiscal year of the award (if any) that OJP makes based on the application described above, the applicant unit of local government will maintain and report such data, records, and information (programmatic and financial), as OJP may reasonably require.
6. I have carefully reviewed 34 U.S.C. § 10153(a)(5), and, with respect to the programs to be funded by the award (if any), I hereby make the certification required by section 10153(a)(5), as to each of the items specified therein.

Signature of Chief Executive of the Applicant Unit of
Local Government

Date of Certification

Printed Name of Chief Executive

Title of Chief Executive

Name of Applicant Unit of Local Government

ORDINANCE NO. 6607

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE
AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23
BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY
EFFECTIVE AS AN APPROPRIATION MEASURE

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. The City of Roseville Annual Budget, Fiscal Year 2022-23, is hereby amended as listed on the attached budget adjustment for grant funds received from the Edward Byrne Memorial Justice Assistance Grant Program.

SECTION 2. This ordinance is hereby declared to be an appropriation measure, immediately effective pursuant to the provisions of Section 5.03 of the Charter.

SECTION 3. The City Clerk is hereby authorized and directed to post a true copy of the foregoing ordinance in each of three (3) conspicuous locations in the City and she shall immediately after such posting enter in the ordinance book, under the record of the ordinance, a certificate under her hand stating the time and place of such publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville, this _____
day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



REQUEST FOR BUDGET ADJUSTMENT

REQUESTER NAME & TITLE: Mark Peinado / Management Analyst FISCAL YEAR: FY2022-23
 PREPARER NAME & TITLE: Mark Peinado / Management Analyst COUNCIL DATE (if applicable): 2/1/2023
 DEPARTMENT/DIVISION: Police Department ORDINANCE: _____

EXPENDITURES/EXPENSES/TRANSFERS OUT

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
2270	5080	84001	700045	21,343	Establish expenditure budget for FY 2022 JAG
1001	5053	44001		18,854	Establish expenditure budget for 1500 hour temporary Marketing Technician position
1001	5980	44001		(18,854)	Establish labor reimbursement for temporary position from FY2022 Edward Byrne Memorial Justice Assistant Grant (JAG) (Project: 700045)
1001	5053	44001		7,711	Increase budget for 1500 hour temporary position
1001	5980	44001		(7,711)	Increase labor reimbursement for temporary position from FY 2021 JAG Grant (Project: 700036)
TOTAL				-	

REVENUES/TRANSFERS IN

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
2270	4401	84001	700045	21,343	Establish revenue budget for FY 2022 JAG
TOTAL				21,343	

NET ADJUSTMENT	(21,343)
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FUND BALANCE

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
TOTAL				-	

Justification for Budget Adjustment:

The City of Roseville received an FY 2022 JAG award from the U.S. Department of Justice Office of Justice Programs totaling \$21,343. This award has a three-year grant period. In FY2022-23, this grant will partially fund a 1500-hour temporary Marketing Technician position to assist in coordinating crime prevention, marketing, and public education programs throughout the City. The total annual cost of this temporary position is \$26,565.

This recommended budget adjustment will appropriate the \$21,343 FY 2022 JAG award. It will also establish the budget for the temporary Marketing Technician position at \$26,565, utilizing \$18,854 of the FY2022 JAG and \$7,711 from a previous City Council-approved FY 2021 JAG Grant.

The remaining balance of the FY 2022 JAG grant will provide partial funding for the temporary position in FY2023-24. If the City is awarded an FY 2023 JAG Grant, these funds will be used to fund the remaining balance of this position. This position will be eliminated if the City doesn't receive future JAG awards.

REQUIRED APPROVALS:			
 REQUESTING DEPARTMENT HEAD / DESIGNEE	1/23/23 DATE	_____ BUDGET MANAGER / DESIGNEE	_____ DATE
_____ CHIEF FINANCIAL OFFICER / DESIGNEE	_____ DATE	_____ CITY MANAGER / DESIGNEE	_____ DATE
BUDGET DEPARTMENT USE ONLY:			
_____ POSTED BY	_____ DATE		

Revised: June 24, 2019



COUNCIL COMMUNICATION

CC #: 2525
File #: 0316-04

Title: Second Reading - 2022 Speed Limit Ordinance Update
Contact: Jana Cervantes 916-774-5498 jcervantes@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.14.

RECOMMENDATION TO COUNCIL

ORDINANCE NO. 6610 AMENDING SECTION 11.28.010 OF CHAPTER 11.28 OF TITLE 11 OF THE ROSEVILLE MUNICIPAL CODE REGARDING SPEED LIMITS, for second reading and adoption.

BACKGROUND

Not applicable.

FISCAL IMPACT

Not applicable.

ENVIRONMENTAL REVIEW

Not applicable.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal C - Maintain a safe and healthy community
Goal E - Deliver exceptional city services

Respectfully Submitted,

Jana Cervantes, Senior Engineer

Jason Shykowski, Public Works Director

A handwritten signature in blue ink, consisting of several overlapping loops and a final horizontal stroke.

