

***SPECIFICATIONS
AND
CONTRACT DOCUMENTS FOR THE***

***2025 PIONEER TRAIL WATERLINE PROJECT (REBID)
(PTRLWL)***



***SOUTH TAHOE PUBLIC UTILITY DISTRICT
SOUTH LAKE TAHOE, CALIFORNIA***

May 8, 2026

THIS PAGE LEFT INTENTIONALLY BLANK.

SOUTH TAHOE PUBLIC UTILITY DISTRICT

2026 PIONEER TRAIL WATERLINE PROJECT (REBID)

Volume 1 of 3 – Contract Documents & Specifications

TABLE OF CONTENTS

<u>SUBJECT MATTER</u>	<u>PAGE</u>
Division 00 – Procurement and Contracting Requirements	
00 10 00 Invitation to Bid	00 10 00-1
00 20 00 Instructions to Bidders	00 20 00-1
00 30 00 Information Available to Bidders	00 30 00-1
00 41 00 Bid Forms	00 41 00-1
Description of Bid Items	00 41 00-30
Bid Form with Bid Items	00 41 00-39
00 52 00 Contract	00 52 00-1
00 61 00 Bond Forms	00 61 00-1
00 71 00 Contracting Definitions	00 71 00-1
00 72 00 General Conditions	00 72 00-1
00 73 00 Supplementary Conditions	00 73 00-1
Exhibit A – Grant Conditions	
Exhibit B – Labor Requirements	
Exhibit C – Grant Forms	
Division 01 – General Project Requirements	
01 10 00 General Project Requirements	01 10 00-1
01 20 00 Price and Payment Procedures	01 20 00-1
01 31 00 Project Management and Coordination	01 31 00-1

01 32 00	Construction Progress Documentation	01 32 00-1
01 32 20	Web-based Construction Document Management	01 32 20-1
01 33 00	Submittals Process	01 33 00-1
01 35 00	Special Procedures	01 35 00-1
01 41 00	Regulatory Requirements	01 41 00-1
01 42 00	References	01 42 00-1
01 43 00	Quality Assurance	01 43 00-1
01 50 00	Temporary Facilities and Controls	01 50 00-1
01 60 00	Product Requirements	01 60 00-1
01 73 00	Project Execution	01 73 00-1
01 77 00	Closeout Requirements	01 77 00-1

Division 02 – Existing Conditions

02 41 00	Demolition	02 41 00-1

Division 03 – Concrete

03 01 30	Concrete Repair Mortar	03 01 30-1
03 10 00	Concrete Forming and Accessories	03 10 00-1
03 15 00	Concrete Bonding Adhesive	03 15 00-1
03 20 00	Concrete Reinforcing	03 20 00-1
03 30 00	Cast-in-Place Concrete	03 30 00-1
03 62 00	Non-Shrink Grout	03 62 00-1

Division 26 – Electrical

26 05 00	General Electrical Work	26 05 00-1

26 05 19	Wires and Cables	26 05 19-1
26 05 26	Grounding and Bonding	26 05 26-1
26 05 33	Raceways and Boxes	26 05 33-1
26 23 00	Mini Power Center	26 23 00-1
26 24 16	Panelboards	26 24 16-1
26 27 26	Wiring Devices	26 27 26-1
26 29 00	Low-Voltage Controllers	26 29 00-1

Division 31 – Earthwork

31 20 00	Earthwork	31 20 00-1
31 23 16.26	Rock Excavation	31 23 16.26-1
31 23 19	Dewatering	31 23 19-1
31 25 13	Erosion Control	31 25 13-1

Division 32 – Exterior Improvements

32 12 16	Asphaltic Paving	32 12 16
32 94 00	Revegetation	32 94 00

Division 33 – Utilities

33 05 63	Precast Concrete Vaults	33 05 63-1
33 11 13	Water Piping	33 11 13-1
33 12 13	Water Service Connection	33 12 13-1
33 13 00	Waterline Pipeline Testing and Disinfection	33 13 00-1

33 14 16	Water Distribution Valves	33 14 16-1
33 14 18	Common Work Results for Valves	33 14 18-1
33 14 19	Fire Hydrants	33 14 19-1
33 14 20	Pressure Reducing Valves	33 14 20-1

Volume 2 of 3 - Appendices

1. Project Stormwater Pollution Prevention Plan, Lumos and Associates
2. TRPA – Signed Project Permit
3. USFS Special Use Permit Amendment - Signed
4. USFS Decision Memo - Executed
5. USFS Resource Protection Measures
6. 2026 Right of Way Encroachment Permit
7. Geotechnical Report, CME

Volume 3 of 3 – Project Plans

1. 2026 Pioneer Trail Waterline Project (Rebid) Plans

DIVISION 00

THIS PAGE LEFT INTENTIONALLY BLANK

THIS PAGE LEFT INTENTIONALLY BLANK

**SECTION 00 10 00
SOLICITATION**

INVITATION TO BID

The South Tahoe Public Utility District (STPUD or District) invites sealed bids by electronic submission only for the construction of the **2026 Pioneer Trail Waterline Project (Rebid)** ("Project").

Electronic Bids will be received until 2:00 PM, June 9, 2026. Hard copy original Bid Bond (or other acceptable form of bid security) MUST be delivered to District in advance of the Bid deadline. Bids submitted after this time will not be accepted by the electronic bidding system. All bids that have been timely received will be publicly opened and the content read aloud at the STPUD offices, Conference Room 1, located at 1275 Meadow Crest Drive, South Lake Tahoe, California. All interested parties are invited to attend. Bids shall be valid for 60 calendar days after the bid opening date, as required in the Bid Form.

The site of the work is located within an unincorporated area of El Dorado, CA within the Lake Tahoe Basin along Pioneer Trail between Marshall Trail and Susquehana Drive within El Dorado Count right-of-way and on US Forest Service lands via special use permit.

The work to be performed consists of: the installation of approximately 8700 linear feet of 16-inch diameter Class 250 ductile iron waterline pipe, and an additional 500 linear feet of 12-inch and 8-inch diameter pipe, three pressure reducing valve stations, 12 hydrants, completion of five interties, 48,000 square feet of paving, temporary traffic control and stormwater pollution prevention plan compliance measures.

A copy of the Contract Documents are on file and may be viewed electronically at the South Tahoe Public Utility District Offices, 1275 Meadow Crest Drive, South Lake Tahoe, California.

In order to download the Contract Documents and receive addendums and notifications when issued, Bidders must register as a vendor at the District's Vendor Portal:

<http://www.planetbids.com/portal/portal.cfm?CompanyID=21516>

Electronic bids will also be submitted through this website. Paper bids will not be accepted.

Contract Documents are available for free download on the District's Vendor Portal. For assistance in downloading these documents or registering as a vendor contact Star Glaze, Contracts Administrator at (530) 543-6205.

All bids are to be submitted electronically as required in Section 00 20 00 Instructions for Procurement. **Paper bids will NOT be accepted. Hard copy original Bid Bond must be delivered to the District in advance of the bid deadline.** After electronic bidding, each bidder shall submit their original Bid and Grant Forms to South Tahoe Public Utility District at 1275 Meadow Crest Drive, South Lake Tahoe, California by **2:00 PM on June 11, 2026**.

Questions or comments regarding this Project must be submitted electronically via our electronic bidding system and must be received by the District no later than **June 2, 2026 at 2:00 PM.**

Questions received after the date indicated will not be accepted. Questions submitted via telephone call, email or faxes will not be accepted. Responses from the District will be communicated via the electronic bidding system.

A mandatory Pre-Bid Conference will be held at the South Tahoe Public Utility District, Board Room, 1275 Meadow Crest Drive, South Lake Tahoe, California on May 20, 2026 PM. Any bidder absent from the Pre-Bid Conference shall have their bid disqualified as non-responsive. A tour of the site of work will be conducted as part of the Pre-Bid Conference.

The project is being funded, in part, by a grant from the EPA's Community Grants Program, a grant from the USDA Forest Service under the authority of the Lake Tahoe Restoration Act, and a California Drinking Water State Revolving Fund Loan. The Contractor will be required to comply with State and federal contract rules and regulations including requirements for Disadvantaged Business Enterprise (DBE) and American Iron and Steel (AIS) as detailed in Section 00 73 00, Supplementary Conditions. The prime contractor is required to provide documentation that the local U.S. Small Business Administration (SBA) and/or the Minority Business Development Agency (MBDA) of the U.S. Department of Commerce were notified of the contracting opportunity, when possible, at least thirty (30) calendar days prior to the bid opening date. **A bid will be considered non-responsive unless it includes the forms required in Section 00 20 00 Instructions to Bidders and Section 00 73 00 Supplementary Conditions to be completed and submitted with the Bid.**

In accordance with the provisions of California Public Contract Code section 3300, the South Tahoe Public Utility District has determined that bidders shall possess a valid class A contractor license at the time of bid opening, the Contract is awarded and for the duration of the Contract. Failure to possess the specified license shall render the bid as non-responsive and shall act as a bar to awarding the contract to any bidder not possessing said license at the time of award.

This project is subject to prevailing wage requirements. As a federally-funded project, the work is subject to both California labor standards and federal labor standards including the Davis-Bacon Act (40 USC 3142). Pursuant to Labor Code section 1773, the District has obtained the prevailing rate of per diem wages and the prevailing rate for holiday and overtime work in the locality in which the work will be performed for each craft, classification, or type of worker needed. The **higher** of either state of California or federal prevailing wages must be paid. The prevailing wages for the work are on file at the District's office. The federal prevailing wages for this project are included as an attachment to the bid documents.

This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. No bid will be accepted nor any contract entered into without proof of the Bidder's and its subcontractors' current registration with the Department of Industrial Relations to perform public work. Bidder shall certify that Bidder and all listed subcontractors are currently and validly registered with the Department of Industrial Relations and shall include its registration number on its bid. If awarded a Contract, the Bidder and its subcontractors of every tier shall maintain active registration with the Department of Industrial Relations for the duration of the Project. It shall be the Bidder's sole responsibility to evaluate and include the cost of complying with all labor compliance requirements.

The California Air Resources Board ("CARB") implemented amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulations ("Regulation") which are effective on January 1, 2024 and apply

broadly to all self-propelled off road diesel vehicles 25 horsepower or greater and other forms of equipment used in California. A copy of the Regulation is available at <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-road-diesel/appa-1.pdf>. Bidders are required to comply with all CARB and Regulation requirements, including, without limitation, all applicable sections of the Regulation, as codified in Title 13 of the California Code of Regulations section 2449 et seq. throughout the duration of the Project. **Bidders must provide, with their Bid, a completed and signed copy of the Fleet Compliance Certification included in Section 00 41 00 Bid Forms.** At the District's request, within 48 hours after the Bid Opening, Bidder must submit copies of Bidder's and all listed subcontractors' most recent, valid Certificate of Reported Compliance ("CRC") issued by CARB. Failure to provide valid CRCs as required herein may render the Bid non-responsive.

Notice is hereby given that the project is subject to federal requirements for Equal Employment Opportunity, set forth in 41 CFR Part 60 and defined in Section 00 74 00 of these Specifications, including the "Equal Opportunity Clause" and Standard Federal Equal Employment Specifications".

Pursuant to the provisions in Section 6707 of the California Labor Code, each Bid submitted in response to this Invitation to Bid shall contain adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life and limb in trenches and open excavation, which shall conform to applicable safety orders for the State of California.

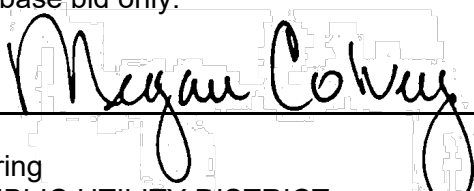
Pursuant to Section 22300 of the California Public Contract Code, the successful bidder may substitute securities for any moneys withheld by the District to ensure performance under the Contract as specified in Section 00 20 00.

Each bid shall be accompanied by cash, a certified or cashier's check, or bid bond secured from a surety company satisfactory to the District, the amount of which shall not be less than ten percent (10%) of the submitted bid price or as detailed in Section 00 20 00, Bid Security, Part 2.05, made payable to the South Tahoe Public Utility District as bid security.

The successful bidder will be required to furnish the District with a faithful performance bond and a labor and material payment bond each in an amount equal to 100% of the Contract Price, prior to execution of the Contract. All bonds are to be in the forms set forth herein, secured from a surety that meets all of the State of California bonding requirements, as defined in Code of Civil Procedure Section 995.120, and that is a California admitted surety insurer.

Pursuant to Public Contract Code §3400(b), if the District has made any findings designating certain materials products, things, or services by specific brand or trade name without alternative, such findings and the materials, products, things, or services and their specific brand or trade names will be set forth in Section 01 60 00, Product Requirements, of the Contract Documents.

The South Tahoe Public Utility District reserves the right to reject any or all bids, to waive any informality in a bid, and to make awards to the lowest responsive, responsible bidder in the best interest of the District. If alternate bid items are called for in the Contract Documents, the lowest bid will be determined on the basis of the base bid only.


Megan Colvey, P.E.
Director of Engineering
SOUTH TAHOE PUBLIC UTILITY DISTRICT

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 00 20 00
INSTRUCTIONS FOR PROCUREMENT

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Conditions affecting award of Contract and procedures with which bidders and proposers must comply.

1.02 DEFINITIONS

- A. Terms used in these Instructions to Bidders and defined in Section 00 71 00, Contracting Definitions, shall have the meaning stipulated in such Section 00 71 00, Contracting Definitions.
- B. The electronic Bid Schedule consists of the table in the “Line Items” tab for the project on the electronic bidding system.
- C. The following additional terms used in these Instructions to Bidders shall have the meaning stipulated:
 - 1. Award: The formal acceptance of the Bid and other executed Bid Forms by the District.
 - 2. Bid: The price proposed by Bidder in the appropriate electronic Bid Schedule, completed on the electronic bidding system, for performance of the Work.
 - 3. Bidder: A person, firm, or corporation who having purchased a set of Contract Documents intends to submit a Bid and other Bid Forms to the District, or one who submits a Bid and other executed Bid Forms to the District.
 - 4. Successful Bidder: The Bidder to whom the District makes the award of the Contract for performance of the Work.

PART 2 PROCEDURES

2.01 EXAMINATION OF DOCUMENTS, SITE AND CONDITIONS

- A. Before submitting a Bid, Bidders shall carefully examine and be thoroughly familiar with the Contract Documents, visit the site of work, fully inform themselves as to all existing conditions and limitations, review those documents identified in Section 00 30 00, Information Available to Bidders, and shall include sums in the bid covering the cost of each item included in the Contract.
- B. Only the Contract Documents shall be relied upon for execution of Bids and other Bid Forms.
 - 1. Unless corroborated by the Contract Documents, statements or representations regarding the Work made prior, during, or after bidding by the District, Design Engineer, or Engineer will not be binding and shall not be considered by Bidders for preparation of Bids.

2. The District, Design Engineer, and Engineer will not be responsible for explanations or interpretations of the Contract Documents other than those issued by Addenda.
- C. Complete sets of Contract Documents shall be used by Bidders (and their respective subcontractors) to prepare Bids.
1. The District, Design Engineer, and Engineer assume no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.
- D. Submission of a Bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of Contract Documents. The failure or neglect of a Bidder to make such examinations shall in no way relieve the Bidder from any obligations with respect to its bid or to the Contract Documents. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any provision of the Contract Documents.

2.02 PRE-BID CONFERENCE

- A. Time and Place: A mandatory pre-bid conference will be held at the time and place specified in the Section 00 10 00, Solicitation – Invitation to Bid.

2.03 ELECTRONIC BIDDING

- A. Plans and specifications may be obtained by visiting the District's website at <http://www.planetbids.com/portal/portal.cfm?CompanyID=21516> which can be reached by selecting "NOTICE INVITING BIDS (PlanetBid-Portal)" on the STPUD website <https://www.stpud.us/current-bids>. Prime Bidders are advised that proposed subcontractors should obtain their own sets of Contract Documents from the District website so that they will be placed on the District's email list for addenda. The District will not be responsible for sending addenda to any person not listed on the prospective bidder list.
- B. For a Bid to be considered responsive it must include the following parts, all submitted electronically through the online bidding system prior to the exact date and time set forth in Section 00 10 00. Forms may be submitted as a single electronic file, or separate files, at the Bidder's discretion within the constraints of the electronic bidding system, but all parts must be present. In addition to the electronic bid, a hard copy of the bid security must be received by the District prior to the bid time and date as described in section 2.05, Bid Security.
1. Electronic Bid Schedule consisting of the table in the "Line Items" tab for the project on the electronic bidding system. A copy of the Bid Schedule is included in Section 00 41 00, Bid Forms, for reference only and need not be filled out.
 2. Section 00 41 00, Bid Forms- all forms provided (excepting the sample bid schedule) shall be completed in their entirety, including the Bid Security and long-hand signature of Bidder. Bid Forms may be printed, completed and scanned for submission, but shall not be altered or modified from their original form.

3. Section 00 73 00, Supplementary Conditions – Subsection 2.01 Grant Conditions – those forms identified as necessary to be submitted with the Bid shall be completed in their entirety. Grant Forms may be printed, completed, and scanned for submission, but shall not be altered or modified from their original form.
- C. Bidders are responsible for submitting and having their Bids accepted by the electronic bidding system before the closing time set forth in Section 00 10 00, Solicitation-Invitation to Bid or as changed by addenda. NOTE: Pushing the submit button on the electronic bid system may not be instantaneous; it may take time for the Bidder's documents to upload and transmit before the Bid is accepted. It is the Bidder's sole responsibility to ensure their documents are uploaded, transmitted, and arrive in time electronically. The District will have no responsibility for bids that do not arrive in a timely manner, no matter what the reason. The electronic bid system will close exactly at the date and time set forth in Section 00 10 00, Solicitation - Invitation to Bid or as changed by addenda.
- D. The three lowest Bidders (at a minimum) will be required to submit the original Bid Forms within the time stated in Section 00 10 00, Solicitation – Invitation to Bid. Failure to do so may result in rejection of the Bid. The District reserves the right to request original Bid Forms from any or all Bidders.
- E. In the case of a discrepancy between the electronic bid amount and the original Bid Forms, the electronic bid amount will be the accepted Bid.
- F. For Bids to receive consideration, they shall be made in accordance with the following instructions:
 1. Bidder will be required to download all contract documents, including but not limited to the Bid Forms, Specifications, Plans, and any addenda, prior to submitting a Bid.
 2. All notations in the Bid must be in ink or typewritten. No erasures will be permitted. Mistakes may be crossed out and corrections typed or written in with ink adjacent thereto, and must be initialed in ink by the person or persons signing the Bid.
- G. All Bids shall be made in accordance with applicable statutes of the State of California including, but not limited to, the California Government, Labor and Public Contract Codes, applicable local laws, and as specified in these Contract Documents.
- H. Bid prices shall include everything necessary for the completion of the Project and fulfillment of the Contract including, but not limited to, furnishing all materials, equipment, tools, and other facilities and all management, superintendents, labor and services, except as may be provided otherwise in the Contract Documents. Bid prices shall include all applicable federal, state, and local sales and use taxes.
- I. The District is a Public Works Awarding Body, as defined under Title 13 California Code of Regulations section 2449(c)(46). Accordingly, Bidders must submit at the District's request, within 48 hours after the Bid Opening (or subsequent business day following 48 hours in the event of weekend or Holiday), the most recent, valid Certificates of Reported Compliance ("CRC") for the Bidder's fleet and for the

fleet(s) of its listed subcontractors (including any applicable leased equipment or vehicles). Bidder must additionally complete and submit the Fleet Compliance Certification, included in the Bid Documents. Failure to provide a CRC for the Bidder, and for all listed subcontractors, or failure to complete the Fleet Compliance Certification, may render the Bid non-responsive.

2.04 SIGNING THE BID FORM

- A. The Bid shall:
 - 1. Include the legal name of the Bidder.
 - 2. Identify the Bidder as a sole proprietor, a partnership, a corporation, or any other legal entity.
 - 3. Be signed by the person or persons legally authorized to bind the Bidder to a contract for the execution of the Work.
 - 4. Include a list of subcontractors.
- B. A Bid submitted by an agent shall have a valid Power of Attorney (Bid Certificate) attached certifying the agent's authority to bind the Bidder.
- C. The signature of all persons signing shall be in longhand.