Dominick Casey, City Manager

ATTACHMENTS:

Description

Ordinance 6610

ORDINANCE NO. 6610

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE AMENDING SECTION
11.28.010 OF CHAPTER 11.28 OF TITLE 11 OF THE ROSEVILLE MUNICIPAL CODE
REGARDING SPEED LIMITS

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. Section 11.28.010 of Chapter 11.28 of Title 11 of the Roseville Municipal Code is hereby amended to read as follows:

11.28.10 Change in speed limits set by state law.

Pursuant to authority contained in Sections 22357 and 22358 of the Vehicle Code, the city council determines upon the basis of an engineering and traffic survey that the prima facie speed limits set forth in this section would facilitate the orderly movement of vehicular traffic and would be reasonable and safe, except when passing school grounds, and it is determined that a speed limit greater than those hereinafter set forth would be more than is reasonable or safe. It is declared that the prima facie speed limits hereinafter set forth are established according to law:

1. Alexandra Drive:
 - a. Between East Roseville Parkway and Secret Ravine Parkway, 35 mph;
2. All-America City Boulevard:
 - a. Between Los Vegas Avenue and Washington Boulevard, 25 mph;
3. Angus Road:
 - a. Between Fiddyment Road and Casa Sedona Drive, 35 mph;
4. Antelope Creek Drive:
 - a. Between Galleria Boulevard and Creekside Ridge Drive, 30 mph,
 - b. Between Creekside Ridge Drive and end, 30 mph;
5. Atkinson Street:
 - a. Between Denio Loop and Church Street, 40 mph,
 - b. Between Denio Loop and PFE, 45 mph;
6. Atlantic Street:
 - a. Between Yosemite Street and Interstate 80, 40 mph;
7. Auburn Boulevard:
 - a. Between Riverside and city limits, 35 mph;

8. Automall Drive: 30 mph;
9. Baseline Road:
 - a. Between Foothills Boulevard and Fiddymment Road, 45 mph;
10. Berry Street:
 - a. Between 156 Berry Street and Galleria Boulevard, 35 mph;
11. Blue Oaks Boulevard:
 - a. Between Fiddymment Road and Eastern City Limits, 45 mph,
 - b. Between Fiddymment Road and Hayden Parkway, 50 mph;
 - c. Fiddymment Road and Westbrook Boulevard, 45 mph,
12. Bob Doyle Between Drive:
 - a. Between Kennerleigh Parkway and Hayden Parkway, 30 mph;
13. Brady Lane:
 - a. Between Vineyard Road and Baseline Road, 40 mph;
14. Brookstone Drive:
 - a. Between Westbrook Boulevard (N) and Westbrook Boulevard (S), 30 mph;
15. Casa Sedona Drive:
 - a. Between Angus Road and Crocker Ranch Road, 30 mph;
16. Central Park Drive:
 - a. Between Fairway Drive and Highland Park Drive, 25 mph;
17. Chase Drive:
 - a. Between Roseville Parkway and Heritage Drive, 30 mph;
18. Church Street:
 - a. Between Atkinson Street and Washington Boulevard, 35 mph;
19. Cirby Hills Drive:
 - a. Between Cirby Way and end, 30 mph;
20. Cirby Way:
 - a. Between Foothills Boulevard and Old Auburn Boulevard, 40 mph;
21. Commerce Drive:

- a. Vernon Street and Roseville Road, 35 mph;
- 22. Country Club Drive:
 - a. Between Baseline Road and Pleasant Grove Boulevard, 35 mph;
- 23. Crawford Parkway:
 - a. Between Schellhous Drive and Fiddymment Road, 35 mph;
 - b. Between North Hayden Boulevard to Schellhous Drive, 25 mph;
- 24. Creekside Ridge Drive:
 - a. Between Roseville Parkway and end, 25 mph;
- 25. Crimson Ridge Way:
 - a. Between Woodcreek Oaks Boulevard and Roseville Parkway, 30 mph;
- 26. Crocker Ranch Road:
 - a. Between Blue Oaks Boulevard and Opal Drive, 35 mph;
- 27. Del Webb Boulevard:
 - a. Between Fiddymment Road and Blue Oaks Boulevard, 35 mph;
- 28. Diamond Creek Boulevard:
 - a. Between Blue Oaks Boulevard and Parkside Way, 35 mph;
- 29. Douglas Boulevard:
 - a. Between Vernon Street and 1-80, 30 mph,
 - b. Between I-80 and Rocky Ridge, 35 mph,
 - c. Between Rocky Ridge Drive and Sierra College Boulevard, 45 mph;
- 30. Eastridge Drive:
 - a. Between Old Auburn Road and Weston Way, 30 mph;
- 31. East Roseville Parkway:
 - a. Between Taylor Road and Sierra College Boulevard, 45 mph,
 - b. Between Sierra College Boulevard and eastern City limits, 40 mph;
- 32. Estates Drive:
 - a. Between Folsom Road and Harding Boulevard, 25 mph;

33. Eureka Road:
 - a. Between Interstate 80 and Sierra College Boulevard, 40 mph;
34. Fairway Drive:
 - a. Between northern city limits and Stanford Ranch Road, 40 mph;
35. Fiddymment Road:
 - a. Between Pleasant Grove Boulevard and northern city limits, 45 mph,
 - b. Between Pleasant Grove Boulevard and Baseline Road, 50 mph;
36. Fidelity Way:
 - a. Between Blue Oaks Boulevard and Freedom Way, 30 mph;
37. Folsom Road:
 - a. Between Vernon Street and Douglas Boulevard, 25 mph;
38. Foothills Boulevard:
 - a. Between Cirby Way and Blue Oaks Boulevard, 45 mph,
 - b. Between Blue Oaks Boulevard and northern city limits, 40 mph;
39. Freedom Way:
 - a. Between Industrial Avenue and Washington Boulevard, 40 mph;
40. Galilee Road:
 - a. Between Pleasant Grove Boulevard and Industrial Avenue, 35 mph;
41. Galleria Boulevard:
 - a. Between Harding Boulevard and Roseville Parkway, 45 mph,
 - b. Between Roseville Parkway and SR-65, 40 mph;
42. Gibson Drive:
 - a. Between Roseville Parkway (E) and Roseville Parkway (W), 40 mph;
43. Hallissy Drive:
 - a. Between Washington Boulevard and Pleasant Grove Boulevard, 30 mph;
44. Harding Boulevard:
 - a. Between Douglas Boulevard and Estates Drive, 30 mph,

- b. Between Estates Drive and Lead Hill Boulevard, 35 mph,
 - c. Between Lead Hill Boulevard and Wills Road, 40 mph;
- 45. Hayden Parkway:
 - a. Between Fiddymment Road and Blue Oaks Boulevard, 35 mph;
- 46. Highland Park Drive:
 - a. Between Fairway Drive and Pleasant Grove Boulevard, 30 mph,
 - b. Between Pleasant Grove Boulevard and Stanford Ranch, 35 mph;
- 47. Hillsborough Drive:
 - a. Between East Roseville Parkway and Eureka Road, 35 mph;
- 48. Holt Parkway:
 - a. Between Fiddymment Road and North Hayden Parkway, 30mph;
- 49. Industrial Avenue:
 - a. Between Northern city limits and Washington Boulevard, 45 mph;
- 50. Junction Boulevard:
 - a. Between Baseline Road and Foothills Boulevard, 45 mph,
 - b. Between Foothills Boulevard and Washington Boulevard, 40 mph;
- 51. Kennerleigh Parkway:
 - a. Between Pleasant Grove Boulevard and Bob Doyle Drive, 35 mph;
- 52. Kemoy Lane:
 - a. Between Riverside Avenue and end, 25 mph;
- 53. Lead Hill Boulevard:
 - a. Between Harding Boulevard and North Sumise Avenue, 35 mph,
 - b. Between North Sunrise Avenue and East Roseville Parkway, 40 mph;
- 54. Main Street:
 - a. Between Foothills Boulevard and Porter Drive, 35 mph;
- 55. Market Street:
 - a. Between Pleasant Grove Boulevard and southerly end, 35 mph;

- 56. McAnally Drive:
 - a. Between Foothills Boulevard and Woodcreek Oaks Boulevard, 35 mph;
- 57. Melody Lane:
 - a. Between Cirby Way and West Whyte Avenue, 35 mph;
- 58. Miners Ravine Drive:
 - a. Between Sierra College Boulevard and Copperleaf Street, 30 mph;
- 59. Monument Drive:
 - a. Between Pleasant Grove Boulevard and Bob Doyle Drive, 30 mph;
- 60. New Meadow Drive:
 - a. Between Blue Oaks Boulevard and Parkside Way, 35 mph;
- 61. Niblick Drive:
 - a. Between Blue Oak Boulevard and end, 35 mph;
- 62. North Cirby Way:
 - a. Between Thistle Down Drive and East Roseville Parkway, 30 mph;
- 63. North Hayden Parkway:
 - a. Between Fiddymment Road and Hollis Way, 35 mph;
 - b. Between Hollis Way and Blue Oaks Boulevard, 35 mph;
- 64. Northpark Drive:
 - a. Between Woodcreek Oaks Boulevard and Parkside Drive, 30 mph;
- 65. North Sunrise Avenue:
 - a. Between Douglas Boulevard and Lead Hill Boulevard, 35 mph,
 - b. Between Lead Hill Boulevard and East Roseville Parkway, 40 mph;
- 66. Oak Crest Drive:
 - a. Between Alexandra Drive and Frensham Drive, 25 mph;
- 67. Old Auburn Road:
 - a. Between South Cirby and the easterly city limit line, 40 mph,
 - b. Between Sierra College Boulevard and East Roseville Parkway, 35 mph,
 - c. Between South Cirby and the southern city limit line, 35 mph;

- 68. Old Washington Blvd:
 - a. Between Atlantic Street and Republican Alley, 15 mph;
- 69. Olympus Drive:
 - a. Between Professional Drive and East Roseville Parkway, 30 mph,
 - b. Between East Roseville Parkway and Sierra College Boulevard, 40 mph;
- 70. Opal Drive:
 - a. Between Crocker Ranch Road and Parkside Way, 35 mph;
- 71. Opportunity Drive:
 - a. Vineyard Road and end, 30 mph;
- 72. Orchard View Road:
 - a. Between Blue Oaks Boulevard and Harcourt Way, 25 mph;
- 73. Orlando Avenue:
 - a. Between Cirby Way and Riverside Avenue/Auburn Boulevard, 40 mph;
- 74. Painted Desert Drive:
 - a. Between Prairie Woods and Woodcreek Oaks , 30 mph;
 - b. Between Woodcreek Oaks Boulevard and Roseville Parkway, 35 mph;
- 75. Parkhill Drive:
 - a. Between McLaren Drive and East Roseville Parkway, 35 mph;
- 76. Parkside Drive:
 - a. Between Opal Drive and Diamond Creek Boulevard, 35 mph,
 - b. Between Diamond Creek and McCloud Way, 25 mph,
 - c. Between McCloud Way and New Meadow Drive; 35 mph;
- 77. Park Regency Drive:
 - a. Between Hiawatha Drive and Junction Boulevard, 30 mph,
 - b. Between Junction Boulevard and Casterbridge Drive, 35 mph;
- 78. P.F.E. Road:
 - a. Between Atkinson Street and the western city limits, 45 mph;

79. Phillip Road:
 - a. Between Westpark Drive and end, 40 mph;
80. Pioneer Road:
 - a. Between Pleasant Grove Boulevard and Trehowell Drive, 30 mph;
81. Pleasant Grove Boulevard:
 - a. Between western city limits and Rocklin city limits, 45 mph;
82. Prairie Woods Way:
 - a. Between Blue Oaks and Painted Desert, 30 mph;
83. Professional Drive:
 - a. Between Rocky Ridge Drive and Olympus Drive, 30 mph;
84. Reserve Drive:
 - a. Between Diamond Oaks Road and Roseville Parkway, 25 mph,
 - b. Between Diamond Oaks Road and Berry Street, 35 mph
85. Riverside Avenue:
 - a. Between I-80 and Darling Way, 35 mph,
 - b. Between Darling Way and Douglas Boulevard, 25 mph;
86. Rocky Ridge Drive:
 - a. Between Cirby Way to Douglas Boulevard, 40 mph;
 - b. Between Douglas Boulevard and Eureka Road, 35 mph;
 - c. Between Eureka Road and East Roseville Parkway, 40 mph;
87. Roseville Parkway:
 - a. Between Washington Boulevard and Taylor Road, 45 mph;
 - b. Between Blue Oaks Boulevard and Foothills Boulevard, 35 mph;
88. Roseville Road:
 - a. Between Cirby Way and the southern city limits, 45 mph;
89. Santa Clara Drive:
 - a. Between Douglas Boulevard and Sierra Gardens Drive, 30 mph;