2.05 BID SECURITY

- A. Each Bid shall be accompanied by a bid security in the form of: (a) cash, (b) certified check made payable to the District; (c) a cashier's check made payable to the District; or (d) a bid bond payable to the District, executed by the Bidder as principal and surety as obligor, in an amount not less than ten percent (10%) of the maximum amount of the Bid. Personal sureties and unregistered surety companies are unacceptable. The surety insurer shall be a California admitted surety insurer, as defined in Code of Civil Procedure Section 995.120. The bid security shall be given as a guarantee that the Bidder, if awarded the Contract, will promptly execute such Contract in accordance with the Bid and in manner and form required by these Contract Documents and will timely furnish the specified bonds. **The hard copy original bid security must be delivered to the District prior to the bid date/time for the bid to be considered responsive.**
- B. In the event a bond is submitted, the bond shall be signed by the Bidder and a corporate surety, or by the Bidder and two sureties who shall justify before any officer competent to administer an oath, in double said amount and over and above all statutory exemptions. The amount so posted shall be forfeited to said District in case the Bidder depositing the same does not, within fifteen (15) days after written notice that the contract has been awarded to him execute the agreement, provide the required insurance submittals, secure payment of workman's compensation insurance, furnish a satisfactory faithful performance bond and a labor and material payment bond each in an amount equal to one hundred percent (100%) of the Contract price.
- C. Retention of bid security:
 - 1. The bid securities of the three lowest Bidders will be retained until the Contract is awarded and signed and satisfactory bonds furnished, or other requirements completed to the reasonable satisfaction of the District.

2. The bid securities of all Bidders will be returned within sixty (60) days upon award.
- D. Each Bidder shall be required to submit a copy of their bid security when submitting their electronic Bid. **The hard copy original bid security (in the acceptable forms listed in Part 2.05.A, above) MUST be delivered to the District Office in advance of the Bid Submission deadline specified in Section 00 10 00, Solicitation – Invitation to Bid.** Additionally, an electronic Bid not accompanied by a copy of (a) cash, (b) certified check made payable to the District; (c) a cashier's check made payable to the District; or (d) a bid bond payable to the District may be rejected.

2.06 AWARD OR REJECTION OF BIDS

- A. The District reserves the right to accept or reject any or all Bids when deemed best for the public good, and to waive any Bid informality, irregularity, and nonconformity when deemed best for the public good.
 1. Bids shall be evaluated, in part, based on meeting the requirements of the Plans and Specifications. Bids that do not meet the requirements of the Plans and Specifications may be deemed non-responsive and rejected by the District.
 2. At the District's request, within 48 hours after the Bid Opening (or subsequent business day following 48 hours in the event of weekend or Holiday), Bidder shall provide evidence and documentation in support of the Good Faith Effort, as required in Section 00 73 00 Supplementary Conditions.
- B. When Bids are not rejected, the Contract will be awarded to the lowest responsible Bidder submitting a responsive Bid.
 1. The low Bid will be the Bid with the lowest net total arrived at by combining the Bid lump sum prices and unit prices for the Bid Items on the electronic Bid Schedule.
 2. If alternate bid items are called for in the Contract Documents, then consideration for alternatives in determining the low Bid shall be as set forth in Section 00 10 00.
 3. When award is made, Notice of Award will be sent to the selected Bidder by certified mail.
- C. The award, when made, will be made within the time stipulated for Bids to remain subject to acceptance in Section 00 41 00.

2.07 NOTICE OF AWARD

- A. Acceptance of Award: The acceptance of the Notice of Award must be executed and returned to the District within five (5) business days of the date of the Notice of Award.
- B. Required Bonds: The successful Bidder, upon issuance of the Notice of Award, is required to execute the contract and furnish the required Payment and Performance Bonds, in the form required by the District, and evidence of insurance, stipulated below, within fifteen (15) calendar days from the date of the Notice of Award.

- C. All bonds shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies" as published in Circular 570 by the audit staff, bureau of government financial corporations, U.S. Treasury Department. All sureties shall be legally authorized to conduct business in the State of California. Insurance Documents: Insurance requirements are stipulated in Section 00 73 00, Supplementary Conditions. Successful Bidder shall furnish the insurance documents required in that Section. The Contract shall not become effective until such insurance documents have been supplied to and accepted by the District. No other insurance documents shall be accepted in substitution of, nor in addition to, those specified above.
- D. Examination of Forms: The forms of Contract, which the successful Bidder as Contractor will be required to execute, and the forms of bonds which the successful Bidder will be required to furnish, shall be carefully examined by the Bidder.
 - 1. Such forms are included in these Contract Documents.
- E. Number of Copies: The Contract and the Bonds will be executed in two (2) original counterparts.

2.08 EXECUTION OF CONTRACT

- A. The Notice of Award will be issued by the District to the successful bidder and will indicate the time schedule for execution of the Contract.
 - 1. The Contract package will be mailed with the Notice of Award.
 - 2. The Contract and all required related documents including the Performance Bond, Payment Bond, Corporate Resolution, insurance submittals and other required documents, as described in the Contract Documents shall be executed, completed, and delivered to the South Tahoe Public Utility District, not later than 4:30 PM on the fifteenth (15th) calendar day following the Notice of Award of the Contract.
- B. In the event the documents submitted do not meet the requirements of the District, District staff will notify the Bidder, by telephone followed by confirmation in writing, as to how the documents are insufficient, or incomplete, and the Bidder shall have five (5) business days, from the written notification to remedy such insufficient or incomplete documents.
- C. In the event the Bidder fails to remedy insufficient or incomplete documents within five (5) business days or the Bidder fails to submit the documents within the time limitation described in preceding Paragraph B, then the Bidder may be considered to have defaulted and would thus have no further rights under and by virtue of the award of the contract. If the Bidder is found to have defaulted, then:
 - 1. The District may award the contract to the next lowest, responsible Bidder submitting a responsive Bid or rebid the project as determined by the District in its sole discretion; and
 - 2. Upon default of the Bidder the District shall have the right to collect the bid security.

2.09 NOTICE TO PROCEED

- A. Upon providing the District the executed contract, evidence of insurance and the required bonds, in compliance with the Contract Documents, the District will issue a Notice to Proceed. Notice to Proceed shall be signed within fifteen (15) calendar days from the date of the Notice to Proceed and returned to the District. No work shall proceed until said acceptance is signed and timely received by the District. All commitments, subcontracts, and materials ordered until the acceptance is received shall be at risk of Bidder.

PART 3 CONDITIONS AND INSTRUCTIONS

3.01 EXPERIENCE AND BUSINESS STANDING

- A. Qualification of Bidders: Each Bidder shall possess a contractor's license for the type of work required on this Contract, issued by the California Contractors State License Board, valid at the time of bid and time of award of Contract and for the duration of the Contract. Likewise, specialty subcontractors may also be required to possess a contractor's license for the type(s) of work required on this Contract. The class of license shall be as specified in Section 00 10 00, Solicitation - Invitation to Bid. Each Bidder shall also have no less than five (5) years experience in the magnitude and character of the work being bid. Each Bidder shall have successfully completed no less than five (5) similar type projects of the same or larger capacity and list the projects on the bid forms as required per Section 00 41 00, Bid Forms.
- B. Debarred Contractors: In accordance with the provisions of the Labor Code, contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Section 1777.1 or 1777.7 of the Labor Code.
- C. Experience Statement: The District may require that Bidders under consideration for award of the Contract submit a statement setting forth that Bidder's experience.
 - 1. Along with this statement, each Bidder shall list similarly constructed projects showing total project costs, when constructed, and the names, addresses, and phone numbers of the owners.
- D. Financial Statement: Bidders may be requested to submit a financial statement, references, and other information sufficiently comprehensive to permit an appraisal of the Bidder's current financial condition. Such statement shall be in a form and substance similar to or equal to the form for that purpose developed and published by the Associated General Contractors of America
 - 1. The financial statement shall be submitted within five (5) days of receipt of the request from the District.
 - 2. If Bidder fails to timely submit a requested financial statement, or if the financial statement is not satisfactory to the District, the Bid of such Bidder may be considered non-responsive, and such Bid may be rejected by the District.

- E. Resume Statement: Bidders may be requested to submit the experience resume of the person who will be designated chief construction superintendent or onsite construction manager
 - 1. The experience resume shall be submitted within five (5) days of receipt of the request from the District.
 - 2. Where Bidder fails to timely submit a requested experience resume, or where the experience resume is not satisfactory to the District, the Bid of such Bidder may be considered non-responsive, and such Bid may be rejected by the District.

3.02 COPIES AND USE OF BIDDING DOCUMENTS

- A. Contract Documents may be obtained as stipulated in Section 00 10 00, Solicitation - Invitation to Bid.
- B. Contract Documents are made available to Bidders for the purpose of obtaining Bids for performance of the Work. No license or grant is given for other uses of the Contract Documents.

3.03 INTERPRETATION OF CONTRACT DOCUMENTS

- A. Questions: If any Bidder contemplating submitting a Bid does not understand any part of the Contract Documents, or finds discrepancies in or omissions from the Contract Documents, that Bidder shall submit to the District a written request for an interpretation or correction by the means specified in 00 10 00, Solicitation – Invitation to Bid.
- B. Interpretations or Corrections: Interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such Addendum will be distributed via the electronic bidding system.
 - 1. The District will not be responsible for any other explanations or interpretations of the Contract Documents.
- C. Documents to Rely Upon: Only the Contract Documents and Addenda shall be relied upon for preparation of Bids. Statements or representations made by or on behalf of the District regarding the Project prior, during, or after the bidding will not be binding upon the District.

3.04 QUESTIONS DURING BID PERIOD

- A. Questions regarding the Contract Documents and bidding procedures shall be submitted electronically to our electronic bidding system within the time limit specified in Section 00 10 00, Invitation to Bid.
- B. The request for clarification or interpretation shall be dated and shall identify (1) the Work, (2) the statement or the drawing that is in question, (3) the documents in which they occur, (4) the reasons for which the clarification or interpretation is necessary, and (5) the name and title of the person submitting the request.
- C. Clarifications, interpretation, and correction to Contract Documents will be issued only by Addendum, as set forth in Part 3.5, below.

- D. Questions regarding the Bid Documents should be submitted to the District in sufficient time for the District to prepare a response prior to bid opening.

3.05 ADDENDA

- A. A notice that an addendum has been issued will be distributed via email to persons, firms and corporations registered as Vendors and perspective bidders for the project on our electronic bidding system. Copies of all addenda must be downloaded from our electronic bidding system before a Bidder can submit a Bid.
- B. Addenda issued during the time of bidding shall be covered in the Bid and shall become a part of the Contract Documents.
- C. Bidders shall acknowledge receipt of any and all addenda in their Bid.
- D. In accordance with Public Contract Code §4014.5, if an addendum includes material change to the project and is issued less than 72 hours before the bid date, the District must extend the deadline for the submission of bids. The District reserves the right to determine in its sole discretion whether an addendum includes material changes to the project.
- E. It is the Bidder's responsibility to determine it has received any and all Addenda prior to bidding. The Bidder is advised to contact the District prior to the Bid opening to confirm that all Addenda have been received.

3.06 BIDDERS INTERESTED IN MORE THAN ONE BID

- A. Interest in More Than One Bid: No person, firm, or corporation, under the same or different name, shall make, file, or be interested in more than one Bid for the same work unless alternate bids are called for.
 - 1. A person, firm, or corporation who has submitted a sub-bid to a bidder, or who has quoted prices on materials to a Bidder, is not disqualified from submitting a sub-bid or quoting prices to other Bidders.
- B. Rejection in Case of Collusion:
 - 1. Reasonable grounds for believing that any Bidder is interested in more than one Bid for the same work, will cause the rejection of all bids for the Work in which such a Bidder is interested.
 - 2. Any or all bids will be rejected, in the sole discretion of the District, if there is reasonable grounds for believing that collusion exists among any of the bidders.
- C. Noncollusion Declaration: Pursuant to Public Contract Code Section 7106, Bidders shall submit with their Bids the Noncollusion Declaration executed in the form included with the bid documents.

3.07 SUBSTITUTION OF SECURITIES

- A. Section 01 20 00 calls for progress payments based upon the percentage of the work completed. The District will retain a portion of each progress payment as retention as provided by the Contract Documents. At the request and expense of

the successful Bidder, the District will substitute securities for the amount so retained in accordance with Public Contract Code Section 22300.

- B. Securities may be deposited with the District, or with a state or federally chartered bank as the escrow agent, who shall pay such monies to the contractor upon satisfactory completion of the contract. Securities eligible for investment shall include those listed in Section 16430 of the California Government Code, or bank or savings and loan certificates of deposit. The contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

3.08 SUBCONTRACTORS

- A. Bidders shall list, in Section 00 41 00, Bid Forms, the name, location of place of business, contractor's license number, DIR registration number, and the portion of the Work which will be performed by each Subcontractor who will furnish work or labor or render services to Bidder, as Contractor, in or about the Work, in an amount in excess of 0.5 percent of Bidder's total Bid.
- B. Circumventing by Bidder of the requirement to list subcontractors by the device of listing one subcontractor who will in turn sublet portions constituting the majority of the work covered by this Contract shall be considered a violation of the California Subletting and Subcontracting Fair Practices Act, Division 2, Part 1, Chapter 4 of the California Public Contract Code and shall subject Contractor to the penalties set forth in Sections 4110 and 4111 of said Code.
- C. Substitutions of subcontractors identified in the List of Subcontractors shall be granted only for those reasons allowed by Public Contract Code §4107.5. The procedures for substitution shall be as provided therein.
- D. Debarred subcontractors may not bid on the Project as defined in Part 3.01.B. Any contact on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor for the Project shall be returned to the District. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.
- E. The District and the Engineer reserve the right to approve all subcontractors. Such approval shall be a consideration to the awarding of the Contract and unless notification to the contrary is given to the Contractor prior to the signing of the Contract, the list of subcontractors which is submitted with the Bid will be deemed to be acceptable.

3.09 MATERIALS AND EQUIPMENT LIST

- A. Bidders shall prepare, using the form provided in Section 00 41 00, Bid Forms, and submit with the Bid a complete list of materials and equipment, indicating manufacturer, identifying at a minimum the components included on the Materials and Equipment List in Section 00 41 00, Bid Forms.

3.10 NONRESTRICTIVE SPECIFICATION

- A. Materials and Equipment Identified by Brand or Trade Names
 - 1. Pursuant to Public Contract Code Section 3400(b) the District may make a finding that designates certain products, things, or services by specific brand or trade name. Such materials and equipment may not be substituted and are identified in the Contract Documents.
 - 2. Pursuant to Public Contract Code §3400, all brand or trade names shall be considered to be followed by the words “or equal” unless required findings have been made and noted in Section 00 10 00 – Solicitation, Invitation to Bid.

3.11 WORKERS’ COMPENSATION REQUIREMENTS

- A. The Bidder should be aware that in accordance with Section 3700 of the California Labor Code, the Bidder will, if awarded a Contract, be required to secure the payment of compensation to its employees and execute the workers’ compensation certificate in the form contained in these Contract Documents.

3.12 SHEETING, SHORING, AND BRACING

- A. Bidders shall state in the appropriate space on the electronic Bid Schedule, the price for sheeting, shoring, and bracing, or equivalent method meeting regulatory requirements, for the protection of life and limb in trenches and open excavation, in accordance with the requirements defined in Section 00 10 00, Solicitation – Invitation to Bid.

3.13 CONFINED SPACE ENTRY

- A. Pursuant to the provisions in General Industry Safety Orders, Article 108 (Title 8, CCR, Section 5156 et seq.) (CALOSHA), each bid submitted in response to Section 00 10 00, Solicitation - Invitation to Bid, shall contain adequate procedures, methods and personnel to complete confined space entry.

3.14 IRREGULAR BIDS

- A. Bids may be considered irregular and may be rejected as non-responsive by the District if they show any alterations of form, unauthorized additions, unauthorized conditional or alternate bids, incomplete bids, recapitulations, unbalanced prices, erasures, or irregularities of any kind.
- B. No bid will be considered unless accompanied by the Bid Security in the required type and amount.
- C. No oral, telegraphic, telephonic, or modified bid will be considered.

3.15 WITHDRAWAL OF BID

- A. Prior to Bid Opening: Any bidder may withdraw its bid via the online bidding system or by written request to the District prior to the scheduled closing time for receipt of bids.

- B. After Bid Opening:
 - 1. A bidder may withdraw its bid after the opening of bids providing the bidder can establish to the District's satisfaction that a mistake was made in preparing the bid as provided in the California Public Contracts Code.
 - a. A bidder desiring to withdraw its bid shall give written notice to the District within five (5) business days after opening of bids specifying in detail how the mistake occurred and how the mistake made the bid materially different than it was intended.
 - b. Withdrawal will be permitted for mistakes made in filling out the bid and will not be permitted for mistakes resulting from errors in judgment or carelessness in inspecting the site of Work or in reading the Contract Documents.

3.16 BIDDING PROTEST PROCEDURES

- A. Time for Submitting Protests: A protest regarding Bid opening procedures, Bids, or the selection of the Successful Bidder shall be submitted in writing, by the protesting Bidder to the District, so that the protest is received by the District within five calendar days after Bid opening.
- B. Protests shall include a clear detail of the reason for the protest and the remedies sought by the Bidder submitting the protest.
- C. The District will issue a response within five calendar days after receipt of a protest.
- D. As condition precedent for litigation on matters covered under this Part 3.16, Bidder shall have filed a protest and allowed time for the District's response in accordance with preceding paragraphs A. through C.

3.17 CONSTRUCTION SCHEDULE AND SCHEDULE OF VALUES

- A. The bidder selected by the District shall be required to prepare and submit a construction schedule in accordance with Section 01 32 00, Construction Progress Documentation.
- B. Likewise, if the Basis for the Bid was Lump Sum, as defined in Part 2.07 herein, then the successful bidder may be required by the District to submit a schedule of values for the lump sum bid items, providing a breakdown of costs of which the lump sum bid items are comprised.

3.18 CONTRACT DOCUMENTS TO SUCCESSFUL BIDDER

- A. Sets Free of Charge: The bidder to whom award is made may obtain (2) sets of Contract Documents for the Work at no extra cost.
- B. Additional Sets: Additional sets may be purchased at the cost of reproduction.
- C. The Contractor shall have no claim for excusable delay on account of the failure of the Engineer to deliver such Contract Documents unless the Engineer shall have failed to deliver the same within two weeks after receipt of the Notice of Award.

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 00 30 00

INFORMATION AVAILABLE TO BIDDERS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section references site information shown in the Contract Documents (i.e. existing utility locations) prepared for the District's purposes and made available to the Bidders and the Contractor for his information. Such site data is not a part of the Contract Documents notwithstanding its being bound with them or listed as among their contents.

PART 2 REQUIREMENTS

2.01 RESPONSIBILITY FOR ACCURACY OF SITE DATA

- A. Except as indicated in Section 01 73 00, Part 2.05, the Contractor is responsible for accuracy of site data; the District and Design Engineer do not guarantee their accuracy, nor their adequacy, nor their correctness, nor that data is representative of all conditions the Contractor may encounter on the project site and makes no representation as to their correctness.
- B. The Bidders and Contractor shall assume responsibility for results of acting on conclusions he draws from this data. If they choose not to accept such responsibility, they shall employ their own experts to determine additional information and they shall be responsible for results of acting on conclusions they draw from information obtained on their own initiative.

2.02 REPORTS

- A. Soils Report: A geotechnical report was prepared for the project. A copy of the soils/hydrologic report is included as an attachment to these Contract Documents. The Contractor shall be responsible for obtaining any additional data he feels necessary on existing soil conditions to bid the project.

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 00 41 00

BID FORMS

BID TO

**SOUTH TAHOE PUBLIC UTILITY DISTRICT
for the Construction of
2026 PIONEER TRAIL WATERLINE PROJECT (REBID)**

DOCUMENTS IN THIS SECTION CONSTITUTE THE BID FORMS. BIDDERS ARE TO COMPLETE AND ATTACH THE DOCUMENTS CONTAINED IN THIS SECTION AS INSTRUCTED IN SECTION 00 20 00, INSTRUCTIONS FOR BIDDERS, AND SUBMIT THE COMPLETED BID PROPOSAL PACKAGE IN ITS ENTIRETY ELECTRONICALLY PRIOR TO THE BID DEADLINE. BIDDER IS REQUIRED TO SUBMIT THE ORIGINAL DOCUMENTS CONTAINED IN THIS SECTION WITHIN THE TIME STATED IN SECTION 00 10 00, SOLICITATION – INVITATION TO BID (SEE SECTION 00 20 00, INSTRUCTIONS FOR BIDDERS, PART 2.03)

Name of
Bidder: _____

Business
Address: _____

Phone No: _____

To South Tahoe Public Utility District:

Pursuant to and in compliance with the Notice Inviting Bids and the other documents relating thereto, the undersigned, Bidder, being fully familiar with the terms of the Contract Documents, local conditions affecting the performance of the Contract, the character, quality, quantities, and the Scope of the Work, the cost of the Work at the place where the Work is to be done, hereby proposes and agrees to perform within the time stipulated in the Contract, including all of its component parts and everything required to be performed, and to furnish any and all of the labor, material, tools, equipment, transportation, services, permits, utilities, and all other items necessary to perform the Contract and complete in a workmanlike manner, all of the Work required in connection with the construction of said Work, all in strict conformity with the Specifications and other Contract Documents, including Addenda Nos. _____, for the prices hereinafter set forth.

Bids that are submitted via the District's electronic bidding system at the time set for opening of Bids shall be irrevocable, and may not be withdrawn for a period of sixty (60) days after the date set for the opening of the bids except as noted in Section 00 20 00, Part 3.14.