90. Scarborough Drive:
 - a. Between Secret Ravine Parkway and northern city limits, 35 mph;
91. Secret Ravine Parkway:
 - a. Between East Roseville Parkway and Sierra College Boulevard, 45 mph;
92. Schellhous Drive:
 - a. Between Holt Parkway and Cumberland Loop, 25 mph;
93. Sierra Boulevard:
 - a. Between Roseville Street and Alta Vista, 30 mph;
94. Sierra College Boulevard:
 - a. Between Olympus Drive and Old Auburn Road, 45 mph,
 - b. Between Olympus and city limits, 50 mph;
95. Sierra Gardens Drive:
 - a. Between Douglas Boulevard and North Sunrise Avenue, 30 mph;
96. South Cirby Way:
 - a. Between Rocky Ridge Drive and Old Auburn Road, 40 mph;
97. Stanford Ranch Road:
 - a. Between Highway 65 and northern city limits, 40 mph;
98. Stone Point Drive:
 - a. Between North Sunrise and Rocky Ridge Drive, 35 mph;
99. Sun City Boulevard:
 - a. Between Pleasant Grove Boulevard and Del Webb Boulevard, 35 mph;
100. Sunrise Avenue:
 - a. Between Douglas Boulevard and Cirby Way, 35 mph,
 - b. Between Cirby Way and city limits, 40 mph;
101. Taylor Road:
 - a. Between Eureka Road to East Roseville Parkway, 40 mph;

- b. East Roseville Parkway to City Limit, 45 mph;
- 102. Trehowell Drive:
 - a. Between Chase Drive and Pioneer Road, 30 mph;
- 103. Trestle Road:
 - a. Between Roseville Parkway and Hallissy Drive, 25 mph;
- 104. Vernon Street:
 - a. Between Folsom Road and Lincoln Street, 25 mph,
 - b. Between Lincoln Street and South Grant Street, 15 mph,
 - c. Between South Grant Street and Riverside Avenue, 25 mph,
 - d. Between Riverside Avenue and 6th Street, 35 mph,
 - e. Between 6th Street and Cirby Way, 40 mph;
 - f. Between Cirby Way and West Whyte Avenue, 25 mph,
- 105. Village Green Drive:
 - a. Between Fiddymment Road and Bob Doyle Drive, 35 mph;
- 106. Vineyard Road:
 - a. Between Atkinson Street and Brady Lane, 40 mph;
- 107. Vista Grande Boulevard:
 - a. Between Fiddymment Road and Market Street, 40 mph;
- 108. Washington Boulevard:
 - a. Between Oak Street and Elefa Street, 35 mph,
 - b. Between Elefa Street and Blue Oaks Boulevard, 45 mph;
- 109. Westbrook Boulevard:
 - a. Between Pleasant Grove Boulevard and Blue Oaks Boulevard, 40 mph;
- 110. Westhills Drive:
 - a. Between Fiddymment Road and Morningstar Drive, 35 mph;
- 111. Westpark Drive:
 - a. Between Blue Oaks Boulevard and 2420 feet south of Phillip Road, 40 mph;

- b. Between Bickleigh Loop and Bob Doyle Drive, 35mph;
- 112. Woodcreek Oaks Boulevard:
 - a. Between Baseline Road and Horncastle Avenue, 40 mph,
 - b. Between Horncastle Avenue and Blue Oaks Boulevard, 45 mph;
 - c. Between Blue Oaks Boulevard and northern city limits, 40 mph;
- 113. Yosemite Street:
 - a. Between Atlantic Street and Shasta Street, 25 mph.

SECTION 2. This ordinance shall be effective at the expiration of thirty (30) days from the date of adoption.

SECTION 3. The City Clerk is hereby directed to cause this ordinance to be published in full at least once within fourteen (14) days after it is adopted in a newspaper of general circulation in the City, or shall within fourteen (14) days after its adoption cause this ordinance to be posted in full in at least three (3) public places in the City and enter in the Ordinance Book a certificate stating the time and place of said publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville this _____ day of _____, 20____, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



COUNCIL COMMUNICATION

CC #: 2526
File #: 0800-03

Title: Second Reading - Advanced Metering Infrastructure - Roseville Municipal Code Amendment
Contact: Joanna Cucchi 916-746-1609 jcucchi@roseville.ca.us

Meeting Date: 2/1/2023
Item #: 7.15.

RECOMMENDATION TO COUNCIL

ORDINANCE NO. 6611 OF THE COUNCIL OF THE CITY OF ROSEVILLE
ADDING SECTION 14.24.053 TO CHAPTER 14.24 OF TITLE 14 OF THE
ROSEVILLE MUNICIPAL CODE REGARDING ELECTRICAL ENERGY, for second reading
and adoption.

BACKGROUND

Not applicable.

FISCAL IMPACT

Not applicable.

ENVIRONMENTAL REVIEW

Not applicable.

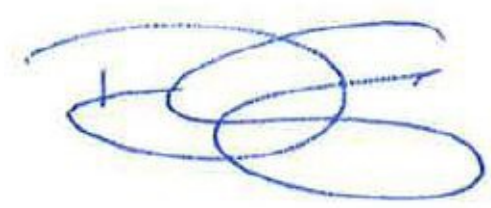
CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal E - Deliver exceptional city services

Respectfully Submitted,

Joanna Cucchi, Interim Electric Finance Administrator

Daniel Beans, Electric Utility Director

A handwritten signature in blue ink, consisting of several overlapping loops and a horizontal line, likely representing the name Daniel Beans.

Dominick Casey, City Manager

ATTACHMENTS:

Description

Ordinance 6611

ORDINANCE NO. 6611

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE ADDING
SECTION 14.24.053 TO CHAPTER 14.24 OF TITLE 14 OF THE ROSEVILLE
MUNICIPAL CODE REGARDING ELECTRICAL ENERGY

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. Section 14.24.053 of Chapter 14.24 of Title 14 of the Roseville Municipal Code is hereby added to read as follows:

14.24.053 Residential smart meter opt out.

- A. Purpose: The residential smart meter opt out rate is intended to provide an alternative metering option for single family residential customers who do not want a smart meter installed on their premise. Roseville Electric will install a non-communicating meter for opt-out customers that will be manually read monthly.
- B. Customers choosing to opt out of the smart meter program will be charged a one-time fee as adopted in the City of Roseville fee book and a monthly charge established below to recover the costs of manual meter reading and processing of their electric usage.
- C. Effective with the smart meter program implementation, customers choosing to opt out of the program will be charged \$15 per meter per month. For customers who participate in the senior citizen rate reduction, low-income rate reduction, and medical support rate reduction programs, the monthly opt-out rate will be \$7.50 per meter.
- D. Eligibility: in order to qualify to opt out of the smart meter program, the following conditions apply:
 - 1. Single family residences, which may include townhomes and condominiums that are individually metered, as well as duplexes and half-plexes, are eligible.
 - 2. Customers with a net metering rate (NM-1) are not eligible.
 - 3. Customers who have a history of meter tampering or unauthorized use of energy are not eligible.
 - 4. Customer opt out does not transfer to new service addresses. The customer will be required to opt-out and pay the one-time fee for each premise.
 - 5. Customers can opt-in at any time after opt-out. However, opt-out will no longer be available for that customer at their current residence. There are no costs associated with opt-in.

SECTION 2. This ordinance shall be effective at the expiration of thirty (30) days from the date of adoption.

SECTION 3. The City Clerk is hereby directed to cause this ordinance to be published in full at least once within fourteen (14) days after it is adopted in a newspaper of general circulation in the City, or shall within fourteen (14) days after its adoption cause this ordinance to be posted in full in at least three (3) public places in the City and enter in the Ordinance Book a certificate stating the time and place of said publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of _____, 2022, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



COUNCIL COMMUNICATION

CC #: 2516

File #: 0704 & 0201-01

Title: Royer Park Play Area Expansion Project - Award of Contract and Budget Adjustment
Contact: Heather Buck 916-774-5254 hcbuck@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 8.1.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt an ordinance to approve a budget adjustment to redirect \$128,000 from the Royer Park Maintenance Building Upgrades Project (500189) to the Royer Park Play Structure Replacement Project (500109).

Staff additionally recommends that the City Council award the project to the apparent low bidder, Sitewise Construction, Inc. for the Royer Park Play Area Expansion Project, authorize the City Manager to execute the agreement with Sitewise Construction, Inc. in the amount of \$216,600, and authorize staff to approve change order requests in an amount not to exceed 10% of the contracted amount.

BACKGROUND

The school-aged play structure at Royer Park has reached the end of its useful life. The structure is more than 24 years old. In July, Council approved award of a contract purchase agreement for the removal and replacement of the existing play structure with a destination level structure. This contract award is a subsequent phase focused on the construction of associated site improvements, including rubber surfacing for increased accessibility into and around the play area and an added shade structure, both of which were included in the project to address public outreach requests for a more accessible playground.

City Council approved the plans and specifications and authorized the call for bids at the July 20, 2022, meeting. Bids were opened on November 15, 2022, and staff received three bids for the project. The bid results are as follows:

Bidder	Total Lump Sum Bid
Sitewise Construction, Inc.	\$216,600
CO-T Construction	\$253,660.86
Saenz Landscape	\$268,299
Engineer's Estimate	\$202,730

FISCAL IMPACT

This project was approved in FY2020-21 using funds from the Parks, Recreation & Libraries Capital Fund. A budget adjustment is recommended to fund the Americans with Disabilities Act (ADA) access within the play area and a new shade structure, which were added to the project to address public outreach requests for a more accessible playground. The budget adjustment includes \$128,000 redirected from the Royer Park Maintenance Building Upgrades Project (500189) as the costs for the maintenance building upgrades came in under budget because the extent of the dry rot and roofing replacement options were not known at the time of budget development. The budget adjustment also includes allocation of \$177,952 from the Per Capita State Grant Program (Prop 68) for a total project budget of \$728,952.

Ongoing maintenance costs are anticipated to remain the same and are already included in the Parks, Recreation & Libraries operations budget in the General Fund.

ENVIRONMENTAL REVIEW

The proposed project involves the replacement of existing structures and facilities. This activity is categorically exempt from CEQA as a Class 2 Exemption (State CEQA Guidelines Section 15302). The Exemption has been prepared and no further CEQA action is required.

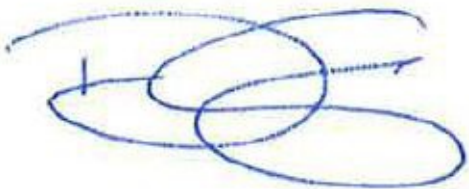
CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal A - Remain fiscally responsible in a changing world
Goal B - Support community engagement and advocacy
Goal C - Maintain a safe and healthy community
Goal E - Deliver exceptional city services
Goal F - Invest in well-planned infrastructure and growth

Respectfully Submitted,

Heather Buck, Park Development Project Manager

Jill Geller, Director, Parks, Recreation & Libraries



Dominick Casey, City Manager

ATTACHMENTS:

Description

Vicinity Map

Resolution 23-043

Agreement

Ordinance 6608

Budget Adjustment

Royer Park Playground Replacement Project Vicinity Map



RESOLUTION NO. 23-043

APPROVING AN AGREEMENT, BY AND BETWEEN THE CITY OF ROSEVILLE AND
SITEWISE CONSTRUCTION, INC., AND AUTHORIZING THE CITY MANAGER TO
EXECUTE IT ON BEHALF OF THE CITY OF ROSEVILLE

WHEREAS, an Agreement for the Royer Park Play Area Expansion project, by and
between the City of Roseville and Sitewise Construction, Inc., has been reviewed by the City
Council; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville that
said Agreement is hereby approved and that the City Manager is authorized to execute it on
behalf of the City of Roseville.