ELECTRONIC BID SCHEDULE PRICES:

All applicable sales taxes, State and/or Federal and any other special taxes, patent rights, or royalties are included in the prices quoted in this Bid.

The quantities specified are the DISTRICT's estimates and are approximate only, being given as a basis for the comparison of Bids. The DISTRICT does not, expressly or by implication, agree that the actual amount of work will correspond therewith. The total amount bid will be used to determine the lowest, responsive, responsible, Bidder.

Payment for each item will be based on the actual quantity of work performed times the item unit contract price. Determinations of the actual quantities and classifications of unit price work performed by the CONTRACTOR will be made by the DISTRICT and may be more or less than the specified, estimated quantities. Unless otherwise indicated in the Bid Item Descriptions, the unit price shall be valid for actual quantities up to 25% more than or less than the bid quantity.

All representations made by Bidder in this Bid are made under penalty of perjury.

DATED: _____

BIDDER: _____

SIGNATURE

BY: _____

TITLE: _____

INFORMATION REQUIRED OF BIDDER

DEPARTMENT OF INDUSTRIAL RELATIONS REGISTRATION:

Bidder hereby certifies that it is aware of the registration requirements set forth in Labor Code sections 1725.5 and 1771.1 and is currently registered as a contractor with the Department of Industrial Relations.

Contractor DIR Registration Number: _____

LIST OF SUBCONTRACTORS:

In compliance with the Subletting and Subcontracting Fair Practices Act Chapter 4 (commencing at Section 4100), Part 1, Division 2 of the Public Contract Code of the State of California and any amendments thereof, Bidder shall set forth below: (a) the name and the location of the place of business, (b) the California contractor license number, (c) the DIR public works contractor registration number unless exempt pursuant to Labor Code Sections 1725.5 and 1771.1, and (d) the portion of the work which will be done by each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the work or improvement to be performed under this Contract in an amount in excess of one-half of one percent (0.5%) of the Bidder's Total Bid Price. Notwithstanding the foregoing, if the work involves the construction of streets and highways, then the Bidder shall list each subcontractor who will perform work or labor or render service to the Bidder in or about the work in an amount in excess of one-half of one percent (0.5%) of the Bidder's Total Bid Price or \$10,000, whichever is greater. No additional time shall be granted to provide the below requested information.

If a Bidder fails to specify a subcontractor or if a contractor specifies more than one subcontractor for the same portion of work, then the Bidder shall be deemed to have agreed that it is fully qualified to perform that portion of work and that it shall perform that portion itself.

ATTACH ADDITIONAL PAGES, IF NECESSARY

	Work to be Performed	Subcontractor's CSLB License #	Subcontractor's DIR Registration #	Percent of Total Contract	Subcontractor's Name and Location of Business
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

THIS PAGE LEFT INTENTIONALLY BLANK

EQUIPMENT/MATERIAL SUPPLIER LIST:

The Bidder shall indicate below which Supplier the Bidder intends to use to furnish under the Bid each item of equipment or material listed on this form by writing the supplier's name. Unless the use of alternatives for a particular item has been restricted by these Contract Documents, the Bidder may list any manufacturer whose product meets all of the requirements and technical criteria specified. The listing of more than one supplier for each equipment/material to be furnished with the words "and/or" **will not be permitted.**

Equipment/Material	Supplier	Manufacturer
1. Aggregate base material		
2. Asphalt		
3. Concrete		
4. Water Piping		
5. Water Fittings		
6. Water Valves		
7. Water Valve Boxes		
8. Fire Hydrants		
9. Pressure Reducing Valves		
10. Revegetation Materials		

THIS PAGE LEFT INTENTIONALLY BLANK

BIDDER'S GENERAL INFORMATION:

The Bidder shall furnish the following information. Additional sheets shall be attached as required. Failure to complete Item Nos. 1 through 7, at the time of bid submittal will cause the bid to be non-responsive and may cause its rejection. Bidders shall submit Item Nos. 8 and 9 if requested by the OWNER prior to award of contract. No award will be made until all of the Bidder's General Information (i.e., Items 1 through 7, inclusive and Items 8 and 9, if requested) is delivered to and accepted by the OWNER.

- (1) Bidder's Name and Address:

- (2) Bidder's Telephone Number: _____

- (3) Bidder's Preferred Email Address: _____

- (4) Bidder's CSLB License: Primary Classification _____

State License No. _____

Expiration Date: _____

Supplemental Classifications held, if any: _____

Name of Licensee, if different from (1) above:

- (5) Name of person who inspected site or proposed Work for your firm:

Name: _____ Date of Inspection: _____

- (6) Name, address, and telephone number of surety company and agent who will provide the required bonds on this contract:

- (7) Complete and sign the forms:
- a) Noncollusion Declaration
 - b) Iran Contracting Act Certification
 - c) Executive Order N-6-22 Certification
 - d) Public Works Contractor Registration Certification
 - e) Contractor's Certificate Regarding Workers' Compensation
 - f) Fleet Compliance Certification
 - g) Bid Bond
 - h) Acknowledgement of Insurance Requirements
 - i) Certification by Contractor's Insurance Broker

- (8) List five (5) projects completed as of recent date involving work of similar type (waterline installation) and complexity:

Project	Contract Price	Name, address, telephone # of Owner	Description of Bidder's Work	Completion Date
1.				
2.				
3.				
4.				
5.				

- (8) The experience resume of the person who will be designated chief construction superintendent or on-site construction manager.
- (9) A financial statement, references, and other information, sufficiently comprehensive to permit an appraisal of Bidder's current financial condition. The financial statement shall be in accordance with Section 00 20 00, Part 3.01.D.

THIS PAGE INTENTIONALLY LEFT BLANK

**NONCOLLUSION DECLARATION TO BE EXECUTED
BY
BIDDER AND SUBMITTED WITH BID**

The undersigned declares:

I am the _____ (Position) of _____ (Firm), 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].

Name of Bidder_____

Signature_____

Name_____

Title_____

THIS PAGE INTENTIONALLY LEFT BLANK

IRAN CONTRACTING ACT CERTIFICATION

(Public Contract Code section 2200 et seq.)

As required by California Public Contract Code Section 2204, the Contractor certifies subject to penalty for perjury that the option checked below relating to the Contractor's status in regard to the Iran Contracting Act of 2010 (Public Contract Code Section 2200 *et seq.*) is true and correct:

☐ The Contractor is not:

- (1) identified on the current list of person and entities engaged in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203; or
- (2) a financial instruction that extends, for 45 days or more, credit in the amount of \$20,000,000 or more to any other person or entity identified on the current list of persons and entities engaging in investment activities in Iran prepared by the California Department of General Services in accordance with subdivision (b) of Public Contract Code Section 2203, if that person or entity uses or will use the credit to provide goods or services in the energy sector in Iran.

☐ The City has exempted the Contractor from the requirements of the Iran Contracting Act of 2010 after making a public finding that, absent the exemption, the City will be unable to obtain the goods and/or services to be provided pursuant to the Contract.

☐ The amount of the Contract payable to the Contractor for the Project does not exceed \$1,000,000.

Signature: _____

Printed Name: _____

Title: _____

Firm Name: _____

Date: _____

Note: In accordance with Public Contract Code Section 2205, false certification of this form shall be reported to the California Attorney General and may result in civil penalties equal to the greater of \$250,000 or twice the Contract amount, termination of the Contract and/or ineligibility to bid on contracts for three years.

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE ORDER N-6-22 CERTIFICATION

Executive Order N-6-22 issued by Governor Gavin Newsom on March 4, 2022, directs all agencies and departments that are subject to the Governor's authority to (a) terminate any contracts with any individuals or entities that are determined to be a target of economic sanctions against Russia and Russian entities and individuals; and (b) refrain from entering into any new contracts with such individuals or entities while the aforementioned sanctions are in effect.

Executive Order N-6-22 also requires that any contractor that: (1) currently has a contract with District funded through grant funds provided by the State of California; and/or (2) submits a bid or proposal or otherwise proposes to or enter into or renew a contract with the District funded by State of California grant funds, certify that the person is not the target of any economic sanctions against Russia and Russian entities and individuals.

The contractor hereby certifies, SUBJECT TO PENALTY FOR PERJURY, that a) the contractor is not a target of any economic sanctions against Russian and Russian entities and individuals as discussed in Executive Order N-6-22 and b) the person signing below is duly authorized to legally bind the Contractor. This certification is made under the laws of the State of California.

Signature: _____

Printed Name: _____

Title: _____

Firm Name: _____

Date: _____

PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATION

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. See <http://www.dir.ca.gov/PublicWorks/PublicWorks.html> for additional information.

No bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work.

Bidder hereby certifies that it is aware of the registration requirements set forth in Labor Code sections 1725.5 and 1771.1 and is currently registered as a contractor with the Department of Industrial Relations.¹

Name of Bidder: _____

DIR Registration Number: _____

DIR Registration Expiration: _____

Small Project Exemption: _____ Yes or _____ No

Unless Bidder is exempt pursuant to the small project exemption, Bidder further acknowledges:

1. Bidder shall maintain a current DIR registration for the duration of the project.
2. Bidder shall include the requirements of Labor Code sections 1725.5 and 1771.1 in its contract with subcontractors and ensure that all subcontractors are registered at the time of bid opening and maintain registration status for the duration of the project.
3. Failure to submit this form or comply with any of the above requirements may result in a finding that the bid is non-responsive.

Name of Bidder _____

Signature _____

Name and Title _____

Dated _____

¹ If the Project is exempt from the contractor registration requirements pursuant to the small project exemption under Labor Code Sections 1725.5 and 1771.1, please mark "Yes" in response to "Small Project Exemption."

THIS PAGE INTENTIONALLY LEFT BLANK

CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION

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.

Name of Bidder_____

Signature_____

Name and Title_____

Dated_____

THIS PAGE INTENTIONALLY LEFT BLANK

FLEET COMPLIANCE CERTIFICATION

Bidder hereby acknowledges that they have reviewed the California Air Resources Board's policies, rules and regulations and are familiar with the requirements of Title 13, California Code of Regulations, Division 3, Chapter 9, effective on January 1, 2024 (the "Regulation"). Bidder hereby certifies, subject to penalty for perjury, that the option checked below relating to the Bidder's fleet, and/or that of their subcontractor(s) ("Fleet") is true and correct:

- ☐ The Fleet is subject to the requirements of the Regulation. At the District's request, within 48 hours after the Bid Opening, the Bidder must submit the most recent, valid Certificates of Reported Compliance ("CRC") for the Bidder's fleet and for the fleet(s) of its listed subcontractors (including any applicable leased equipment or vehicles).
- ☐ The Fleet is exempt from the Regulation under section 2449.1(f)(2), and a signed description of the subject vehicles, and reasoning for exemption has been attached hereto.
- ☐ Bidder and/or their subcontractor is unable to procure R99 or R100 renewable diesel fuel as defined in the Regulation pursuant to section 2449.1(f)(3). Bidder shall keep detailed records describing the normal refueling methods, their attempts to procure renewable diesel fuel and proof that shows they were not able to procure renewable diesel (i.e. third party correspondence or vendor bids).
- ☐ The Fleet is exempt from the requirements of the Regulation pursuant to section 2449(i)(4) because this Project has been deemed an Emergency, as defined under section 2449(c)(18). Bidder shall only operate the exempted vehicles in the emergency situation and records of the exempted vehicles must be maintained, pursuant to section 2449(i)(4).
- ☐ The Fleet does not fall under the Regulation or are otherwise exempted and a detailed reasoning is attached hereto.

Name of Bidder: _____

Signature: _____

Name: _____

Title: _____

Date: _____

THIS PAGE INTENTIONALLY LEFT BLANK

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

The makers of this bond are, _____ as Principal, and _____ as Surety, are held and firmly bound unto **SOUTH TAHOE PUBLIC UTILITY DISTRICT**, hereinafter called "Owner," in the penal sum TEN PERCENT (10%) OF THE TOTAL BID PRICE of the Principal submitted to Owner for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying bid dated _____, 20____ for 2026 Pioneer Trail Waterline Project (Rebid).

If the Principal does not withdraw its bid within the time specified in the Contract Documents; and if the Principal is awarded the Contract and provides all documents to the Owner as required by the Contract Documents; then this obligation shall be null and void. Otherwise, this bond will remain in full force and effect.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Documents shall affect its obligation under this bond, and Surety does hereby waive notice of such changes.

In the event a lawsuit is brought upon this bond by said Owner and judgment is recovered, the Surety shall pay all litigation expenses incurred by the Owner in such suit, including reasonable attorney's fees, court costs, expert witness fees and expenses.

By their signature hereunder, Surety and Principal hereby confirm under penalty of perjury that Surety is an admitted surety insurer authorized to do business in the State of California.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporation.

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____

Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title _____

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory

Name(s) of Signer(s)

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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, 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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

- ☐ Individual
- ☐ Corporate Officer

Title(s)

- ☐ Partner(s)
 - ☐ Limited
 - ☐ General
- ☐ Attorney-In-Fact
- ☐ Trustee(s)
- ☐ Guardian/Conservator
- ☐ Other:

Signer is representing:

Name Of Person(s) Or Entity(ies)

DESCRIPTION OF ATTACHED DOCUMENT

Title or Type of Document

Number of Pages

Date of Document

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF BID BOND

ACKNOWLEDGMENT OF INSURANCE REQUIREMENTS

This Document Must Be Fully Executed By Contractor and Submitted With The Bid

The following insurance requirements have been adopted by The South Tahoe Public Utility District hereinafter designated the "OWNER," and shall be applicable to this Contract.

Insurance Requirement Summary

The CONTRACTOR shall furnish, prior to Notice to Proceed, Insurance Certificates and Endorsements as set forth in Section 00 20 00, Part 2.08.D and Section 00 73 00, Supplementary Conditions, Part 2.01. No other insurance documents shall be accepted in substitution of, nor in addition to, those set forth in Section 00 20 00, Instructions for Procurement. Insurance requirements and coverage will be in accordance with Section 00 73 00, Supplementary Conditions, Part 2.01.

The CONTRACTOR shall not commence work under this Contract until all insurance required under this heading is obtained in a form acceptable to OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on a subcontract until all insurance required of the Subcontractor has been obtained.

I, _____, the _____
(Insert Title)
of _____
(Name of Company or Corporation or Owner)

certify that the Insurance Requirements Summary has been read and understood and that as a material consideration of our bid, we are able to provide the document and coverage specified.

Signature of President, Secretary,
Manager, Owner, or Representative

Date: _____

THIS PAGE INTENTIONALLY LEFT BLANK

CERTIFICATION BY CONTRACTOR'S INSURANCE BROKER

This Document Must be Fully Executed By Contractor's
Insurance Broker and Submitted With the Bid

I, _____, am an authorized representative of
(Individual's name and brokerage name)

_____. This company is the insurance broker
(Insurance Company)

for _____ ("Contractor").
(Contractor)

By my signature below, I hereby attest to the following:

1. I have reviewed the insurance requirements for the South Tahoe Public Utility District's 2026 Pioneer Trail Waterline Project Rebid ("Project"), including the requirements set forth in Section 00 73 00, Supplementary Conditions, Part 2.01 of the Contract Documents.

2. The Contractor is eligible to be insured for the policies necessary to satisfy the insurance requirements for the Project.

This certification is not intended to be binding of coverage and does not modify and/or alter the terms and conditions of the insurance policies issued to Contractor.

Date: _____

(Signature of authorized representative)

for _____

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)
) ss.
County of _____)

On _____ before me, _____, personally appeared _____, 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.

Notary Public

THIS PAGE INTENTIONALLY LEFT BLANK

DESCRIPTION OF BID ITEMS

The Bid Schedule includes the work to construct 2026 Pioneer Trail Waterline Project (Rebid) including the one year warranty period on parts, labor, and materials.

The costs for any Work shown or required in the Contract Documents, but not specifically identified as a line item are to be included in the related line items and no additional compensation shall be due to Contractor for the performance of the Work.

The estimated quantities for Unit Price items are for purposes of comparing Bids only and the District makes no representation that the actual quantities of work performed will not vary from the estimates. Final payment shall be determined by the Engineer from measured quantities of work performed based upon the Unit Price.

General Note: Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.

Bid Schedule items are presented to indicate major categories of work for the purpose of comparative bid analysis and payment breakdown for monthly progress payments. Bid Items are not intended to be exclusive descriptions of the work categories. The CONTRACTOR shall determine and include in his pricing all materials, labor, and equipment necessary to complete each Bid Item (work phase) as shown and specified in the Contract Documents whether specifically described in the following or not.

Bid Schedule A – Pioneer Trail Waterline

Bid Item 1 - Mobilization and Demobilization: includes, but is not limited to: obtaining of bonds, insurance and financing, movement of equipment, materials and personnel to and from the job site, supervision, certificates, permits, submittals and RFIs, utilities, site maintenance, cleanup, dust control and work incidentals to the contract not specifically identified under the remaining items or costs incurred prior to beginning work and after completion of work on the various contract items. No adjustments shall be made to this item regardless of the contractor utilizing one or two construction seasons to complete the Project. The cost for this item shall not exceed 10 percent (10%) of the total bid schedule without documented justification, nor shall the CONTRACTOR submit for payment of all of the funds under this item until demobilization has been completed.

The CONTRACTOR's payment for this item shall be by the lump sum.

Bid Item 2 - Erosion Control/BMPs/SWPPP Compliance: includes, but is not limited to: installing, protecting and removal of BMPs, with measures acceptable to the District and governing agencies (filter fences have been used in the past, straw bales are no longer acceptable), inspecting and maintaining BMPs on a regular basis during the course of the work, dewatering of trenches, placing stockpiled materials in areas that are not subjected to washout, flooding, or natural drainage areas. Also, meeting the requirements of the Tahoe Regional Planning Agency permit and all labor, tools, materials, and work incidentals to the contract not specifically identified. Copies of the permit are on file at the DISTRICT offices and a copy of the SWPPP is included in the Contract Documents. Payment includes implementation of Rain Event Action Plans, and required maintenance following storm events, winter maintenance, and re-installation and upkeep of BMPs. In the event the Contractor utilizes a second Tahoe grading season (May 1 – October 15), no additional payment will be made.

The CONTRACTOR'S payment for this item shall be by the lump sum.

Bid Item 3 –Groundwater Dewatering: includes, but is not limited to: all labor, materials, tools, equipment and incidentals, complete and in place, including system design, permitting, installation of groundwater dewatering system (wells, pumps, piping settling tanks, treatment facilities, etc.), transport, disposal, decommissioning, and abandonment, as required to handle groundwater as identified in the Plans, Specifications, and accompanying documents.

The CONTRACTOR'S payment for this item shall be by the lump sum.

Bid Item 4 - Traffic Control: includes, but is not limited to: preparing an adequate traffic control plan, submitting of traffic control plan, updating traffic control plan as conditions change, and obtaining necessary approval of the plan from the encroachment permit agency and maintaining proper traffic control measures during construction. Bid item includes provision of two variable message sign boards in advance of the construction area to advise motorists. Payment for this item includes all required traffic control, including night work and any work occurring within a second Tahoe grading season (May 1 – October 15), with no additional payment to be made.

The CONTRACTOR'S payment for this item shall be by the lump sum.

Bid Item 5 - Sheeting, Shoring, and Bracing or Equivalent Method: includes, but is not limited to: adequate sheeting, shoring and bracing or equivalent methods for the protection of life and limb, planning, designing, engineering, furnishing, constructing, and removing temporary sheeting, shoring and bracing, and any other work necessary to conform to the requirements of any permits, OSHA and the Construction Safety Orders of the State of California, pursuant to the provisions of Section 6707 of California Labor Code, and all labor, tools, materials and appurtenances complete in place per the plans and specifications.

The CONTRACTOR'S payment for this item shall be by the lump sum.

Bid Item 6 – Tree Removal: Bid item shall include the full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for the complete removal, transport and stockpiling or disposal of selected trees, including stumps, at the locations identified on the plans. Trees less than 10-inch diameter are incidental to other bid items. Bid item includes procurement of an over-the-counter tree removal permit from the US Forest Service. This includes protection of existing structures and cleanup.

The CONTRACTOR'S payment for this item shall be per EACH tree removed.

Bid Item 7 - Project Layout and Waterline Surveying.

Project Layout (50% of payment for Bid Item): includes, but is not limited to: all labor, materials, tools, equipment and incidentals to pothole all installation locations where there are utility conflicts with the proposed pipeline alignment to confirm location and depth. These conflicts include, but are not limited to, all crossings where the plans direct the main pipeline to go under or within 24 inches over an existing utility. All tie-in and abandonment locations shall be potholed to confirm depth, location, connection type and/or diameter, and pipe material prior to ordering materials for connection to existing facilities. Where new water main is shown on the plans within 5 feet of the existing water main, contractor shall pothole to confirm location of existing water main at a minimum spacing of 500 feet and at any existing water main horizontal changes in direction shown on the

plans or as marked in the field. Potholing to be completed using vacuum excavation and hand digging only. Also includes backfill of potholes and temporary paving in asphalt areas. Results of potholing will be provided to the District in the form of a redlined plan set 48 hours prior to the layout of the new pipeline or tie-in to confirm horizontal/vertical alignment. Sawcutting for mainline and interties will only be allowed after confirmation of the pipeline alignment, after potholing. Reference Section 01 73 00 regarding scheduling of this work.