BE IT FURTHER RESOLVED that the City Manager or his designee is authorized to
approve change orders for the project, consistent with the contract terms, provided that the net
cost of all change orders shall not exceed ten percent (10%) of the contract price.

PASSED AND ADOPTED by the Council of the City of Roseville this ____ day of
_____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk

A G R E E M E N T

THIS AGREEMENT, is made and entered into this _____ day of _____, 20____, by and between the City of Roseville, a municipal corporation, ("CITY"), and Sitewise Construction, Inc. _____, a California Corporation _____, ("CONTRACTOR"); and

W I T N E S S E T H:

WHEREAS, the City Council of the CITY, at a meeting held on the 20th day of July, 2022, approved plans and specifications for the Royer Park Play Area Expansion Project

and directed the City Clerk to advertise for sealed proposals for doing said work and providing that bids be submitted on the 15th day of November, 2022; and

WHEREAS, the City Clerk, thereafter duly and regularly caused a notice to be published in the manner and for the time prescribed by law; and

WHEREAS, CONTRACTOR, pursuant to the provisions of said notice duly filed a bid with the City Clerk, a true copy of which bid is now on file in the office of the City Clerk, and is hereby referred to and by this reference made a part hereof as fully as if set forth at length herein; and

WHEREAS, all bids received pursuant to said notice were opened and examined and publicly declared at the time specified in said advertisement for bids and at a meeting of the City Council held on the _____ day of _____, 20____, the Council found and

declared the bid of CONTRACTOR to be the lowest responsible bid and thereupon awarded a contract to CONTRACTOR to do the work referred to in the aforementioned specifications.

NOW, THEREFORE, the parties agree as follows:

1. THE WORK. CONTRACTOR agrees:

a. To do the work and furnish all the labor, materials, tools, supplies, equipment, superintendence, insurance, and bonds required for the Royer Park Play Area Expansion Project

in accordance with the Contract Documents (the Work).

b. To do and perform the Work contemplated hereby in a good and workmanlike manner under the direction of and to the satisfaction of the Director of Public Works of the City of Roseville.

2. PAYMENT. CITY shall pay CONTRACTOR two hundred sixteen thousand six hundred ----- dollars (\$ 216,600.00) for the Work to be done under this Agreement in accordance with the Contract Documents.

3. CONTRACT DOCUMENTS. The complete Agreement between the parties hereto consists of the following documents:

- a. The advertisement for bids (including the notice to bidders, instructions to bidders and proposals);
- b. The accepted bid;
- c. Plans and specifications (including standard construction specifications, special provisions and construction details);
- d. Bonds and insurance required by the specifications; and

e. This contract.

All documents specified above are intended to operate so that any work called for in any one and not mentioned in the other, or vice versa, is to be executed the same as if mentioned in all said documents.

4. LIQUIDATED DAMAGES. In the event CONTRACTOR does not complete the Work within the time specified, CONTRACTOR agrees that CITY will suffer damages. Inasmuch as the actual damages which would result from such breach by CONTRACTOR under this Agreement are uncertain, and would be impractical or extremely difficult to fix, CONTRACTOR agrees that it shall pay, or CITY shall deduct from CONTRACTOR's fee, the amount of \$ 800 per day as liquidated damages, in the event of such delay.

5. TIME OF COMPLETION. Time is of the essence of this Agreement. CONTRACTOR shall complete all Work under the Contract Documents within 50 Days of the date of this Contract. CONTRACTOR shall begin work by the date specified in the "Notice to Proceed" letter and shall diligently prosecute all of the Work under this Contract in all parts and requirements as defined in the Contract Documents.

6. SERVICE OF NOTICE. Any notice required or permitted to be given under this Agreement shall be deemed given when (a) personally delivered to the recipient identified below; (b) mailed by registered or certified mail, return receipt requested, postage pre-paid, to the address specified below; or (c) sent by facsimile, with confirmation of receipt, to the facsimile number identified below.

CITY OF ROSEVILLE

Jill Geller

Parks, Recreation & Libraries Director

316 Vernon Street, Suite 400

Roseville, CA 95678

Fax: 916-774-5251

CONTRACTOR

Sam Varner
SideWise Construction Inc
8613 Fair Way
Roseville CA 95661

CITY may also act through either its architect or construction manager if CITY expressly gives notice to CONTRACTOR, in writing, that CITY's designee has authority to act for CITY in a specific capacity.

7. DISPUTES. Disputes arising from this Agreement will be determined in accordance with the Contract Documents and Public Contract Code Sections 10240-10240.13.

8. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

9. INDEPENDENT CONTRACTOR. CONTRACTOR shall act as an independent contractor, and covenants and agrees that it will conduct itself consistent with such status, that it will neither hold itself out as, nor claim to be, an officer or employee of CITY by reason of this Agreement.

10. SUCCESSORS IN INTEREST. This Agreement shall be binding upon the heirs, successors, executors, administrators and assigns of the respective parties hereto.

11. MODIFICATION. This Agreement and each provision contained herein may be waived, amended, supplemented or eliminated only by mutual written agreement of the parties.

12. SEVERABILITY. If any of the provisions contained in this Agreement are for any reason held invalid or unenforceable, such holding shall not affect the remaining provisions or the validity and enforceability of the Agreement as a whole.

13. INTEGRATED AGREEMENT. This is an integrated agreement and contains all of the terms, considerations, understanding and promises of the parties. It shall be read as a whole.

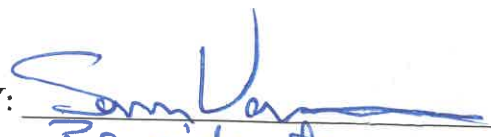
14. CONTRACTORS LICENSE LAW. CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE BOARD WHICH HAS JURISDICTION TO INVESTIGATE COMPLAINTS AGAINST CONTRACTORS IF A COMPLAINT REGARDING A PATENT ACT OR OMISSION IS FILED WITHIN FOUR (4) YEARS OF THE DATE OF THE ALLEGED VIOLATION. A COMPLAINT REGARDING A LATENT ACT OR OMISISON PERTAINING TO STRUCUTRAL DEFECTS MUST BE FILED WITHIN TEN (10) YEARS OF THE DATE OF THE ALLEGED VIOLATION. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR, CONTRACTORS' STATE LICENSE BOARD, P.O. BOX 26000, SACRAMENTO, CALIFORNIA 95826.

IN WITNESS WHEREOF, the City of Roseville, a municipal corporation, has authorized the execution of this Agreement in duplicate by its City Manager and attestation by its City Clerk under authority of Resolution No. _____, adopted by the Council of the City of Roseville on the ____ day of _____, 20____, and CONTRACTOR has caused this Agreement to be duly executed.

CITY OF ROSEVILLE, a
municipal corporation

BY: _____
DOMINICK CASEY
City Manager

Sitwise Construction, Inc. _____, a
California Corporation

BY: 
its: President

and

ATTEST:

BY: _____
its: _____

BY: _____
CARMEN AVALOS
City Clerk

APPROVED AS TO FORM:

BY: _____
MICHELLE SHEIDENBERGER
City Attorney

APPROVED AS TO SUBSTANCE:

BY:  _____

Print Name: JILL GELLER _____

Title: Parks, Recreation & Libraries Director _____

ORDINANCE NO. 6608

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE
AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23
BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY
EFFECTIVE AS AN APPROPRIATION MEASURE

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. The City of Roseville Annual Budget, Fiscal Year 2022-23, is hereby amended as listed on the attached budget adjustment for the Royer Park Play Area Expansion Project.

SECTION 2. This ordinance is hereby declared to be an appropriation measure, immediately effective pursuant to the provisions of Section 5.03 of the Charter.

SECTION 3. The City Clerk is hereby authorized and directed to post a true copy of the foregoing ordinance in each of three (3) conspicuous locations in the City and she shall immediately after such posting enter in the ordinance book, under the record of the ordinance, a certificate under her hand stating the time and place of such publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville, this _____
day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



REQUEST FOR BUDGET ADJUSTMENT

REQUESTER NAME & TITLE: Tara Gee, Park Planning & Development Manager FISCAL YEAR: 2022-23
 PREPARER NAME & TITLE: Rendi Hodge, Management Analyst COUNCIL DATE (if applicable): 2/1/2023
 DEPARTMENT/DIVISION: Parks, Recreation & Libraries/Park Development ORDINANCE: _____

EXPENDITURES/EXPENSES/TRANSFERS OUT

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
3130	6587	84001	500109	128,000	Increase to the expenditures for the Royer Park Play Structure project
3130	5433	84001	500189	(128,000)	Decrease the Royer Park Maintenance Building Upgrade project to redirect to Royer Park Play Structure project
3130	6587	84001	500109	177,952	Allocate budget from the Per Capita State Grant Program (Prop 68) to project
TOTAL				177,952	

REVENUES/TRANSFERS IN

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
3130	4410	84001	500109	177,952	Revenue from Per Capita State Grant Program (Prop 68)
TOTAL				177,952	

NET ADJUSTMENT	-
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FUND BALANCE

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
TOTAL				-	

Justification for Budget Adjustment:

The Parks, Recreation & Libraries Department is requesting a budget adjustment to fund the ADA access within the play area and a new shade structure, which were added to the project to address public outreach requests for a more accessible playground (greater access than normal). The budget adjustment includes \$128,000 redirected from the Royer Park Maintenance Building Upgrades Project (500189) as the costs for the maintenance building upgrades came in under budget because the extent of the dry rot and roofing replacement options were not known at the time of budget development. The budget adjustment also includes allocation of \$177,952 from the Per Capita State Grant Program (Prop 68) for a total project budget of \$728,952. This request does not impact the fund balance in the Parks, Recreation & Libraries Capital Projects Fund (3130).

REQUIRED APPROVALS:			
 REQUESTING DEPARTMENT HEAD / DESIGNEE		1/6/2023 DATE	
		BUDGET MANAGER / DESIGNEE DATE	
CHIEF FINANCIAL OFFICER / DESIGNEE DATE		CITY MANAGER / DESIGNEE DATE	
BUDGET DEPARTMENT USE ONLY:			
POSTED BY DATE			

Revised: June 24, 2019



COUNCIL COMMUNICATION

CC #: 2511

File #: 0800-02 & 0201-01

Title: Cash for Grass Program - Budget Adjustment

Contact: Bobby Alvarez 916-746-1710 balvarez@roseville.ca.us

Meeting Date: 2/1/2023

Item #: 8.2.

RECOMMENDATION TO COUNCIL

Staff recommends that the City Council adopt an ordinance to approve a budget adjustment in the amount of \$200,000 for the Cash for Grass Program rebates.

BACKGROUND

The Environmental Utilities (EU) Department, through its Water Efficiency Section, is responsible for proactive and efficient water resources planning as well as the implementation of water demand reduction activities where necessary to meet state water efficiency mandates. In addition, and most importantly, when drought conditions result in actual water supply shortages, EU's Water Efficiency Section work with the public to reduce water demand and navigate through the shortage period.