Waterline Surveying (50% of payment for Bid Item) includes, but is not limited to: all labor, materials, tools, equipment and incidentals to furnish all surveys, set all construction stakes necessary for the completion of the work, and preservation and/or replacement of existing markers. Contractor shall collect survey data for the installation of all underground utilities, including all tie-in locations, bends, tees/wyes, and valves. The Contractor shall preserve property line and corner survey markers, and any permanent Survey Monuments, except where their destruction is unavoidable when the Contractor is proceeding in accordance with accepted practice. All such property line and survey markers or Permanent Monuments that are identified in the field and/or through records search as having the potential to be destroyed or disturbed by the work shall first be surveyed prior to disturbance. All markers disturbed during the course of construction shall be replaced at the conclusion of work, with all applicable records to be recorded and filed with the El Dorado County Surveyor. All surveying work shall be performed by a professional Land Surveyor, licensed in the State of California.

The CONTRACTOR'S payment for this item shall be by the Lump Sum.

Bid Item 8 - As-Directed Pothole: includes, but is not limited to, all labor, materials, tools, equipment and incidentals required to confirm the location, depth, size, and material of a water or sewer service at the direction of the District. The bid item shall include excavation by hand or vacuum excavator (if approved by locate agreement with other utilities) for a hole up to 1' wide by 6' deep by 4' long where the location of a service line and/or service valve is unknown. Where pothole length exceeds 4', an additional unit will be paid under this bid item.

The CONTRACTOR'S payment for this item shall be by the Each. The CONTRACTOR's unit price shall be valid for an actual quantity plus or minus 100% of the estimated quantity indicated on the Bid Form.

Bid Item 9 - 16-inch DIP Water Main, Class 350: includes, but is not limited to, all labor, materials, tools, equipment and incidentals to install Ductile Iron Pipe (DIP) pipe along with main line fittings for changing horizontal direction and grade, saw cutting, pavement removal and disposal, excavation, pipe, restrained joints, thrust blocks, fittings (including in-line valves), PVC riser pipe, valve box, anchor blocks, tracer wire, tracer wire boxes, warning tape, temporary paving, bedding, backfill, compaction, jetting and transporting materials, revegetation of disturbed barren areas and restoration of existing improvements (as required), repair and reconnection of existing services and utilities encountered during the installation as required for the installation. Pressure testing, disinfection and flushing shall also be included. Potholing all utility crossings for the water main is expected to have been completed under Bid Item 7. Pavement replacement and Groundwater dewatering, where required, shall be paid under applicable bid items..

The CONTRACTOR'S payment for this item shall be by the Linear Foot.

Bid Item 10 – 12-inch DIP Water Main, Class 350: includes, but is not limited to all labor, materials, tools, equipment and incidentals to install Class 350 DIP along with main line fittings for changing horizontal direction and grade, saw cutting, pavement removal and disposal,

excavation, pipe, restrained joints, thrust blocks, fittings (including in-line valves), PVC riser pipe, valve box, anchor blocks, tracer wire, tracer wire boxes, warning tape, temporary paving, bedding, backfill, compaction, jetting and transporting materials, revegetation of disturbed barren areas and restoration of existing improvements (as required), repair and reconnection of existing services and utilities encountered during the installation as required for the installation. Pressure testing, disinfection and flushing shall also be included. Potholing all utility crossings for the water main is expected to have been completed under Bid Item 7. Pavement replacement and Groundwater dewatering, where required, shall be paid under applicable bid items.

The CONTRACTOR'S payment for this item shall be by the Linear Foot.

Bid Item 11 – 8-inch DIP Water Main, Class 350: includes, but is not limited to all labor, materials, tools, equipment and incidentals to install Class 350 DIP along with main line fittings for changing horizontal direction and grade, saw cutting, pavement removal and disposal, excavation, pipe, restrained joints, thrust blocks, fittings (including in-line valves), PVC riser pipe, valve box, anchor blocks, tracer wire, tracer wire boxes, warning tape, temporary paving, bedding, backfill, compaction, jetting and transporting materials, revegetation of disturbed barren areas and restoration of existing improvements (as required), repair and reconnection of existing services and utilities encountered during the installation as required for the installation. Pressure testing, disinfection and flushing shall also be included. Potholing all utility crossings for the water main is expected to have been completed under Bid Item 7. Pavement replacement and groundwater dewatering, where required, shall be paid under applicable bid items.

The CONTRACTOR'S payment for this item shall be by the Linear Foot.

Bid Item 12 - Additional 1-foot Pipeline Depth: Includes all work for additional depth for the watermain installation from normal cover (48") for excavation, backfill and shoring that may be required during the project due to conflicting utilities. Item shall include all vertical fittings, pipe segments for return, restraints, thrust blocks and tracer wire required for return or departure to normal depth. The pipe length along the bottom of the offset shall be paid by the linear foot under the typical water main bid item plus the additional depth per linear foot included in this bid item.

Payment will be made to nearest 1-foot of additional depth. For example if the extra depth is 0.6 to 1.5-feet, the additional payment will be for 1 additional foot of depth. If the extra depth is 1.6 to 2.5 feet, the additional payment will be for 2 additional feet of depth.

The CONTRACTOR'S payment for this item shall be by the linear foot multiplied by the nominal additional depth. The CONTRACTOR's unit price shall be valid for an actual quantity plus or minus 100% of the estimated quantity indicated on the Bid Form

Bid Item 13 – Waterline Non-Excavatable Rock Removal: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in the delineation, excavation, hydraulic hammering, drilling and blasting or splitting of rock, protection and repair of existing improvements, transport of spoils to an approved stockpile area (if required), off-haul and disposal of rock, and import with suitable backfill material.

Rock excavation will be paid for as an additional cost above and beyond water main trenching cost included as part of pipe installation. Cost for removing broken rock from the trench, backfill and compaction for the construction of the waterline shall be paid under the Water Main bid items.

The DISTRICT will determine when rock excavation is required. In general it will be assumed that rock excavation is required when a Caterpillar 315 Excavator (or equivalent) with a ripper tooth meets refusal due to hardness of the material being excavated. Time spent on Non-Excavatable rock will be documented by the DISTRICT and added to the Contract Time. No compensation will be made to the Contractor under this Bid Item if, in the opinion of the DISTRICT, the Contractor is not providing adequate equipment (or effort with the equipment) to complete the work. Rock removed prior to the DISTRICT's approval will not be paid for under this bid item.

The CONTRACTOR'S payment for this item shall be by the cubic yard. The CONTRACTOR's unit price shall be valid for an actual quantity plus or minus 100% of the estimated quantity indicated on the Bid Form.

Bid Item 14 – 2-inch Poly Water Line: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for a new water service installation, complete in place including connection with the new or existing water main and connection to the new or existing water valve, as shown on the Plans and per the Details. Bid item shall include but is not limited to pavement saw cutting and removal, temporary paving, excavation, trenchless installation methods for all long side services (including sending and receiving pits, and potholing where service crosses other utilities), piping, tapping saddle, corp. stop, valve box, curb stop, PVC riser, drain rock, bedding, backfill and transporting materials, tracer wire, compaction, testing, disinfection, protecting or restoring improvements and/or landscaping to pre-project conditions, revegetation of disturbed areas as required, repair and reconnection of existing services and utilities encountered during the installation as required for the installation.

The CONTRACTOR'S payment for this item shall be by the Linear Foot (LF).

Bid Item 15 – 3/4-inch Water Services: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for a new water service installation, complete in place including connection with the new or existing water main and connection to the new or existing meter pit, as shown on the Plans and per the Details. Bid item shall include but is not limited to pavement saw cutting and removal, temporary paving, excavation, trenchless installation methods for all long side services (including sending and receiving pits, and potholing where service crosses other utilities), piping, tapping saddle, corp. stop, valve box, curb stop, PVC riser, drain rock, bedding, backfill and transporting materials, tracer wire, compaction, testing, disinfection, protecting or restoring improvements and/or landscaping to pre-project conditions, revegetation of disturbed areas as required, repair and reconnection of existing services and utilities encountered during the installation as required for the installation. District expects some miscellaneous work on improvements included and paid under this bid item to be the removal and replacement of driveway paver stones and driveway concrete, and restoration of other existing improvements, to existing, or better, conditions and thicknesses.

The CONTRACTOR'S payment for this item shall be by the EACH.

Bid Item 16 – Fire Hydrant Installation: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved for installation of a new Fire Hydrant Assembly, complete in place, including pavement saw cutting and removal, temporary paving, excavation, bedding, backfill, and transporting materials, aggregate base, hydrant assembly, restrained joint pipe, fittings, valve, PVC riser pipe, valve box and cover, mechanical joint restraint glands, connection to mainline (tee or tapping saddle as shown on plans), thrust blocks, support block, drain rock, filter fabric, tracer wire, painting, hydrant marker signposts, compaction, disinfection, testing, as shown on the Details. Protection or replacement of existing improvements and/or landscaping to pre-project conditions, revegetation of disturbed areas as required, repair and reconnection of existing services and utilities encountered. If a hydrant is being removed and replaced with a new hydrant, provide removed hydrant as surplus to District.

The CONTRACTOR'S payment for these items shall be by the each.

Bid Items 17 through 19 – Pressure Reducing Valve (PRV) Installations: Bid item includes, but is not limited to, full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in Pressure Regulating Valve assembly installation, complete in place, including pavement saw cutting and removal, and transporting materials, temporary paving, excavation, bedding, backfill, aggregate base, mainline piping and bypass piping, polywrap, fittings, restraints, pipe stands, seals, gauges, pressure reducing valves, ball valves, gate valves, bollards, drain rock, tracer wire, compaction, concrete vault, lid, concrete collar, disinfection, testing, and all other appurtenances as shown on the Details. Limits of this pay item extend to pay limits shown on plans for water piping and includes all conduit and wiring required for power supply and instrumentation. Electrical and instrumentation conduits, fittings and appurtenances, vault penetrations, mounting hardware, wall and vault penetrations, panels and boxes, wires and cables, configuration and testing, PLC programming, OIT programming, commissioning and documentation is also included. Protection or replacement of existing improvements and/or landscaping to pre-project conditions, including concrete curb and/or gutter, construction of block wall as shown on the Plans, revegetation of disturbed barren areas as required, repair and reconnection of existing services and utilities encountered, is also included. System dewatering is incidental to bid item. HMA pavement replacement and groundwater dewatering, where required, shall be paid under applicable bid items.

Bid Item 17 - Golden Bear Trail Pressure Reducing Valve Station

Bid Item 18 - Jicarilla Drive Pressure Reducing Valve Station

Bid Item 19 - Susquehanna Drive Pressure Reducing Valve Station

The CONTRACTOR'S payment for these bid items shall be by Lump Sum.

Bid Items 20 through 24 – Waterline Interties include the full compensation for furnishing all labor, materials, tools, equipment and incidentals, valve assembly, complete in place, including, potholing to confirm existing utility diameter and depth, fittings, restraints, PVC riser pipe, valve box, thrust blocks, support blocks, other necessary appurtenances per Plans and Details, and the Contract Documents, pavement saw cutting and removal, removal of interfering pipe and fittings, excavation, drain rock, filter fabric, bedding, backfill, and transporting materials, tracer wire, compaction, testing, and disinfection. Intertie items shall include all pipe, fittings and valves from the temporary cap used for the pressure test required to connect to the existing pipeline. Bid item 20 includes provision and installation of a 2-inch Water Meter Setter and Box as shown in the Plans for a 2" 690-01 PRV, including two 2-inch service valves to isolate each side of the setter and any required spacers/adapters for PRV. 2-inch Poly associated with plans for Bid Items 20 and 23 shall be paid by separate applicable Bid Item, with fittings and valves incidental to Tie-In bid item. All trench and pipe dewatering of both the new and existing system

shall be included in the intertie item. Any abandonments made at the location of the intertie shall be included in the intertie item.

Bid Item - 20 - Tie-In #1 - Near Marshall and Cattlemans (P9)

Bid Item - 21 - Tie-In #2 - Kokanee/Pioneer (P9)

Bid Item - 22 - Tie-In #3 - Golden Bear /Pioneer (Sheet P8)

Bid Item - 23 - Tie-In #4 - Jicarilla/Pioneer (Sheet P2)

Bid Item - 24 - Tie-In #5 - Sus/Pioneer (Sheet P1)

The CONTRACTOR'S payment for these items shall be by the Lump Sum.

Bid Item 25 – Abandon Water Main Blow-Off: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in the abandonment of water main blow-offs, complete in place, including pavement saw cutting and excavation, removal and disposal of blow-off box and cover, removal and disposal of riser pipe, in accordance with the General Notes and the Contract Documents, backfill, compaction and temporary paving. Any abandonments that are a part of intertie work will be paid under the intertie lump sum bid item.

The CONTRACTOR'S payment for this item shall be by the Each.

Bid Item 26 – Abandon Water Main Valves: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in the abandonment of water main valves, complete in place, including pavement saw cutting and excavation, removal and disposal of valve box and cover, removal and disposal of riser pipe, in accordance with the General Notes and the Contract Documents, backfill, compaction and temporary paving. Any abandonments that are a part of intertie work will be paid under the intertie lump sum bid item. Abandonment of valve clusters shall be counted as one unit.

The CONTRACTOR'S payment for this item shall be by the Each.

Bid Item 27 –Abandon PRV Vault, Golden Bear PRV at Marshall: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in the abandonment of PRV vaults, complete in place, including pavement saw cutting and excavation, removal and disposal of vault box and cover, removal and disposal of internal piping and fittings, in accordance with the General Notes and the Contract Documents, backfill, compaction and temporary paving. Any abandonments that are a part of intertie work will be paid under the intertie lump sum bid item.

The CONTRACTOR'S payment for this item shall be by the each.

Bid Item 28 – Abandon 6-inch and Larger Waterlines with Slurry: includes, but is not limited to: full compensation for furnishing all labor, materials, fittings, tools, equipment and incidentals, for doing all the work involved in filling abandoned waterlines that are 6-inch and larger nominal diameter with slurry cement.

The CONTRACTOR'S payment for this item shall be by the Cubic Yard.

Bid Item 29 – 8-inch Trench Patch: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in paving a 8-inch (8") thick asphalt pavement trench patch (PG64-28), complete in three lifts to the required width and length necessary to restore pavement surfaces within the area disturbed by construction of the new water main, services, and hydrants, either directly or indirectly as

shown on the Plans, and as directed by the Engineer; including removal and disposal of excess materials. This bid item includes virgin aggregate base backing of edge of pavement where paving is not confined by asphalt. Lowering and raising of valve boxes, manholes, etc. and installation of concrete collars (6" thick, 12" wide beyond box or manhole) as well as restoration of any concrete curb damaged during construction are included in this bid item. This bid item includes the restoration of all striping and markings disturbed by construction work. In locations where a 3-inch mill and overlay (Bid Item 30) is required in the same location as the trench patch, the area of trench patch shall be subtracted from the area paid under Bid Item 30.

The CONTRACTOR'S payment for this item shall be by the square foot. The CONTRACTOR's unit price shall be valid for an actual quantity plus or minus 50% of the estimated quantity indicated on the Bid Form.

Bid Item 30 – 3-inch Mill and Overlay: includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in milling three inches (3") of the existing asphalt and paving three inches (3") of asphalt (PG64-28 NEAT) to the required width and length necessary to restore all pavement surfaces disturbed by construction either directly or indirectly as shown on the Plans; including removal and disposal of excess materials. This bid item is intended to be used in areas disturbed by waterline work. The area for the 8" trench patch (Bid Item 29) in the same location of the Mill and Overlay will be subtracted from this bid item. This bid item includes virgin aggregate base backing of edge of pavement where paving is not confined by asphalt. Lowering and raising of valve boxes, manholes, etc. and installation of concrete collars (6" thick, 12" wide beyond box or manhole). This bid item includes the restoration of all striping and markings disturbed by construction work and any temporary delineators as required by the permitting agency.

The CONTRACTOR'S payment for this item shall be by the Square Foot. The CONTRACTOR's unit price shall be valid for an actual quantity plus or minus 50% of the estimated quantity indicated on the Bid Form.

Bid Item 31 – Fire Hydrant Removal - Bid item 31 includes, but is not limited to: full compensation for furnishing all labor, materials, tools, equipment and incidentals, for doing all the work involved in the removal and disposal of existing fire hydrant and appurtenances, including excavation, trench dewatering of system water, removal of valve boxes and covers, removal of thrust blocks and support blocks, transporting removed materials to an approved stockpile location (if required), blind flange/cap the isolation valve or existing pipe, backfill and compaction. This item also includes protection or replacement of existing improvements and/or landscaping to pre-project conditions, revegetation of disturbed barren areas as required, repair and reconnection of existing utilities encountered. Pavement replacement shall be paid for under Bid Items 29 and 30, as applicable. Groundwater dewatering, where required, shall be paid under Bid Item 3.

The CONTRACTOR'S payment for this item shall be by the Each.

END OF SECTION

**CONSTRUCTION OF
2026 Pioneer Trail Waterline Project (Rebid)
FOR
SOUTH TAHOE PUBLIC UTILITY DISTRICT**

THE BID SCHEDULE IS TO BE COMPLETED ELECTRONICALLY IN THE ELECTRONIC BIDDING SYSTEM AND IS INCLUDED HERE FOR INFORMATION PURPOSES ONLY.

BID SCHEDULE A: (Refer to Bid Descriptions for a more detailed description for each of the following bid items)

Item No.	Description	Unit of Measure	Approx. Quantity	Unit Price	Line Total
1	Mobilization and Demobilization	LS	1		
2	Erosion Control/BMPs/SWPPP Compliance	LS	1		
3	Groundwater Dewatering	LS	1		
4	Traffic Control	LS	1		
5	Sheeting, Shoring and Bracing or Equivalent Method	LS	1		
6	Tree Removal	EA	13		
7	Project Layout and Waterline Surveying	LS	1		
8	As- Directed Pothole	EA	10		
9	16-inch DIP Water Main, Class 250	LF	8700		
10	12-inch DIP Water Main, Class 350	LF	200		
11	8-Inch DIP Water Main, Class 350	LF	360		
12	Additional 1-foot Pipeline Depth	LF	420		
13	Waterline Non-Excavatable Rock Removal	CY	200		
14	2-inch Poly Service	LF	180		
15	3/4-inch Services	EA	2		
16	Fire Hydrant	EA	13		
17	Golden Bear Trail Pressure Reducing Valve Station	LS	1		
18	Jicarilla Drive Pressure Reducing Valve Station	LS	1		
19	Susquehanna Drive Pressure Reducing Valve Station	LS	1		
20	Tie-In #1 - Near Marshall and Cattlemans (P9)	LS	1		
21	Tie-In #2 - Kokanee/Pioneer (P9)	LS	1		

Item No.	Description	Unit of Measure	Approx. Quantity	Unit Price	Line Total
22	Tie-In #3 - Golden Bear /Pioneer (Sheet P8)	LS	1		
23	Tie-In #4 - Jicarilla/Pioneer (Sheet P2)	LS	1		
24	Tie-In #5 - Sus/Pioneer (Sheet P1)	LS	1		
25	Abandon Water Main Blow-off	EA	1		
26	Abandon Water Main Valves	EA	4		
27	Abandon PRV Vault, Golden Bear PRV at Marshall	EA	1		
28	Abandon 6-inch and Larger Waterlines with Slurry	CY	45		
29	Waterline 8-inch Trench Patch	SF	27000		
30	Waterline 3-Inch Mill and Overlay	SF	48000		
31	Fire Hydrant Removal	EA	2		

THE BID SCHEDULE IS TO BE COMPLETED ELECTRONICALLY IN THE ELECTRONIC BIDDING SYSTEM AND IS INCLUDED HERE FOR INFORMATION PURPOSES ONLY.

END OF BID SCHEDULE

SECTION 00 52 00

CONTRACT

THIS Contract, is made and entered into this _____ day of _____, 2026, by and between _____ hereinafter referred to as "Contractor," and South Tahoe Public Utility District, El Dorado County, California, hereinafter referred to as "District".

WITNESSETH

That for and in consideration of the promises and agreements hereinafter made and exchanged, the District and the Contractor agree as follows:

1. That the Contractor will furnish all labor, materials, equipment, tools, transportation, services, appliances, and appurtenances for the construction of **2026 Pioneer Trail Waterline Project (REBID), (the "Project")** in accordance with the Contract Documents therefore, adopted by the Board of Directors of the above District, as prepared by District
2. That the District will pay the Contractor progress payments and the final payment in accordance with the method set forth in the Contract Documents with warrants drawn on the appropriate fund or funds as required, according to the prices as bid and accepted, based upon the Contract Documents, as follows:

Total Bid - \$_____ Dollars and _____ Cents.

3. Contractor agrees to complete said work, following the issuance of the Notice to Proceed, by _____ (or approved extensions thereof) and to the entire satisfaction of the District before final payment is made. Contractor also agrees that all construction activities requiring excavation, earthwork or soil material removal shall occur between May 1 and October 15 in accordance with requirements of the Tahoe Regional Planning Agency (TRPA) and to the entire satisfaction of the DISTRICT before final payment is made. Time is of the essence for this Contract. By its signature

hereunder, Contractor agrees the time for completion set forth above is adequate and reasonable to complete the Work.

4. In accordance with Government Code section 53069.85, Contractor will pay the DISTRICT the sum set forth in Part 2.04, Contract Time, and Liquidated Damages, of Section 00 72 00, General Conditions, of these Contract Documents, for each and every calendar day of delay beyond the time prescribed in the Contract Documents for finishing the Work, as Liquidated Damages and not as a penalty or forfeiture. In the event this is not paid, the Contractor agrees the DISTRICT may deduct that amount from any money due or that may become due the Contractor under the Contract. This Article does not exclude recovery of other damages specified in the Contract Documents.
5. Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates shall be made available at the District's offices or may be obtained online at <http://www.dir.ca.gov> and which must be posted at the job site.
6. That the Contractor shall carry California Worker's Compensation Insurance and require all Subcontractors to carry California Worker's Compensation Insurance as required by the Labor Code of the State of California.
7. The Contractor shall, prior to the execution of the Contract, furnish certificates and endorsements evidencing all required insurance policies as required in Section 00 73 00, Supplemental Conditions, Part 2.01, and furnish the labor and material payment bond and faithful performance bond. If required bonds and insurance are not provided to the District, this can be considered a breach of contract.
- 8 This Formal Contract reference includes the Contract Documents, which includes the following:
 - Solicitation – Notice Inviting Bids
 - Instructions to Bidders
 - Information Available to Bidders
 - Electronic Bid Schedule
 - Bid Form
 - Formal Contract
 - Faithful Performance Bond

Payment (Labor and Materials) Bond
Project Definitions
General Conditions
Supplementary Conditions
Grant Conditions
Grant Forms
General Requirements
Technical Specifications
Addenda
Plans and Drawings
Approved and fully executed Change Orders
Any other documents contained in or incorporated into the Contract, except as otherwise indicated.

The Contractor shall complete the Work in strict accordance with all of the Contract Documents, following the intent and coordination of said documents set forth in Section 00 72 00, General Conditions. All of the Contract Documents are intended to be complementary. Work required by one of the Contract Documents and not by others shall be done as if required by all. This Contract shall supersede any prior agreement of the parties. Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents.

IN WITNESS WHEREOF, the said CONTRACTOR and the South Tahoe Public Utility District, have caused the names of said parties to be affixed hereto, each in duplicate, the day and year first above written.

Contractor
By _____
Title

SOUTH TAHOE PUBLIC UTILITY DISTRICT

By _____

Address for Giving Notice:

Address for Giving Notice:

SOUTH TAHOE PUBLIC UTILITY DISTRICT
1275 MEADOW CREST DRIVE
SOUTH LAKE TAHOE, CA 96150

ATTEST:

Melonie Guttry, Clerk of Board
South Tahoe Public Utility District

CONTRACTOR'S LICENSE NO:

CONTRACTOR'S LICENSE EXPIRATION

DATE: _____

CONTRACTOR'S FEDERAL I.D.#:

WORKER'S COMPENSATION CERTIFICATE

(AS REQUIRED BY SECTION 1861 OF THE CALIFORNIA LABOR CODE)

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.

CONTRACTOR: _____

BY: _____

TITLE: _____

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 00 61 00

BOND FORMS

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the South Tahoe Public Utility District, a public agency located in El Dorado County, California, (hereinafter designated the "Owner") has, on _____, 20__ awarded to _____, (hereinafter designated as the "Principal") a contract for the construction of **2026 PIONEER TRAIL WATERLINE PROJECT (REBID)**, (hereinafter referred to as the "Project").

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as "Contract Documents"), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, said Principal is required under the terms of said Contract Documents to perform the terms thereof and to furnish a bond for the faithful performance of said Contract Documents.

NOW, THEREFORE, WE, the Principal, and _____, as Surety, a corporation organized and duly authorized to transact business under the laws of the State of California, are held and firmly bound unto the Owner in the penal sum of _____ dollars (\$ _____), said sum being not less than one hundred percent (100%) of the total amount of the Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bound Principal, or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions, and agreements in the Contract Documents and any alteration thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all obligations including the one (1) year guarantee of all materials and workmanship; and shall indemnify and save harmless, Owner, its officials, officers, employees, and authorized volunteers, as stipulated in said Contract Documents, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees including reasonable attorney's fees, incurred by the Owner in enforcing such obligation.

As a condition precedent to the satisfactory completion of the Contract Documents, unless otherwise provided for in the Contract Documents, the above obligation shall hold good for a period of one (1) year after the acceptance of the Work by the Owner, during which time the Principal shall fail to make full, complete, and satisfactory repair and replacements and totally protect the Owner

from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of the Contractor remains. Nothing herein shall limit the Owner's rights or the Principal or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

Whenever Contractor shall be, and is declared by the Owner to be, in default under the Contract Documents, the Surety shall remedy the default pursuant to the Contract Documents, or shall promptly at the Owner's option:

- i. Take over and complete the Project in accordance with all terms and conditions in the Contract Documents; or
- ii. Obtain a bid or bids for completing the Project in accordance with all terms and conditions in the Contract Documents and upon determination by Surety of the lowest responsive and responsible bidder, arrange for a Contract between such bidder, the Surety and the Owner, and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Principal by the Owner under the Contract and any modification thereto, less any amount previously paid by the Owner to the Principal and any other set offs pursuant to the Contract Documents; or
- iii. Permit the Owner to complete the Project in any manner consistent with California law and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Principal by the Owner under the Contract and any modification thereto, less any amount previously paid by the Owner to the Principal and any other set offs pursuant to the Contract Documents.

Surety expressly agrees that the Owner may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal.

Surety shall not utilize Principal in completing the Project nor shall Surety accept a bid from Principal for completion of the Project if the Owner, when declaring the Contractor in default, notifies Surety of the Owner's objection to Principal's further participation in the completion of the Project.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract Documents or to the Project to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract Documents or to the Project.

By their signatures hereunder, Surety and Principal hereby confirm under penalty of perjury that Surety is an admitted surety insurer authorized to do business in the State of California.

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

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____
Attorney-in-Fact

(Attach Attorney-in-Fact Certificate) Title _____

The rate of premium on this bond is _____ per thousand. The total amount of premium charges is \$ _____.
(The above must be filled in by corporate attorney.)

THIS IS A REQUIRED FORM

Any claims under this bond may be addressed to:

(Name and Address of Surety)

(Name and Address of Agent or Representative for service of process in California, if different from above)

(Telephone number of Surety and Agent or Representative for service of process in California)

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, 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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, 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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of Attorney to local representatives of the bonding company must also be attached.

END OF PERFORMANCE BOND

THIS PAGE LEFT INTENTIONALLY BLANK

PAYMENT BOND (LABOR AND MATERIALS)

KNOW ALL PERSONS BY THESE PRESENTS THAT

WHEREAS, the South Tahoe Public Utility District, a public agency located in El Dorado County, California (hereinafter designated the "Owner") has, on _____, _____, awarded to _____, hereinafter designated as the "Principal," a contract for the construction of **2026 PIONEER TRAIL WATERLINE PROJECT (REBID)**, (the "Project"); and

WHEREAS, said Principal is required to furnish a bond in connection with said contract; providing that if said Principal, or any of its Subcontractors, shall fail to pay for any materials, provisions, provender, equipment, or other supplies used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of said Principal and its Subcontractors with respect to such work or labor the Surety of this bond will pay for the same to the extent hereinafter set forth:

NOW, THEREFORE, WE, the Principal, and _____, as Surety, are held and firmly bound unto the Owner in the penal sum of _____ dollars (\$_____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its subcontractors, heirs, executors, administrators, successors or assigns, shall fail to pay any of the persons named in California Civil Code Section 9100, fail to pay for any materials, provisions or other supplies used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department or Franchise Tax Board from the wages of employees of employees of the Principal and his subcontractors pursuant to Revenue and Taxation Code §18663, with respect to such work and labor the Surety or Sureties will pay for the same, in an amount not exceeding the sum herein above specified, and also, in case suit is brought upon this bond, all litigation expenses incurred by Owner in such suit, including reasonable attorney's fees, court costs, expert witness fees and investigation expenses.

This bond shall inure to the benefit of all persons named in California Civil Code Section 9100 so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration, or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described, or pertaining or relating to the furnishing of labor, materials, or equipment therefor, nor by any change or modification of any terms of payment or extension of time for any payment pertaining or relating to any scheme or work

of improvement herein above described, nor by any rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the Owner and original contractor or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described in Civil Code Section 9100, and has not been paid the full amount of his claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned, including but not limited to the provisions of sections 2819 and 2845 of the California Civil Code.

By their signatures hereunder, Surety and Principal hereby confirm under penalty of perjury that surety is an admitted surety insurer authorized to do business in the State of California.

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

(Corporate Seal)

Contractor/ Principal

By _____

Title _____

(Corporate Seal)

Surety

By _____
Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title _____

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally appeared _____, 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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for Contractor/Principal.

Notary 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 _____

On _____, 20____, before me, _____, Notary Public, personally
appeared _____, 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 of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

CAPACITY CLAIMED BY SIGNER

DESCRIPTION OF ATTACHED DOCUMENT

- ☐ Individual
☐ Corporate Officer

Title(s)

Title or Type of Document

- ☐ Partner(s) ☐ Limited
 ☐ General

Number of Pages

- ☐ Attorney-In-Fact
☐ Trustee(s)
☐ Guardian/Conservator
☐ Other:

Date of Document

Signer is representing:
Name Of Person(s) Or Entity(ies)

Signer(s) Other Than Named Above

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF PAYMENT BOND

END OF SECTION

SECTION 00 71 00

CONTRACTING DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Wherever the following abbreviations and terms, or pronouns in place of them, are used in the Contract Documents but not otherwise defined therein, the intent and meaning shall be interpreted as provided below.
- B. If an abbreviation on a drawing is not explained in the Contract Documents, it shall be as explained in ANSI Y1.1.
- C. The interpretation of abbreviations shall consider the context or discipline in which they are used, for example:
 - 1. FF usually means "finish floor" when referring to a floor slab.
 - 2. FF usually means "flat face" when referring to a pipe flange.
- D. Titles of Sections and Parts: Captions accompanying specification sections and parts are for convenience of reference only, and do not form a part of the Specifications.

PART 2 ABBREVIATIONS

The following abbreviations may be used in the Contract Documents:

"Bureau" - United States Bureau of Reclamation

"State" - State of California

"State Standard Specifications" - Standard Specifications issued by Caltrans. Dated January 1984, and as amended, unless a specific edition is referenced.

"TRPA" – Tahoe Regional Planning Agency

"RWQCB" – Regional Water Quality Control Board, Lahontan Region

PART 3 DEFINITIONS

Acceptance - The formal written acceptance by the District of the entire Contract which has been completed in all respects in accordance with the Specifications and any approved modifications. The formal written acceptance will be entitled "Notice of Completion and Release of Claims" (standard form will be provided by the District).

As Approved - The words "as approved", unless otherwise qualified, shall be understood to be followed by the words "by the Engineer".

As Shown, and as Indicated - The words "as shown" and "as indicated" shall be understood to be followed by the words "on the Plans".

Bid - The offer of the bidder for the work when made out and submitted on the prescribed bid form, properly signed and guaranteed.

Bid Bond - The cash, cashier's check, certified check, or bidder's bond accompanying the bid submitted by the bidder, as a guarantee that the bidder will enter into a Contract with the District for the performance of work herein described (may also be referred to as bidders security).

Bidder - Any individual, firm, partnership or corporation submitting a bid for the work contemplated, and acting directly or through a duly authorized representative.

Board of Directors or Board - The Board of Directors of the South Tahoe Public Utility District.

Claim - A separate demand by the Contractor for (i) a time extension, (ii) payment of money or damages arising from work done by or on behalf of the Contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (iii) an amount the payment of which is disputed by the District.

Contract - The written agreement covering the performance of the work and the furnishing of labor, materials, tools and equipment in the construction of the work. The Contract shall include all Contract Documents and supplemental agreements amending or extending the work contemplated which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments or extensions to the Contract and include Addenda and Contract Change Orders. Said Contract shall also contain obligatory language to compensate the Contractor in an amount and times set forth herein.

Contract Documents - The Contract Documents are any or all of the documents listed in Item 12 of the Contract.

Contractor - The person or persons, firm, partnership or corporation or other entity who has entered into the Contract with the District to perform the work.

County - County of El Dorado, California.

Date of Execution of the Contract - The date on which the Contract is signed by the DISTRICT's authorized representative. Notice of Award shall be issued pursuant to the provisions of the Contract. Acceptance of Award and compliance with provisions of Notice of Award shall be completed by Contractor no later than the fifteenth day after notice.

Datum - The figures given in the Specifications or upon the drawings after the word "Elevation" or an abbreviation of it shall mean District provided information.

Days - Unless otherwise designated, days as used in the Contract Documents shall mean calendar days, and is defined as every day appearing on the calendar.

Design Engineer - The person, firm or corporation, including its principals, agents, and employees, designated by the District to prepare drawings and specifications for the work. The District is the design engineer for the preparation of the 2026 PIONEER TRAIL WATERLINE PROJECT (REBID) Plans and Specifications.

District - The South Tahoe Public Utility District, may also be referred to as the Owner and/or STPUD.

Engineer - Person or firm retained by the District, or the person designated by the District, as its Architectural or Engineering representative during the course of

construction, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

His - "His" shall include "her" and "its".

Or Equal - The term "or equal" shall be understood to indicate that the "equal" product be the same or better than the product named in function, performance, reliability, quality, and general configuration. Determination of equality in reference to the project design requirements will be made by the Engineer.

OWNER - The South Tahoe Public Utility District, may also be referred to as the DISTRICT and/or STPUD.

Plans or Specification Drawings - The term "Plans or Specification Drawings" refers to the official Plans, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the location, character, dimensions, and details of the work to be performed. Plans may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.

Specifications - The term "specifications" refers to the terms, provisions, and requirements contained herein. Where standard specifications, such as those of "ASTM", "AASHTO", etc. have been referred to, the applicable portions of such standard specifications shall become a part of these Contract Documents.

STPUD - The South Tahoe Public Utility District (STPUD), may also be referred to as the District and/or Owner.

Substantial completion - the stage in the progress of the Work when the Work (or a portion thereof designated by the Contract Documents or in writing by the Owner) is sufficiently **complete** in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. Substantial completion does not constitute Acceptance.

Subcontractors - The term "Subcontractor", as employed herein, includes only those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design according to the Plans or Specifications of this work, but does not include one who merely furnishes material not so worked and would be considered a supplier only.

Work - All the work specified, indicated, shown or contemplated in the Contract Documents to construct the improvements, including all alterations, amendments or extensions thereto made by Contract Change Order or other written orders of the Engineer.

Written Notice - "Written Notice" shall be deemed to have been duly served when delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail, then it shall be deemed to have been duly served two days after mailing to the last business address known to him who gives the notice.

Definitions - Whenever in the Specifications or upon the drawings the words DIRECTED, REQUIRED, PERMITTED, ORDERED, DESIGNATED, PRESCRIBED, or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended, and similarly the words APPROVED, ACCEPTABLE, SATISFACTORY,

or words of like import, shall mean approved or acceptable to, or satisfactory to the Engineer, unless otherwise expressly stated.

END OF SECTION

SECTION 00 72 00
GENERAL CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: General clauses that establish the basic rights, responsibilities and relationships of the parties to the Contract.

PART 2 DESCRIPTION

2.01 INTENT OF CONTRACT DOCUMENTS

- A. The intent of the Contract Documents is to describe the details for the construction and completion of the work which the Contractor undertakes to perform in accordance with the terms of the Contract. 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 is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals and do all the work involved in performing the Contract in a satisfactory and workmanlike manner.
- B. The technical provisions are presented in sections for convenience. However, this presentation does not necessarily delineate trades or limits of responsibility. All sections of the Contract Documents are interdependent and applicable to the project as a whole.
- C. The Contract Documents are complementary, and what is called for in any one portion shall be binding as if called for in all other applicable portions of the Contract Documents.

2.02 CONTRACTOR'S UNDERSTANDING

- A. It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. No verbal agreement or conversation with any officer, agent or employee of the District, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

2.03 COORDINATION AND INTERPRETATION OF CONTRACT DOCUMENTS

- A. In the event of conflict between the Plans and the Specifications, the Specifications shall govern, except that, where items are shown on the Plans and are not specifically included in the Specifications, the Plans shall govern.
- B. Notwithstanding the order of precedence established above, in the event of conflicts the higher standard shall always apply.
- C. Should it appear that the work to be done or any of the relative matters are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform to them as part of the Contract. In the event of any doubt or question arising respecting the true meaning of the Contract Documents, reference shall be made to the Engineer, whose written decision thereon shall be final and conclusive.
- D. If the Contractor, in the course of the work, finds any discrepancy between the Contract Documents and the physical condition of the locality, or any errors or omissions in the Contract Documents, or in the layout as given by points and instructions, it shall be his duty to inform the Engineer in writing, and the Engineer will promptly verify the same in writing.
- E. The Contractor shall not, nor allow its subcontractors to, proceed with work with respect to which there is any uncertainty without obtaining written clarification. If Contractor performs, permits, or causes the performance of any Work which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, it shall bear any and all costs, including, without limitation, the cost of correction as required in Parts 2.16 of this Section.
- F. Upon authorization of a change to the Work by the Engineer, the Contractor shall record such changes on the project record documents as required in Section 01 77 00, Part 2.06, and, where applicable, the changes shall be surveyed by a California Registered Land Surveyor.
- G. In the event of any discrepancy between any Plans and the figures written thereon, the figures shall be taken as correct. Detailed drawings shall prevail over general drawings.
- H. Any reference made in these Specifications or on the Plans to any specification, standard, method, or publication of any scientific or technical society or other organization shall, in the absence of a specific designation to the contrary, be understood to refer to the Specification, standard, method, or publication in effect as of the date that the work is advertised for Bids with the exception of prevailing wages, which can change after the project has been bid and awarded if updates have been published at the time of bid.

2.04 CONTRACT TIME AND LIQUIDATED DAMAGES

- A. The Contract Time shall be 387 calendar days from the date specified in the Notice to Proceed. All excavation or work that would disturb existing ground shall not commence until May 1 and shall be completed by October 15, of the year in which the excavation or work occurs, in accordance with requirements of the Tahoe Regional Planning Agency and Lahontan Regional Water Quality Control Board.
- B. In addition, for timely completion of the Project, the District requires that the Contractor meet intermediate contract deadlines to assure that the Project complies with permit requirements.
 - 1. Intermediate Milestone 1: Complete Phases 1 and 2, as identified in 01 73 00 Project Execution, 2.06 Work Sequence and Constraints, by August 24, 2026
 - 2. Intermediate Milestone 2: Completion of all paving of disturbed areas on or before October 1, 2026 per EDC DOT requirements.
 - 3. Intermediate Milestone 3: Installation of Pioneer Trail Mainline and hydrants (Phases 3 thru 7) including Tie-in #1 and Tie-in #5, Susquehana PRV vault, piping, pressure reducing valving, and valving installed and fully functioning to supply water (not including electrical/instrumentation components), demobilization from Pioneer Trail staging areas, completion of areas outside of asphalt along Pioneer Trail with complete restoration on or before October 15, 2026.
 - 4. Intermediate Milestone 5: Submit redline as-builts and complete demobilization from District property on or before November 1, 2026; if second season is required, provide winterization plan and updated project schedule for written approval by District; secure, store, and protect all materials, if any.
 - 5. Intermediate Milestone 6: Completion of all remaining work outside of Sheets P1 and P2 prior to June 17, 2027 associated with Phases 8 and 9.
 - 6. Intermediate Milestone 7: Completion of all remaining Project work associated with Phases 8 and 9, including final paving, stabilization, and demobilization prior to July 31, 2027. Submission of final redline-asbuilts.
- C. Extensions to the Contract Time may be allowed in accordance with these Contract Documents. The Contractor is hereby notified that the availability of contract extensions is dependent upon the weather (after October 15 in any year). Extensions are granted by the Tahoe Regional Planning Agency and the Lahontan Regional Water Quality Control Board.
- D. Pursuant to the provisions under Liquidated Damages in Section 01 35 00, Special Procedures, of these Contract Documents, one thousand dollars

(\$1,000.00), shall be the amount of liquidated damages for every day of delay in the completion of earthwork-related activities. One thousand-five hundred dollars (\$1,500.00) shall be the amount of liquidated damages for every day of delay in the completion of the Work.

2.05 MEASUREMENT OF QUANTITIES

- A. Where the Contract provides for payment on a lump sum price basis, no measurement of quantity will be made. Where the Contract provides for payment on a unit price basis, the quantities of work performed will be computed by the Engineer on the basis of measurements taken by the Engineer, and these measurements shall be final and conclusive.
- B. All quantities of work computed under the Contract shall be based upon measurements by the Engineer according to United States Measurements and Weights.
- C. Methods of measurement are specified in these Specifications.