Senate Bill 606 and Assembly Bill 1668, require urban retail water suppliers to calculate an urban water use objective, in addition to long-term standards for efficient use of water. Included in these standards are water use targets for outdoor irrigation for both residential and commercial parcels.

One of the key areas to reduce outdoor water use is through incentivizing the replacement of landscaping turf that has higher water demand through the City's Cash for Grass rebate program. Since inception, Roseville customers have removed in excess of 2.4 million square feet of turf with an estimated future water savings of 83.7 million gallons annually after plant establishment period.

FY2022-23 has seen record-setting participation in the City's Cash for Grass Program by our customers, a positive sign of future water savings. As a result of high demand for our Cash for Grass rebate program, customer requests have exhausted budgeted funding within the first two months of FY2022-23. In order to continue to meet demand for the Cash for Grass Program, a waiting list was developed to ensure that customer requests could be tracked until additional funding was secured.

Staff recommends that City Council approve the \$200,000 budget adjustment to allow staff to provide those water customers currently on the Cash for Grass waiting list to participate in the

program. No additional water customers will be added to the waiting list. For FY2023-24, if the City Council funds the Cash for Grass Program, access to Cash for Grass Rebates will be provided on a “first come, first served basis” and no waiting list will be maintained.

FISCAL IMPACT

The Cash for Grass Program is funded through the Water Efficiency operating budget in the Water Operations Fund. This recommended \$200,000 increase for program rebates will come from the available resources in the Water Operations Fund.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to activities that will not result in a direct or reasonably foreseeable indirect physical change in the environment, or is otherwise not considered a project as defined by CEQA Statute §21065 and CEQA Guidelines §15060(c)(3) and §15378. Approval of a budget adjustment meets the above criteria and is not subject to CEQA. No additional environmental review is required.

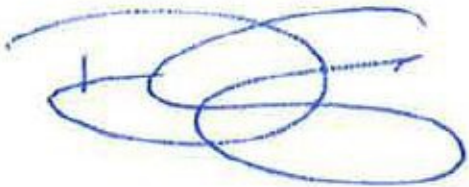
CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

Goal B - Support community engagement and advocacy
Goal E - Deliver exceptional city services

Respectfully Submitted,

Bobby Alvarez, Water Conservation Administrator

Richard Plecker, Environmental Utilities Director



Dominick Casey, City Manager

ATTACHMENTS:

Description

Ordinance 6606

Budget Adjustment

ORDINANCE NO. 6606

ORDINANCE OF THE COUNCIL OF THE CITY OF ROSEVILLE
AUTHORIZING CERTAIN AMENDMENTS TO THE FISCAL YEAR 2022-23
BUDGET AND DECLARING THIS ORDINANCE TO BE IMMEDIATELY
EFFECTIVE AS AN APPROPRIATION MEASURE

THE CITY OF ROSEVILLE ORDAINS:

SECTION 1. The City of Roseville Annual Budget, Fiscal Year 2022-23, is hereby amended as listed on the attached budget adjustment for the Cash for Grass Program.

SECTION 2. This ordinance is hereby declared to be an appropriation measure, immediately effective pursuant to the provisions of Section 5.03 of the Charter.

SECTION 3. The City Clerk is hereby authorized and directed to post a true copy of the foregoing ordinance in each of three (3) conspicuous locations in the City and she shall immediately after such posting enter in the ordinance book, under the record of the ordinance, a certificate under her hand stating the time and place of such publication by posting.

PASSED AND ADOPTED by the Council of the City of Roseville, this _____ day of _____, 2023, by the following vote on roll call:

AYES COUNCILMEMBERS:

NOES COUNCILMEMBERS:

ABSENT COUNCILMEMBERS:

MAYOR

ATTEST:

City Clerk



REQUEST FOR BUDGET ADJUSTMENT

REQUESTER NAME & TITLE: Bobby Alvarez, Water Conservation Supervisor FISCAL YEAR: 2023
 PREPARER NAME & TITLE: Lisa Saunders, EU Business Analyst COUNCIL DATE (if applicable): 2/1/2023
 DEPARTMENT/DIVISION: EU/Water ORDINANCE: _____

EXPENDITURES/EXPENSES/TRANSFERS OUT

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
6101	5265	74120	000000	200,000	Increase expense budget for program rebates (Water's "Cash for Grass" program)
TOTAL				200,000	

REVENUES/TRANSFERS IN

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
TOTAL				-	

NET ADJUSTMENT	200,000
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FUND BALANCE

ACCOUNT STRING				BUDGET (\$)	DESCRIPTION
Fund	Account	Center	Project	Adjustment	
6101				(200,000)	Decrease available resources in the Water Operations Fund
TOTAL				(200,000)	

Justification for Budget Adjustment:

The Water Utility's Cash for Grass (CFG) program, in which EU provides rebates to customers for turf replacement to reduce landscape water usage, has seen record-setting participation recently. This program was budgeted at \$309,000 in FY23 but due to high demand with more than fifty customers on the waiting list, has a remaining balance of just less than 11,000. The Water Utility requests increasing this program's budget by \$200,000 for the rest of the fiscal year using the available resources in the Water Operations Fund. This current wait list represents an estimated 74.5k square feet of turf to be removed and 2.6 million gallons of water saved annually.

REQUIRED APPROVALS:			
 REQUESTING DEPARTMENT HEAD / DESIGNEE		2/10/23 DATE	
		BUDGET MANAGER / DESIGNEE DATE	
CHIEF FINANCIAL OFFICER / DESIGNEE DATE		CITY MANAGER / DESIGNEE DATE	
BUDGET DEPARTMENT USE ONLY:			
POSTED BY DATE			

Revised: June 24, 2019