2.06 SCOPE OF PAYMENT

- A. 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 District 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 Specifications and Plans. 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.
- B. No compensation will be made in any case for loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

2.07 PAYMENT OF TAXES

- A. The Contract prices 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 governments.

2.08 PATENTS

- A. The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated into the work, and agrees to indemnify and hold harmless the District, the Engineer, and their duly authorized representatives, from all action at law or in equity,

actions of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

2.09 CHANGES IN THE WORK

- A. The District may, at any time, by written order make changes in the work as deemed necessary by the Engineer. If such changes cause an increase or decrease in the Contractor's cost of, or time required for, performance of the Contract an equitable adjustment will be made to the Contract and the Contract modified in writing accordingly. Such modifications are subject to approval by the Board, in accordance with Public Contract Code §20206.2 and 20206.3.
- B. Such modification will be in the form of a Contract Change Order which will describe the work to be done or the method by which the change and cost and/or time adjustment, if any, will be determined, and the time of completion of the work.
- C. The compensation to be paid for any extra work or change shall be determined in one or more of the following ways:
 - 1. By agreed unit prices;
 - 2. By estimate and acceptance of an agreed upon lump sum; or
 - 3. By cost plus.The unit prices established in the Bid for a particular item shall be valid for deviations in the bid quantity within the range established in the Bid Form (Section 00 41 00).
- D. Until one of the above methods is agreed on, or if the work is to be paid for on cost plus basis, the Contractor shall keep full and complete records of the cost of such work in the form and manner prescribed by the Engineer and shall permit the Engineer to have access to such records as may be necessary to assist in the determination of the compensation payable for such work. Contractor must obtain the Engineer's permission, on a daily basis, as to the size of the crew, hours worked, and material to be used.
- E. Upon receipt of a Contract Change Order, the Contractor shall proceed with the ordered work. If ordered in writing by the Engineer, the Contractor shall proceed with the work so ordered prior to actual receipt of a Contract Change Order. A Contract Change Order executed by the Contractor and approved by the Engineer is an executed Contract Change Order as that term is used throughout this Section.
- F. A Contract Change Order may be issued to the Contractor at any time. Should the Contractor disagree with any terms or conditions set forth in a Contract Change Order which has not been executed, the Contractor shall submit a written protest to the Engineer within ten (10) days after the receipt of such Contract Change Order. The protest shall state the points of disagreement, and, if possible, the quantities and cost involved. If a written protest is not submitted, payment will be made as provided in the Contract Change Order and such payment will constitute full compensation for all work included therein or required thereby. Such unprotested Contract

Change Orders will be considered as executed Contract Change Orders. Contractor's disagreement with any Change Order does not relieve the Contractor from performance of the work, including extra work, promptly and expeditiously.

- G. Where the protest concerning a Contract Change Order relates to compensation, the compensation payable for all work specified or required by said Contract Change Order to which such protest relates will be determined in the same manner as provided in Part 2.10 for claims for extra work. The contractor shall keep full and complete records of the cost of such work and shall permit the Engineer to have such access thereto as may be necessary to assist in the determination of the compensation payable for such work.
- H. Where the protest concerning a Contract Change Order relates to the adjustment of time and the completion of the work, the time to be allowed therefore will be determined as provided in this Section.
- I. The consent of the Contractor's sureties shall not be required as to any change or extra work, and the liability of the Contractor's Bonds shall be increased or decreased accordingly without notice to the sureties.

2.10 EXTRA WORK

- A. If, during the performance of the Contract, it shall, in the opinion of the District or the Engineer, become necessary or desirable for the proper completion of the Contract to order work done or materials or equipment furnished which in the opinion of the Engineer are not susceptible of classification under the unit-price items in the Bidding Schedule and are not included in any item for which a lump sum is bid, the Contractor shall do and perform such work and furnish such materials and equipment. Such labor, materials and/or equipment will be classed as extra work, and shall be ordered in writing before such work is started. No extra work will be paid for unless ordered in writing. Extra work and materials will ordinarily be paid for at a lump sum or unit-price agreed on in writing by the Engineer and Contractor prior to the time when the Engineer ordered the extra work to be done. The performance of any extra work or the furnishing of extra material which, in the judgment of the Engineer, is of like character to and susceptible of classification under the unit-price items of the Contract as specified shall, if the order of the Engineer shall so provide, be paid for at the unit-price named for such work in the Bidding Schedule. Whenever, in the judgment of the Engineer, such extra work or such extra material as the case may be, is not of like character to and susceptible of classification under the unit-price items of the Contract as specified, and it is impracticable because of the nature of the work, or for any other reason, to fix the price before order for the extra work shall be issued, the Contractor shall be entitled to be paid the sum of the following costs for doing the extra work, which shall be known as the cost plus basis of payment:

- 1. Direct Labor Cost - Charges for all of the labor furnished and used by the Contractor shall be as identified in the California Prevailing Wage

Determination. Under no circumstances shall the Contractor be allowed to pay for labor, any amount that is less than the California prevailing Wage Determination. The Contractor shall be allowed to add to actual wages paid the labor surcharge set forth in the California Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates, which is in effect on the date upon which the work is performed. The surcharge shall constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to, or on behalf of, the workers, other than actual wages as defined in Section 9-1.04B1 of the California Department of Transportation Standard Specifications.

2. Equipment Cost - Charges for the rental and operation of the equipment furnished and used by the Contractor shall be made for all prime construction and automotive equipment. It shall not include charges for listed equipment or major tools with a new cost of \$500.00 or less. Equipment time charges shall be subject to the daily approval of the Engineer and evidence of such daily approval submitted with the billing. The equipment rental and operation rates used shall be at the established CalTrans rental rates. No time or charges will be allowed except when equipment is actually being used for the proper and efficient performance or completion of the extra work as authorized. A fifteen percent (15%) markup to the equipment rental and operation rates will be allowed.
3. Material Costs - Charges for the cost of materials furnished by the Contractor shall be made provided such furnishing was specifically authorized in the extra work order and the actual use verified by the Engineer. Charges shall be net cost to the Contractor delivered at the job, including all applicable sales taxes and vendor's invoice must accompany the billing along with verification of use of such materials by the Engineer. A fifteen percent (15%) markup to the materials cost will be allowed.
4. Tools, Supplies, Supervision, Overhead and Profit - A charge for major tools, supplies, home office overhead, field overhead, labor liability insurance, additional bond costs, other fixed or administrative costs that are not costs of labor used in the direct performance of the work, supervision, and profit will be allowed in the amount of thirty five percent (35%) of the total direct labor costs as defined above.
5. Work by Subcontractor - When all or any part of extra work is performed by any of the Contractor's Subcontractors, the markups for tools, supplies, additional bond costs, supervision, overhead and profit applied to the Subcontractor's actual cost of such work (determined as above) will be allowed in the amount of ten percent (10%) of the total direct labor costs, equipment costs and material costs, as defined above, to which a markup of five percent (5%) on the subcontracted portion of the extra work may be added by the Contractor.

- B. The Contractor agrees that he shall not be entitled to claim damages for anticipated profits on any portion of work that may be deleted. The amount of any adjustment for work deleted shall be estimated at the time deletion of work is ordered and the estimated adjustment will be deducted from the Contract amount by Contract Change Order.

- C. The District reserves the right to contract with any person or firm other than the Contractor for any or all extra work.

2.11 CLAIMS FOR EXTRA COSTS

- A. The Contractor shall not be entitled to the payment of any additional compensation for any cause, including any act, or failure to act, by the Engineer, or the happening of any event, thing, or occurrence, unless he shall have given the Engineer written notice of claims specified in Part 2.20 below, provided, however, that compliance with this section shall not be a prerequisite as to matters within the scope of the protest provisions in Part 2.09.
- B. Contractor shall not reserve a right to assert impact costs, extended job site costs, extended overhead, constructive acceleration and/or actual acceleration beyond what is stated in the change order for work. No claims shall be allowed of impact, extended overhead costs, constructive acceleration and/or actual acceleration due to a multiplicity of changes and/or clarifications. The Contractor may not change or modify the District's change order form in an attempt to reserve additional rights.
- C. The District's liability to Contractor for delays for which the District is responsible shall be limited to only an extension of time unless such delays were unreasonable under the circumstances. In no case shall the District be liable for any costs which are borne by the Contractor in the regular course of business, including, but not limited to, home office overhead and other ongoing costs. Damages caused by unreasonable District delay, including delays caused by items that are the responsibility of the District pursuant to Government Code section 4215, shall be based on actual costs only, no proportions or formulas shall be used to calculate any delay damages. In the event of an emergency endangering life or property, the Contractor shall act as stated in Section 01 35 00, Special Procedures, Part 2.01, and after execution of the emergency work shall present an accounting of labor, materials, and equipment. The procedure for any payment that may be due for emergency work will be as specified in Part 2.09 above.

2.12 CHANGES IN CHARACTER OF WORK

- A. If an ordered change in the Contract Documents materially changes the character of the work of a Contract item from that upon which the Contractor based its Bid price, and if the change increases or decreases the actual unit costs of such changed item as compared to the actual or estimated unit cost of performing the work of said item in accordance with the Contract Documents originally applicable thereto, in the absence of an executed Contract Change Order specifying the compensation payable, an adjustment in compensation therefore will be made in accordance with the following:
 - 1. The basis of such adjustment in compensation will be the difference between the Contract unit-price to perform the work of said item or portion thereof involved in the change as originally planned and the actual unit cost of performing the work of said item or portion thereof involved in the change, as changed. Actual unit costs will be as agreed

upon by the Contractor and the Engineer. If they cannot agree or if there is no unit price for the subject work, then the costs of the work will be determined by the Engineer in the same manner as if the work were to be paid for on the cost plus basis as provided in Part 2.10. Any such adjustment will apply only to the portion of the work of said item actually changed in character.

2. Failure of the Engineer to recognize the change in character of the work at the time the Contract Change Order is issued shall not be construed as relieving the Contractor of its duties and responsibility of filing a written protest within the ten (10) day limit as hereinabove provided.

2.13 RIGHT TO WITHHOLD PAYMENTS

- A. In addition to all other rights and remedies of the District hereunder and by virtue of the law, the District may withhold or nullify the whole or any part of any partial or final payment to such extent as may reasonably be necessary to protect the District from loss on account of:
 1. Stop Notice Claims
 2. Defective work not remedied, irrespective of when any such work was found to be defective;
 3. Claims or liens filed or reasonable evidence indicating probable filing of claims or liens including, but not limited to claims under Sections 1775, 1776, or 1777.7 of the Labor Code;
 4. Failure of the Contractor to make payments properly for labor, materials, equipment, or other facilities, or to subcontractors and/or suppliers;
 5. A reasonable doubt that the work can be completed for the balance then unearned;
 6. A reasonable doubt that the Contractor will complete the work within the agreed time limits;
 7. Liquidated Damages;
 8. Costs to the District resulting from failure of the Contractor to complete the work within the proper time, liquidated and identified in Section 01 35 00, Part 2.06;
 9. Damage to the District, work or property;
 10. Damage to another contractor or third party;
 11. Persistent failure to carry out the work in accordance with the Contract Documents;
 12. Site clean-up;
 13. Failure of Contractor to keep the project schedule and/or record ("as-built") drawings up to date;
 14. Legally permitted penalties, including governmental and regulatory fines incurred by the District as a result of delays resulting from Contractor's performance of the work as set forth in Section 01 35 00, Part 2.06; and
 15. Damages and costs incurred by the District as a result of Contractor's performance of the work, including, but not limited to, legal, engineering, inspection, superintendence, regulatory fines, and other expenses.

- B. Whenever the District shall, in accordance herewith, withhold any monies otherwise due the Contractor, written notice of the amount withheld and the reasons therefore will be given the Contractor. After the Contractor has corrected the enumerated deficiencies, the District will promptly pay to the Contractor the amount so withheld. When monies are withheld to protect the District against claims or liens of mechanics, materialmen, Subcontractors, etc., the District may at its discretion permit the Contractor to deliver a surety bond in terms and amount satisfactory to the District, indemnifying the District against any loss or expense, and upon acceptance thereof by the District, the District shall release to the Contractor monies so withheld. The surety providing the stop notice bond shall be a separate legal entity from the surety on the performance and/or payment bonds provided for the Project.
- C. If insufficient funds have been withheld, Contractor shall promptly reimburse the District for any of the items set forth above that occur.

2.14 SECURITIES FOR MONEY WITHHELD

- A. Pursuant to section 22300 of the Public Contract Code of the State of California, Contractor may request the District to make retention payments directly to an escrow agent or may substitute securities for any money withheld by the District to ensure performance under the contract. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with the District or with a state or federally chartered bank as the escrow agent who shall return such securities to Contractor upon satisfactory completion of the contract. Deposit of securities with an escrow agent shall be subject to a written agreement substantially in the form provided in section 22300 of the Public Contract Code.

2.15 GUARANTEE

- A. In addition to warranties, representations and guarantees stated in the Contract Documents, the Contractor unconditionally guarantees all materials and workmanship furnished hereunder, and agrees to replace at his sole cost and expense, and to the satisfaction of the Engineer and the District, any and all materials and/or equipment which may be defective or improperly installed.
- B. The Contractor shall repair or replace to the satisfaction of the Engineer any or all such work that may prove defective in workmanship or materials, ordinary wear and tear excepted, together with any other work which may be damaged or displaced in so doing.
- C. All work or materials which have been rejected shall be remedied, or removed and replaced by the Contractor in an acceptable manner and no additional compensation will be allowed for such removal, replacement, or remedial work.
- D. Any work done beyond the lines and grades shown on the Plans or established by the Engineer or any extra work done without written authority

will be considered as unauthorized work and will not be paid. Upon order of the Engineer, unauthorized work shall be remedied, removed, or replaced at the Contractor's expense.

- E. Upon failure of the Contractor to comply with any order of the Engineer, the District may cause rejected or unauthorized work to be remedied, removed or replaced, and may deduct the costs from any monies due or to become due the Contractor in the form of a Change Order.
- F. If deemed necessary by the District to maintain uninterrupted operation of District facilities while the defective or improperly installed materials and/or equipment is repaired or replaced, the Contractor shall provide temporary replacement materials and/or equipment at no additional cost to the District.
- G. The Contractor must commence warranty repairs within ten (10) days after receiving written notice from the District. In the event of failure to complete such repairs within a reasonable time, the District is authorized to have the defect repaired and corrected at the expense of the Contractor who will pay the costs and charges therefor immediately upon demand, including any reasonable management and administrative costs, engineering, legal and other consultant fees incurred to enforce this section.
- H. If the Engineer deems it inexpedient for the Contractor to correct work damaged or not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore, and such sum may be withheld by District from Contractor's payment.
- I. The Contractor must obtain and enforce on the District's behalf all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work and materials provided under the Contract.
- J. The signing of the Contract by the Contractor shall constitute execution of the above guarantees. Except as otherwise provided in this Contract, the guarantees and warranties shall remain in effect through the one-year maintenance warranty period without any expense to the District, ordinary wear and tear and unusual abuse and neglect excepted.
- K. Nothing herein shall be construed to limit the rights and remedies available to the District at law or in equity, including, but not limited to, Code of Civil Procedure section 337.15.

2.16 FINAL ACCEPTANCE AND PAYMENT

- A. The acceptance of the Work on behalf of the District will be made by the Engineer. Such acceptance by the District shall not constitute a waiver of defects. When the Work has been accepted there shall be paid to Contractor a sum equal to the contract price less any amounts previously paid Contractor and less any amounts withheld by the District from Contractor under the terms of the contract. The final five percent (5%), or the percentage specified in the notice inviting bids where the District has adopted a finding of substantially complete, shall not become due and payable until five (5) calendar days shall have elapsed after the expiration of

the period within which all claims may be filed under the provisions of Civil Code section 9356. If the Contractor has placed securities with the District as described herein, the Contractor shall be paid a sum equal to one hundred percent (100%) of the contract price less any amounts due the District under the terms of the Contract.

- B. Unless Contractor advises the District in writing prior to acceptance of the final five percent (5%) or the percentage specified in the notice inviting bids where the District has adopted a finding of substantially complete, or the return of securities held as described herein, said acceptance shall operate as a release to the District of all claims and all liability to Contractor for all things done or furnished in connection with this work and for every act of negligence of the District and for all other claims relating to or arising out of this work. If Contractor advises the District in writing prior to acceptance of final payment or return of the securities that there is a dispute regarding the amount due the Contractor, the District may pay the undisputed amount contingent upon the Contractor furnishing a release of all undisputed claims against the District with the disputed claims in stated amounts being specifically excluded by Contractor from the operation of the release. No payments, however, final or otherwise, shall operate to release Contractor or its sureties from the Faithful Performance Bond, Labor and Material Payment Bond, or from any other obligation under this contract.
- C. In case of suspension of the contract any unpaid balance shall be and become the sole and absolute property of the District to the extent necessary to repay the District any excess in the cost of the Work above the contract price.
- D. Final payment shall be made no later than 60 days after the date of acceptance of the Work by the District or the date of occupation, beneficial use and enjoyment of the Work by the District including any operation only for testing, start-up or commissioning accompanied by cessation of labor on the Work, provided that a release of liens and claims has been received from the Contractor pursuant to Civil Code section 8136. In the event of a dispute between the District and the Contractor, the District may withhold from the final payment an amount not to exceed 150% of the disputed amount.
- E. Within ten (10) calendar days from the time that all or any portion of the retention proceeds are received by Contractor, Contractor shall pay each of its subcontractors from whom retention has been withheld each subcontractor's share of the retention received. However, if a retention payment received by Contractor is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor if the payment is consistent with the terms of the subcontract.

2.17 OCCUPANCY

- A. The District reserves the right to occupy or utilize any portion of the Work at any time before completion, and such occupancy or use shall not constitute

acceptance of any part of Work covered by this Contract. This use shall not relieve the Contractor of its responsibilities under the Contract.

2.18 INDEMNIFICATION

- A. To the fullest extent permitted by law, Contractor shall immediately defend (with counsel of the District's choosing), indemnify and hold harmless the District, officials, officers, agents, employees, and representatives, and each of them from and against:
 - 1. Any and all claims, demands, causes of action, costs, expenses, injuries, losses or liabilities, in law or in equity, of every kind or nature whatsoever, but not limited to, injury to or death, including wrongful death, of any person, and damages to or destruction of property of any person, arising out of, related to, or in any manner directly or indirectly connected with the Work or this Contract, including claims made by subcontractors for nonpayment, including without limitation the payment of all consequential damages and attorney's fees and other related costs and expenses, however caused, regardless of whether the allegations are false, fraudulent, or groundless, and regardless of any negligence of the District or its officers, employees, or authorized volunteers (including passive negligence), except the sole negligence or willful misconduct or active negligence of the District or its officials, officers, employees, or authorized volunteers.
 - 2. Contractor's defense and indemnity obligation herein includes, but is not limited to damages, fines, penalties, attorney's fees and costs arising from claims under the Americans with Disabilities Act (ADA) or other federal or state disability access or discrimination laws arising from Contractor's Work during the course of construction of the improvements or after the Work is complete, as the result of defects or negligence in Contractor's construction of the improvements.
 - 3. Any and all actions, proceedings, damages, costs, expenses, fines, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor.
 - 4. Any and all losses, expenses, damages (including damages to the Work itself), attorney's fees, and other costs, including all costs of defense which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the Work and all of Contractor's obligations under the agreement. Such costs, expenses, and damages shall include all costs, including attorney's fees, incurred by the indemnified parties in any lawsuit to which they are a party.
- B. Contractor shall immediately defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against the District, its officials, officers, agents, employees and representatives. Contractor shall pay and

satisfy any judgment, award or decree that may be rendered against the District, its officials, officers, employees, agents, employees and representatives, in any such suit, action or other legal proceeding. Contractor shall reimburse the District, its officials, officers, agents, employees and representatives for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. The only limitations on this provision shall be those imposed by Civil Code section 2782.

2.19 NO PERSONAL LIABILITY

- A. Neither the District, the Engineer, nor any of their other officers, agents, or employees shall be personally responsible for any liability arising under the Contract, except such obligations as are specifically set forth herein..

2.20 DISPUTES

- A. Except as otherwise specifically provided in the Contract Documents, the Engineer will initially decide all disputes arising under and by virtue of the Contract. A dispute will be processed and decided by the Engineer as soon as practicable after its submission and the submission or availability of any additional information necessary to its decision. If the Contractor is dissatisfied with the Engineer's decision, the Contractor may, within fifteen (15) days from the date of the Engineer's decision, file a claim following the procedures in Part 2.19 of this Section. If the Contractor fails to follow the procedures in Part 2.19 of this Section within the fifteen (15) day period, then the Engineer's decision shall be final, conclusive, and binding on the Contractor.

2.21 PROCEDURE FOR RESOLVING DISPUTES

- A. Contractor shall timely comply with all notices and requests for changes to the Contract Time or Contract Price, including but not limited to all requirements of Article 44, Changes and Extra Work, as a prerequisite to filing any claim governed by this Article. The failure to timely submit a notice of delay or notice of change, or to timely request a change to the Contract Price or Contract Time, or to timely provide any other notice or request required herein shall constitute a waiver of the right to further pursue the claim under the Contract or at law.
- B. Intent. Effective January 1, 1991, Section 20104 et seq., of the California Public Contract Code prescribes a process utilizing informal conferences, non-binding judicial supervised mediation, and judicial arbitration to resolve disputes on construction claims of \$375,000 or less. Effective January 1, 2017, Section 9204 of the Public Contract Code prescribes a process for negotiation and mediation to resolve disputes on construction claims. The intent of this Article is to implement Sections 20104 et seq. and Section 9204 of the California Public Contract Code. This Article shall be construed to be consistent with said statutes.
- C. Claims. For purposes of this Article, "Claim" means a separate demand by the Contractor, after a change order duly requested in accordance with

Article 44 "Changes and Extra Work" has been denied by the District, for (A) a time extension, (B) payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract, or (C) an amount the payment of which is disputed by the District. Claims governed by this Article may not be filed unless and until the Contractor completes all procedures for giving notice of delay or change and for the requesting of a time extension or change order, including but not necessarily limited to the procedures contained in Article 44, Changes and Extra Work, and Contractor's request for a change has been denied in whole or in part. Claims governed by this Article must be filed no later than the date of final payment. The claim shall be submitted in writing to the District and shall include on its first page the following in 16 point capital font: "THIS IS A CLAIM." Furthermore, the claim shall include the documents necessary to substantiate the claim. Nothing herein is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims, including all requirements pertaining to compensation or payment for extra Work, disputed Work, and/or changed conditions. Failure to follow such contractual requirements shall bar any claims or subsequent lawsuits for compensation or payment thereon.

- D. Supporting Documentation. The Contractor shall submit all claims in the following format:
 - 1. Summary of claim merit and price, reference Contract Document provisions pursuant to which the claim is made
 - 2. List of documents relating to claim:
 - a. Specifications
 - b. Drawings
 - c. Clarifications (Requests for Information)
 - d. Schedules
 - e. Other
 - 3. Chronology of events and correspondence
 - 4. Analysis of claim merit
 - 5. Analysis of claim cost
 - 6. Time impact analysis in CPM format
 - 7. If Contractor's claim is based in whole or in part on an allegation of errors or omissions in the Drawings or Specifications for the Project, Contractor shall provide a summary of the percentage of the claim subject to design errors or omissions and shall obtain a certificate of merit in support of the claim of design errors and omissions.
- E. District's Response. Upon receipt of a claim pursuant to this Article, District shall conduct a reasonable review of the claim and, within a period not to exceed 45 Days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the District issues its written statement.
 - 1. If the District needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the District's 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 District shall have up to three Days following the next duly publicly noticed meeting of the District's governing body after the 45-Day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

2. Within 30 Days of receipt of a claim, the District may request in writing additional documentation supporting the claim or relating to defenses or claims the District may have against the Contractor. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of District and the Contractor. The District's written response to the claim, as further documented, shall be submitted to the Contractor within 30 Days (if the claim is less than \$15,000, within 15 Days) after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

- F. Meet and Confer. If the Contractor disputes the District's written response, or the District fails to respond within the time prescribed, the Contractor may so notify the District, in writing, either within 15 Days of receipt of the District's response or within 15 Days of the District's failure to respond within the time prescribed, respectively, and demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand, the District shall schedule a meet and confer conference within 30 Days for settlement of the dispute.

- G. Mediation. 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 District 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 60 Days after the District 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 District and the Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business Days after the disputed portion of the claim has been identified in writing, unless the parties agree to select a mediator at a later time.

1. 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.
2. 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.
3. Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to this section shall excuse any

further obligation under Public Contract Code Section 20104.4 to mediate after litigation has been commenced.

4. The mediation shall be held no earlier than the date the Contractor completes the Work or the date that the Contractor last performs Work, whichever is earlier. All unresolved claims shall be considered jointly in a single mediation, unless a new unrelated claim arises after mediation is completed.
- H. Procedures After Mediation. If following the mediation, the claim or any portion remains in dispute, the Contractor must file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code prior to initiating litigation. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the Contractor submits his or her written claim pursuant to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet and confer conference.
- I. Civil Actions. The following procedures are established for all civil actions filed to resolve claims of \$375,000 or less:
1. Within 60 Days, but no earlier than 30 Days, following the filing or responsive pleadings, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation of both parties or unless mediation was held prior to commencement of the action in accordance with Public Contract Code section 9204 and the terms of this Contract. The mediation process shall provide for the selection within 15 Days by both parties of a disinterested third person as mediator, shall be commenced within 30 Days of the submittal, and shall be concluded within 15 Days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.
 2. If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1114.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration. In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, (A) arbitrators shall, when possible, be experienced in construction law, and (B) any party appealing an arbitration award who does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees on appeal of the other party.
- J. Government Code Claims. In addition to any and all contract requirements pertaining to notices of and requests for compensation or payment for extra Work, disputed Work, construction claims and/or changed conditions, the Contractor must comply with the claim procedures set forth in Government Code Sections 900, et seq. prior to filing any lawsuit against the District. Such Government Code claims and any subsequent lawsuit based upon the

Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to extra Work, disputed Work, construction claims, and/or changed conditions have been followed by Contractor. If no such Government Code claim is submitted, or if the prerequisite contractual requirements are not satisfied, no action against the District may be filed. A Government Code claim must be filed no earlier than the date the Work is completed or the date the Contractor last performs Work on the Project, whichever occurs first. A Government Code claim shall be inclusive of all unresolved claims unless a new unrelated claim arises after the Government Code claim is submitted.

- K. Non-Waiver. The District's failure to respond to a claim from the Contractor within the time periods described in this Article or to otherwise meet the time requirements of this Article shall result in the claim being deemed rejected in its entirety.

2.22 AUTHORITY OF THE ENGINEER

- A. The Engineer is the representative of the District and has full authority to interpret the Contract Documents, to conduct the construction review and inspection of the Contractor's performance, and to decide questions which arise during the course of the work and the Engineer's decisions on these matters shall be final and conclusive. The Engineer has the authority to reject all work and materials which do not conform to the Contract Documents, and has the authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. To prevent disputes, oral modifications will not be permitted.
- B. If at any time the Contractor is on force account and the Contractor's work force, tools, plant, or equipment appear to the Engineer to be insufficient or inappropriate to secure the required quality of work or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, improve their character, to augment their number or to substitute other personnel, new tools, plant, or equipment, as the case may be, and the Contractor shall comply with such order. Neither the failure of the Engineer to demand such increase of efficiency, number, or improvement, nor the compliance by the Contractor with the demand, shall relieve the Contractor of its obligation to provide quality work at the rate of progress necessary to complete the work within the specified time.
- C. The Engineer shall have the authority to make minor changes in the work, not involving extra costs, and not inconsistent with the purposes of the work.
- D. Any order given by the Engineer, not otherwise required by the Contract Documents to be in writing shall, on request of the Contractor, be given or confirmed by the Engineer in writing.
- E. Whenever work, methods of procedure, or any other matters are made subject to direction or approval, such direction or approval will be given by the Engineer.

2.23 HOURS OF WORK

- A. As provided in Article 3 (commencing at section 1810), Chapter 1, Part 7, Division 2 of the Labor Code, Contractor stipulates that eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract is limited and restricted to eight (8) hours during any one calendar day and 40 hours during any one calendar week, except as hereinafter provided. Notwithstanding the provisions herein above set forth, work performed by employees of Contractor in excess of eight (8) hours per day, and 40 hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.
- B. The Contractor and every subcontractor shall keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of the District and to the Division of Labor Law Enforcement, Department of Industrial Relations of the State of California.
- C. The Contractor shall pay to District a penalty of twenty-five dollars (\$25.00) for each worker employed in the execution of this Contract by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and 40 hours in any one calendar week in violation of the provisions of Article 3 (commencing at section 1810), Chapter 1, Part 7, Division 2 of the Labor Code.
- D. Any work necessary to be performed after regular working hours, or on Saturdays and Sundays or other holidays, shall be performed without additional expense to the District.
- E. District will provide inspection during normal working hours from 8:00 a.m. to 5:00 p.m. Monday through Friday. Inspection before or after this time will be charged to the Contractor as reimbursable inspection time. Inspections on weekends requires three days' notice for review and approval. Upon written request and approval the 8 hour working day may be changed to other limits subject to city/county ordinance.
- F. It shall be unlawful for any person to operate, permit, use, or cause to operate any of the following at the Project site, other than between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, with no Work allowed on the District-observed holidays, unless otherwise approved by the District:
 - 1. Powered Vehicles
 - 2. Construction Equipment
 - 3. Loading and Unloading Vehicles
 - 4. Domestic Power Tools

2.24 PAYROLL RECORDS; LABOR COMPLIANCE

- A. Pursuant to Labor Code section 1776, Contractor and all subcontractors shall maintain weekly certified payroll records, showing the names, addresses, Social Security numbers, work classifications, 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 them in connection with the Work under this Contract. Contractor shall certify under penalty of perjury that records maintained and submitted by Contractor are true and accurate. Contractor shall also require subcontractor(s) to certify weekly payroll records under penalty of perjury.
- B. In accordance with Labor Code section 1771.4, the Contractor and each subcontractor shall furnish the certified payroll records directly to the Department of Industrial Relations ("DIR") on the specified interval and format prescribed by the DIR, which may include electronic submission. Contractor shall comply with all requirements and regulations from the DIR relating to labor compliance monitoring and enforcement. The requirement to submit certified payroll records directly to the Labor Commissioner under Labor Code section 1771.4 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Section 1771.4.
- C. Any stop orders issued by the Department of Industrial Relations against Contractor or any subcontractor that affect Contractor's performance of Work, including any delay, shall be Contractor's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Contractor caused delay subject to any applicable liquidated damages and shall not be compensable by the District. Contractor shall defend, indemnify and hold the District, its officials, officers, employees and agents free and harmless from any claim or liability arising out of stop orders issued by the Department of Industrial Relations against Contractor or any subcontractor.
- D. The payroll records described herein shall be certified and submitted by the Contractor at a time designated by the District. The Contractor shall also provide the following:
 - 1. A certified copy of the employee's payroll records 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 described herein shall be made available for inspection or furnished upon request of the DIR.
- E. Unless submitted electronically, the certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement ("DLSE") of the DIR or shall contain the same information as the forms provided by the DLSE.
- F. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency, the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of

an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or performing the contract shall not be marked or obliterated.

- G. In the event of noncompliance with the requirements of this Article, the Contractor shall have ten (10) calendar days in which to comply subsequent to receipt of written notice specifying in what respects the Contractor must comply with this Article. Should noncompliance still be evident after such 10-day period, the Contractor shall pay a penalty of one hundred dollars (\$100.00) to the District 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, such penalties shall be withheld from progress payment then due.
- H. The responsibility for compliance with this Article shall rest upon the Contractor.

2.25 PREVAILING RATES OF WAGES

- A. The Contractor is aware of the requirements of Labor Code sections 1720 *et seq.* and 1770 *et seq.*, as well as California Code of Regulations, Title 8, Section 16000 *et seq.* ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. Since this Project involves an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and since the total compensation is \$1,000 or more, Contractor agrees to fully comply with such Prevailing Wage Laws. The Contractor shall obtain a copy of the prevailing rates of per diem wages at the commencement of this Contract from the website of the Division of Labor Statistics and Research of the Department of Industrial Relations located at www.dir.ca.gov. In the alternative, the Contractor may view a copy of the prevailing rate of per diem wages which are on file at the District's Administration Office and shall be made available to interested parties upon request. Contractor shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to perform work on the Project available to interested parties upon request, and shall post copies at the Contractor's principal place of business and at the Project site. Contractor shall defend, indemnify and hold the District, its officials, officers, employees and authorized volunteers free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or allege failure to comply with the Prevailing Wage Laws.
- B. The Contractor shall forfeit as a penalty to the District not more than Two Hundred Dollars (\$200.00), pursuant to Labor Code section 1775, for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate as determined by the Director of the Department of Industrial Relations for such work or craft in which such worker is employed for any public work done under the Contract by it or by any subcontractor under it. The difference between such prevailing wage rate and the amount paid to each worker for each calendar day or portion thereof, for which each

worker was paid less than the prevailing wage rate, shall be paid to each worker by the Contractor.

- C. Contractor shall post, at appropriate conspicuous points on the Project site, a schedule showing all determined general prevailing wage rates and all authorized deductions, if any, from unpaid wages actually earned.

2.26 PUBLIC WORKS CONTRACTOR REGISTRATION

- A. Pursuant to Labor Code sections 1725.5 and 1771.1, the Contractor and its subcontractors must be registered with the Department of Industrial Relations prior to the execution of a contract to perform public works. By entering into this Contract, Contractor represents that it is aware of the registration requirement and is currently registered with the DIR. Contractor shall maintain a current registration for the duration of the Project. Contractor shall further include the requirements of Labor Code sections 1725.5 and 1771.1 in any subcontract and ensure that all subcontractors are registered at the time this Contract is entered into and maintain registration for the duration of the Project. Notwithstanding the foregoing, the contractor registration requirements mandated by Labor Code Sections 1725.5 and 1771.1 shall not apply to work performed on a public works project that is exempt pursuant to the small project exemption specified in Labor Code Sections 1725.5 and 1771.1

2.27 EMPLOYMENT OF APPRENTICES

- A. Contractor and all subcontractors shall comply with the requirements of Labor Code sections 1777.5 and 1777.6 in the employment of apprentices.
- B. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.
- C. Knowing violations of Labor Code section 1777.5 will result in forfeiture not to exceed one hundred dollars (\$100.00) for each calendar day of non-compliance pursuant to Labor Code section 1777.7.
- D. The responsibility for compliance with this Article shall rest upon the Contractor.

2.28 NONDISCRIMINATION/EQUAL EMPLOYMENT OPPORTUNITY

- A. Pursuant to Labor Code section 1735 and other applicable provisions of law, the Contractor and its subcontractors shall not discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, or any other classifications protected by law on this Project. The Contractor will take affirmative action to insure that employees are treated during employment or training without regard to their race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital

status, sex, age, sexual orientation, or any other classifications protected by law.

- B. Employment Eligibility; Contractor. By executing this Contract, Contractor verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time. Such requirements and restrictions include, but are not limited to, examination and retention of documentation confirming the identity and immigration status of each employee of the Contractor. Contractor also verifies that it has not committed a violation of any such law within the five (5) years immediately preceding the date of execution of this Contract, and shall not violate any such law at any time during the term of the Contract. Contractor shall avoid any violation of any such law during the term of this Contract by participating in an electronic verification of work authorization program operated by the United States Department of Homeland Security, by participating in an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, or by some other legally acceptable method. Contractor shall maintain records of each such verification, and shall make them available to the District or its representatives for inspection and copy at any time during normal business hours. The District shall not be responsible for any costs or expenses related to Contractor's compliance with the requirements provided for or referred to herein.
- C. Employment Eligibility; Subcontractors, Sub-subcontractors and Consultants. To the same extent and under the same conditions as Contractor, Contractor shall require all of its subcontractors, sub-subcontractors and consultants performing any part of the Work or of this Contract to make the same verifications and comply with all requirements and restrictions provided for herein.
- D. Employment Eligibility; Failure to Comply. Each person executing this Contract on behalf of Contractor verifies that he or she is a duly authorized officer of Contractor, and understands that any of the following shall be grounds for the District to terminate the Contract for cause: (1) failure of Contractor or its subcontractors, sub-subcontractors or consultants to meet any of the requirements provided for herein; (2) any misrepresentation or material omission concerning compliance with such requirements; or (3) failure to immediately remove from the Work any person found not to be in compliance with such requirements.

2.29 DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

- A. Contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Labor Code section 1777.1 or 1777.7. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public

works contract. Any public money that is paid, or may have been paid to a debarred subcontractor by a contractor on the project shall be returned to the District. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the project.

2.30 LABOR/EMPLOYMENT SAFETY

- A. General - The Contractor shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to all applicable Federal, State, and local laws, ordinances, and codes, and to the rules and regulations established by the California Occupational Safety and Health Administration, and to other rules of law applicable to the work.
- B. The services of the Engineer 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, and shall not be construed as supervision of the actual construction nor make the Engineer or the District responsible for providing a safe place for the performance of work by the Contractor, Subcontractors, or suppliers, or for access, visits, use work, travel, or occupancy by any person.
- C. All work and materials shall be in strict accordance with all applicable State, Federal, and local laws, rules, regulations, and codes.
- D. Nothing in this Contract is to be construed to permit work not conforming to governing law. When Contract Documents differ from governing law, the Contractor shall furnish and install the higher standards called for without extra charge. All equipment furnished shall be grounded and provided with guards and protection as required by safety codes. Where vapor-tight or explosion-proof electrical installation is required by law, this shall be provided.
- E. The Contractor shall comply with all applicable laws and regulations of the federal, state, and local government, including Cal/OSHA requirements and requirements for verification of employees' legal right to work in the United States.
- F. The Contractor shall maintain emergency first aid treatment for his employees which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 *et seq.*), and California Code of Regulations, Title 8, Industrial Relations Division 1, Department of Industrial Relations, Chapter 4. The Contractor shall ensure the availability of emergency medical services for its employees in accordance with California Code of Regulations, Title 8, Section 1512.
- G. The Contractor shall submit the Illness and Injury Prevention Program and a Project site specific safety program to the District prior to beginning Work at the Project site. Contractor shall maintain a confined space program that

meets or exceeds the District Standards. Contractor shall adhere to the District's lock out tag out program.

- H. The Contractor shall be aware of and comply with the District's safety program requirements of Contractors. A copy of the program is available from the District upon request.

2.31 DISTRICT'S RIGHT TO TERMINATE CONTRACT

A. Termination for Cause by the District:

1. In the sole estimation of the District, if the Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will insure its completion within the time specified by the Contract Documents, or any extension thereof, or fails to complete such Work within such time, or if the Contractor should be adjudged a bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or the Contractor or any of its subcontractors should violate any of the provisions of this Contract, the District may serve written notice upon the Contractor and its Surety of the District's intention to terminate this Contract. This notice of intent to terminate shall contain the reasons for such intention to terminate this Contract, and a statement to the effect that the Contractor's right to perform this Contract shall cease and terminate upon the expiration of ten (10) calendar days unless such violations have ceased and arrangements satisfactory to the District have been made for correction of said violations.
2. In the event that the District serves such written notice of termination upon the Contractor and the Surety, the Surety shall have the right to take over and perform the Contract. If the Surety does not: (1) give the District written notice of Surety's intention to take over and commence performance of the Contract within 15 calendar days of the District's service of said notice of intent to terminate upon Surety; and (2) actually commence performance of the Contract within 30 calendar days of the District's service of said notice upon Surety; then the District may take over the Work and prosecute the same to completion by separate contract or by any other method it may deem advisable for the account and at the expense of the Contractor.
3. In the event that the District elects to obtain an alternative performance of the Contract as specified above: (1) the District may, without liability for so doing, take possession of and utilize in completion of the Work such materials, appliances, plants and other property belonging to the Contractor that are on the site and reasonably necessary for such completion (A special lien to secure the claims of the District in the event of such suspension is hereby created against any property of Contractor taken into the possession of the District under the terms hereof and such lien may be enforced by sale of such property under the direction of the District without notice to Contractor. The proceeds of the sale after deducting all expenses thereof and connected therewith shall be credited to Contractor. If the net credits shall be in excess of the claims of the District against Contractor, the balance will be paid to Contractor or Contractor's legal representatives.); and (2)

Surety shall be liable to the District for any cost or other damage to the District necessitated by the District securing an alternate performance pursuant to this Article.

B. Termination for Convenience by the District:

1. The District may terminate performance of the Work called for by the Contract Documents in whole or, from time to time, in part, if the District determines that a termination is in the District's interest.
2. The Contractor shall terminate all or any part of the Work upon delivery to the Contractor of a Notice of Termination specifying that the termination is for the convenience of the District, the extent of termination, and the Effective Date of such termination.
3. After receipt of Notice of Termination, and except as directed by the District, the Contractor shall, regardless of any delay in determining or adjusting any amounts due under this Termination for Convenience clause, immediately proceed with the following obligations:
 - a. Stop Work as specified in the Notice.
 - b. Complete any Work specified in the Notice of Termination in a least cost/shortest time manner while still maintaining the quality called for under the Contract Documents.
 - c. Leave the property upon which the Contractor was working and upon which the facility (or facilities) forming the basis of the Contract Document is situated in a safe and sanitary manner such that it does not pose any threat to the public health or safety.
 - d. Terminate all subcontracts to the extent that they relate to the portions of the Work terminated.
 - e. Place no further subcontracts or orders, except as necessary to complete the continued portion of the Contract.
 - f. Submit to the District, within ten (10) calendar days from the Effective Date of the Notice of Termination, all of the usual documentation called for by the Contract Documents to substantiate all costs incurred by the Contractor for labor, materials and equipment through the Effective Date of the Notice of Termination. Any documentation substantiating costs incurred by the Contractor solely as a result of the District's exercise of its right to terminate this Contract pursuant to this clause, which costs the contractor is authorized under the Contract documents to incur, shall: (1) be submitted to and received by the Engineer no later than 30 calendar days after the Effective Date of the Notice of Termination; (2) describe the costs incurred with particularity; and (3) be conspicuously identified as "Termination Costs occasioned by the District's Termination for Convenience."
4. Termination of the Contract shall not relieve Surety of its obligation for any just claims arising out of or relating to the Work performed.
5. In the event that the District exercises its right to terminate this Contract pursuant to this clause, the District shall pay the Contractor, upon the Contractor's submission of the documentation required by this clause and other applicable provisions of the Contract Documents, the following amounts:
 - a. All actual reimbursable costs incurred according to the provisions of this Contract.

- b. A reasonable allowance for profit on the cost of the Work performed, provided Contractor establishes to the satisfaction of the District that it is reasonably probable that Contractor would have made a profit had the Contract been completed and provided further, that the profit allowed shall in no event exceed fifteen (15%) percent of the costs.
 - c. A reasonable allowance for Contractor's administrative costs in determining the amount payable due to termination of the Contract under this Article.
- C. Notwithstanding any other provision of this Article, when immediate action is necessary to protect life and safety or to reduce significant exposure or liability, the District may immediately order Contractor to cease Work on the Project until such safety or liability issues are addressed to the satisfaction of the District or the Contract is terminated.

2.32 STATE LICENSE BOARD NOTICE

- A. 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.

2.33 THIRD PARTY CLAIMS

- A. Pursuant to Public Contract Code section 9201, the District shall provide the Contractor with timely notification of the receipt of any third-party claims relating to the Contract. The District is entitled to recover reasonable costs incurred in providing such notification.

2.34 DOCUMENT RETENTION & EXAMINATION

- A. In accordance with Government Code section 8546.7, records of both the District and the Contractor shall be subject to examination and audit by the State Auditor General for a period of three (3) years after final payment.
- B. Contractor shall make available to the District any of the Contractor's other documents related to the Project immediately upon request of the District.
- C. In addition to the State Auditor rights above, the District shall have the right to examine and audit all books, estimates, records, contracts, documents, bid documents, subcontracts, and other data of the Contractor (including computations and projections) related to negotiating, pricing, or performing the modification in order to evaluate the accuracy and completeness of the cost or pricing data at no additional cost to the District, for a period of four (4) years after final payment.

2.35 INTEGRATION

- A. **Oral Modifications Ineffective.** No oral order, objection, direction, claim or notice by any party or person shall affect or modify any of the terms or obligations contained in the Contract Documents.
- B. **Contract Documents Represent Entire Contract.** The Contract Documents represent the entire agreement of the District and Contractor.

2.36 ASSIGNMENT OF CONTRACT

- A. Contractor shall not assign, transfer, convey, sublet or otherwise dispose of the rights or title of interest of any or all of this contract without the prior written consent of the District. Any assignment or change of Contractor's name of legal entity without the written consent of the District shall be void. Any assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of Work called for under the Contract Documents in favor of all persons, firms, or corporations rendering such services or supplying such Materials to the extent that claims are filed pursuant to the Civil Code, the Code of Civil Procedure or the Government Code.

2.37 ASSIGNMENT OF ANTITRUST ACTIONS

- A. Pursuant to Public Contract Code section 7103.5, in entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, Contractor or subcontractor offers and agrees to assign to the District all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 USC, Section 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 the purchase of goods, services, or materials pursuant to this contract or any subcontract. This assignment shall be made and become effective at the time the District tenders final payment to the Contractor, without further acknowledgment by the parties.

2.38 NOTICE OF TAXABLE POSSESSORY INTEREST

- A. In accordance with Revenue and Taxation Code section 107.6, the Contract Documents may create a possessory interest subject to personal property taxation for which Contractor will be responsible.

2.39 CONTROLLING LAW

- A. Notwithstanding any subcontract or other contract with any subcontractor, supplier, or other person or organization performing any part of the Work, this Contract shall be governed by the law of the State of California excluding any choice of law provisions.

2.40 JURISDICTION; VENUE

- A. Contractor and any subcontractor, supplier, or other person or organization performing any part of the Work agrees that any action or suits at law or in equity arising out of or related to the bidding, award, or performance of the Work shall be maintained in the Superior Court of El Dorado County, California, and expressly consent to the jurisdiction of said court, regardless of residence or domicile, and agree that said court shall be a proper venue for any such action.

2.41 SURVIVAL OF OBLIGATIONS

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

2.42 CALIFORNIA AIR RESOURCES BOARD

- A. Contractor shall comply, and shall ensure all subcontractors comply, with all applicable requirements of the most current version of the regulations imposed by California Air Resources Board ("CARB") including, without limitation, all applicable terms of Title 13, California Code of Regulations Division 3, Chapter 9 and all pending amendments ("Regulation").
- B. Throughout the Project, and for three (3) years thereafter, Contractor shall make available for inspection and copying any and all documents or information associated with Contractor's and its subcontractors' fleets including, without limitation, the Certificates of Reported Compliance ("CRCs"), fuel/refueling records, maintenance records, emissions records, and any other information the Contractor is required to produce, keep or maintain pursuant to the Regulation upon two (2) calendar days' notice from the District.
- C. Contractor shall be solely liable for any and all costs associated with compliance with the Regulation as well as for any and all penalties, fines, damages, or costs associated with any and all violations, or failures to comply with the Regulation. Contractor shall defend, indemnify and hold harmless the District, its officials, officers, employees and authorized volunteers free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Regulation.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Modifications and supplements to the general conditions for basic rights, responsibilities and relationships of the parties unique to the Contract.

PART 2 DESCRIPTION

2.01 INSURANCE

- A. The Contractor shall not commence any work until all required insurance has been obtained at its own expense, required submittals delivered to the District, and the submittals reviewed and approved by the District for general conformance with the Contract. The Contractor shall procure and maintain the insurance required under this section for the duration of the Contract, except as otherwise indicated in this Section. The procurement and maintenance of the insurance required by this section is a material element of the Contract and failure to timely procure and/or maintain such insurance shall be a material breach of the Contract.
- B. Prior to execution of the Contract, the Contractor shall deliver to the District the following:
 - 1. Certificate(s) of Insurance, issued in duplicate, covering all policies. Such certificates shall make explicit reference to each of the provisions and endorsements required in this Section, and shall be signed on behalf of the insurer by an authorized representative;
 - 2. Original endorsements for each policy of insurance required by this section and signed on behalf of the insurer by an authorized representative;
 - 3. Upon request, the District may obtain the policies of insurance.
- C. The provisions of Section 00 20 00, Part 2.07 B, shall be strictly enforced with regard to the fifteen (15) calendar days limit for furnishing evidence of insurance.
- D. The Contractor shall not permit any Subcontractor to commence work on this project unless all Subcontractors are included as named Additional Insureds under its insurance policies required by this section or until each Subcontractor has satisfied the Contractor that the Subcontractor has the required insurance in effect. The Contractor shall receive and maintain satisfactory evidence from its Subcontractors that verifies that they are in compliance with these requirements. The Contractor shall continuously maintain such evidence and, upon request, provide copies to the District for review. If the Contractor fails to assure that a Subcontractor has and maintains the required insurance, the Contractor shall be liable for any loss arising out of work under the Contract that would be covered by

the required insurance of the subcontractor if the Contractor had assured that the subcontractor had maintained the required insurance.

- E. All insurance required by this section shall be placed with insurance companies authorized by the State of California to transact insurance business in the State of California for the types of insurance required by the Contract. Each insurance company shall have a current A. M. Best Insurance Guide rating of not less than A-/VI unless prior written approval is secured from the District as to the use of such insurer, with the following exceptions:
 - 1) Underwriters at Lloyd's of London, which are not rated by A.M. Best.
 - 2) Workers' Compensation which is provided through a State Compensation Insurance Fund or a qualified self-insurer for Workers' Compensation under California law.
 - 3) For liability insurance required under Section 2.01.O.6. (Environmental Liability insurance), insurance requirements shall be placed with insurance companies with a current A.M. Best rating of at least B+:VII.
- F. The requirements as to the types, limits, deductibles and the District's review and/or approval of insurance coverages to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under the Contract. Further, the District's review and approval of any deviation, unless specifically stated in writing and signed by the District, shall not release or relieve the Contractor or its Subcontractors from complying with the requirements of this section.
- G. If any policy of insurance required by this Section includes an "aggregate" limit, the aggregate limit shall be a project-specific limit applicable to work under this Contract only.
- H. Any policy of insurance required by this Section shall be an "occurrences" policy.
- I. In addition to any other remedy the District may have, if the Contractor or any of the subcontractors fail to maintain the insurance coverage as required in this Section, the District may obtain such insurance coverage as is not being maintained, in form and amount substantially the same as required herein, and the District may deduct the cost of such insurance from any amounts due or which may become due the Contractor under this Contract.
- J. In the event the Contractor changes any insurance company(ies) providing the insurance coverage required by this section, the Contractor shall timely resubmit to the District for review and approval, the insurance documents required by this section for each new insurance company providing insurance coverage. The Contractor shall submit such documents at least thirty (30) days prior to the change in any required insurance to enable the District to timely review and approve the insurance coverages provided by such new insurance company(ies).
- K. Insurance policies providing coverage which contains self-insured retention shall not be acceptable except with the prior written approval of the District regardless of the amount of the self-insured retention.

- L. The premiums paid by the Contractor and/or Subcontractor(s) for the insurance required by this section shall be considered as included in the Contract price for the project and no additional allowance will be made for payment of premiums which may be required to be paid by the Contractor and/or its Subcontractors in order to procure and maintain the requisite insurance coverage.
- M. (Not Used)
- N. (Not Used)
- O. The Contractor shall, at its expense, maintain in effect at all times during the performance or work under the Contract not less than the following coverage and limits of insurance, which shall be maintained with insurers and under forms of policy satisfactory to the District:
1. Worker's Compensation:
 - a. California Workers' Compensation - Insurance to protect the Contractor or its Subcontractor(s) from all claims under California Worker's Compensation and Employer's Liability Acts. Such coverage shall be maintained, in type and amount, in strict compliance with all applicable State and Federal statutes and regulations. The Contractor shall execute a certificate in compliance with Labor Code Section 1861, on the form provided in the Contract Documents.
 - b. The Worker's Compensation policy shall also include the provisions and/or endorsements required in Other Provisions, Part 2.01.O.6.a of this Section.
 - c. Claims Against District - If an injury occurs to any employee of the Contractor or any of the Subcontractors for which the employee or his dependents, in the event of his death, may be entitled to compensation from the District under the provisions of the Acts, or for which compensation is claimed from the District, there will be retained out of the sums due the Contractor under this Contract, an amount sufficient to cover such compensation as fixed by the Acts, until such compensation is paid or it is determined that no compensation is due. If the District is required to pay such compensation, the amount paid will be deducted and retained from such sums due, or to become due the Contractor.
 - d. In the event the Contractor is self-insured, the Contractor shall furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.
 2. General Liability: The insurance shall include, but shall not be limited to, protection against claims arising from death, bodily or personal injury, or damage to property resulting from actions, failures to act, operations or equipment of the insured, or by its employees, agents, consultants, or by anyone directly or indirectly employed by the insured. Coverage shall be at least as broad as "Insurance Services Office (ISO) Commercial General Liability Coverage Form CG 0001" (occurrence). The amount of insurance shall not be less than \$5,000,000 combined single limit per occurrence coverage applying to bodily and personal injury and property damage. If the policy contains a general aggregate limit, such limit must be amended to apply separately to the project/location. The general liability insurance coverage shall also include the provisions and/or endorsements required in Other Provisions, Part 2.01.O.6.b of this Section.

3. Automobile Liability: The insurance shall include, but shall not be limited to, protection against claims arising from death, bodily or personal injury, or damage to property resulting from actions, failures to act, operations, maintenance or use of equipment of the insured, or by its employees, agents, consultants, or by anyone directly or indirectly employed by the insured. Coverage shall be at least as broad as "Insurance Services Office Business Auto Coverage Form CA 0001," symbol 1 (any auto). Use of any symbols other than symbol 1 for liability for corporate/business owned vehicles must be declared to and approved by the District. If there are no owned or leased vehicles, symbols 8 and 9 for non-owned and hired autos shall apply. Personal automobile insurance shall apply if vehicles are individually owned. The amount of insurance shall not be less than \$5,000,000 combined single limit per accident coverage for corporate-/business-owned or commercially insured vehicles, including non-owned and hired, applying to bodily and personal injury and property damage. The amount of insurance shall not be less than \$500,000 combined single limit per accident coverage for individually-owned vehicles, applying to bodily and personal injury and property damage, or if split limits are used, \$250,000 per person, \$500,000 each accident, \$100,000 property damage. Deductible shall not exceed \$20,000. The contractor shall request the District's approval in writing for any deductible exceeding that stated. The automobile liability insurance coverage shall also include the provisions and/or endorsements required in Other Provisions, Part 2.01.O.6.c of this Section.
4. Excess/Umbrella Liability: If the Contractor's primary General Liability and/or Automobile Liability insurance coverage limits requirements are insufficient, the Contractor may provide additional limits with an excess liability and/or umbrella liability insurance policy. This form of insurance will be acceptable only if the primary and excess liability and/or umbrella liability policies provide the required coverages and include the provisions and/or endorsements required for the policies that it supplements, and those required in Other Provisions, Part 2.01.O.6.d of this Section..
5. Not Used.
6. Other Provisions:
 - a. The Contractor's Workers Compensation policy shall provide that:
 - 1) Not Used
 - b. The Contractor's General Liability policy shall contain the following provisions:
 - 1) The South Tahoe Public Utility District, the design engineer(s), any independent engineer and its consultants, City of South Lake Tahoe, County of El Dorado and each of their officers, elected officials, and employees (including, without limitation permanent, temporary and contract employees) shall be covered as additional insureds as respects liability arising out of the acts or omissions by or on behalf of the Contractor, or premises owned, occupied, or used by the Contractor. The policy shall contain no special limitations on the scope of coverage afforded to the additional insureds.
 - 2) The Contractor's General Liability policy shall be specifically endorsed to name the parties identified in 1) as additional insureds utilizing ISO form CG 20 10 11 85, or both CG 20 10 10 01 and CG 20 37 10 01, or equivalent approved by the District, to provide

- additional insured coverage. Other versions of ISO forms CG 20 10 and CG 20 37 alone will not be considered equivalent.
- 3) The Contractor's General Liability policy shall be endorsed to include a waiver of subrogation in favor of the parties named on the "Additional Insured" endorsement. Such waiver of subrogation shall be on ISO Form CG 24 04 10 93 "Waiver of Transfer of Rights of Recovery Against Others to Us" or its equivalent approved by the District.
 - 4) For any claims related to this Contract, the Contractor's insurance coverage shall be primary insurance as respects the parties named on the additional insured endorsement. Any insurance or self-insurance maintained by the additional insureds shall be excess of the Contractor's insurance and shall not contribute with it. The contractor shall supply either an endorsement or policy language demonstrating compliance with this requirement.
 - 5) The Contractor's General Liability insurance policies shall contain an endorsement stating that any aggregate limits shall apply separately to the Work.
 - 6) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
 - 7) Any failure to comply with the claim reporting provisions of the policies or any breach of a policy warranty shall not affect coverage under the policy applicable to the Additional Insureds.
- c. The Contractor's Automobile Liability policy shall contain the following provisions:
- 1) The South Tahoe Public Utility District, the design engineer(s), any independent engineer and its consultants, City of South Lake Tahoe, County of El Dorado and each of their officers, elected officials, and employees (including, without limitation permanent, temporary and contract employees) shall be covered as additional insureds, utilizing ISO form CA 20 48 02/99 Designated Insured, or its equivalent approved by the District.
 - 2) This insurance shall be primary as respects the additional insureds and any other insurance maintained by the additional insureds named above shall be in excess of this insurance and shall not be called upon to contribute in the event of a loss.
 - 3) This insurance includes cross-liability and/or severability of interest and shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
 - 4) This insurance, subject to all other terms and conditions, applies to the liability assumed by the Contractor under the terms of the Contract.
 - 5) The insurer waives any and all transfer rights of recovery (subrogation) it may have against the additional insureds named above or any other additional insureds.
 - 6) Any failure to comply with the claim reporting provisions of the policies or any breach of a policy warranty shall not affect coverage under the policy applicable to the Additional Insureds.

- d. The Contractor's Excess or Umbrella Liability policy shall provide the following provisions:
 - 1) Any insurance maintained by the Additional Insureds, whether primary, excess or otherwise, shall be in excess of the insurance provided by this policy.
 - 2) The policy shall include a Schedule of Underlying Insurance which matches the actual policy numbers and coverage limits in the actual underlying policies, and a total underlying coverage limit plus excess/umbrella limit equal to or greater than the required coverage limit for each type of coverage. The contractor shall request the District's approval in writing for any deductible.
 - 3) Any failure to comply with the claim reporting provisions of the policies or any breach of a policy warranty shall not affect coverage under the policy applicable to the Additional Insureds.
- e. Not used.
- f. Each insurance policy shall state that coverage shall not be cancelled by the Contractor or the District, reduced in scope of coverage or in limits, non-renewed, or otherwise materially changed unless the insurer(s) provide thirty (30) days written notice to the District prior to such change. Ten (10) days prior written notice shall be given to the District in the event of cancellation due to nonpayment of premium.

P. Tracking and Reporting Job-Related Incidents

- 1. The Contractor shall report by telephone to the District within twenty-four (24) hours and also provide a written report to the District within fifteen (15) days after the Contractor or any subcontractors or agents have knowledge of any incident involving death of or injury to any person or persons, or damage in excess of ten thousand dollars (\$10,000) to the Work, property of the District or others, arising out of any work done by or on behalf of the Contractor as part of the Contract. Such report shall contain:
 - a. the date and time of the incident,
 - b. the names and addresses of all persons involved, and
 - c. a description of the incident and the nature and extent of injuries and/or damages.
- 2. The Contractor and all Subcontractors shall cooperate with the District's independent investigatory efforts and provide the District with related documentation when requested (excluding confidential information restricted by law).
- 3. If requested, the Contractor shall report to the District their Recordable Incidence Rate (RIR) and Lost Time Incidence Rate (LTIR) at the end of each project. The Contractors' incidence rates shall be calculated in accordance with the following:
 - a. Recordable Incidence Rate (RIR)

$$\frac{\text{Number of OSHA Recordable Cases} \times 200,000^*}{\text{Total hours worked by all employees for the Contract}}$$
 - b. Lost Time Incidence Rate (LTIR)

$$\frac{\text{Number of Lost Time injuries and illnesses} \times 200,000^*}{\text{Total hours worked by all employees for the Contract}}$$

Note: A fatality shall not be considered a Lost Time Case (LTC) and shall not be included in the rate. Furthermore, all work-related fatalities, and all

other serious injuries meeting the legal criteria for "reporting", shall be reported immediately to Cal/OSHA as required by law and reported immediately to the District as indicated above.

** 200,000 is equivalent to the number of work hours worked by 100 full time employees at 40 hours per week/50 weeks per year.*

2.02 SUBCONTRACTS

- A. The attention of the Contractor is directed to the provisions of Public Contract Code section 4100 et seq. regarding subcontracting.
- B. Each Subcontract shall contain a suitable provision for the suspension or termination should the work be suspended or terminated or should the Subcontractor neglect or fail to conform to every provision of the Contract Documents insofar as such provisions are relevant. No Subcontractor or supplier will be recognized as such, and all persons engaged in work will be considered as employees of the Contractor, and the Contractor will be held responsible for their work, which shall be subject to the provisions of the Contract Documents. The Contractor shall be fully responsible to the District for the acts or omissions of its Subcontractors and of the persons either directly or indirectly employed by the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the District. If a legal action, including arbitration and litigation, against the District is initiated by a Subcontractor or Supplier, the Contractor shall reimburse the District for the amount of legal, engineering, and all other expenses incurred by the District in defending itself in said action.
- C. In addition to reviewing certified payroll records, the District and the Engineer reserve the right to audit the Contractor's employment and subcontractor agreements and related documents in order to verify the Contractor's compliance with the provisions of the California Labor Code and the Public Contract Code.
- D. The Contractor shall bind every subcontractor to the terms of the Contract Document as far as such terms are applicable to subcontractor's portion of the Work, and Contractor shall be responsible to the District for the acts and omissions of its subcontractors.
- E. Contractor shall perform not less than thirty percent (30%) of the total value of the Work excluding the value of materials and equipment with its own forces (i.e., without subcontracting). The 30 percent requirement shall be understood to refer to monetary value of the Work performed by Contractor, the value of which totals not less than 30 percent of the Contract Price excluding the value of materials and equipment.

2.03 GRANT CONDITIONS

- A. The conditions set forth in Exhibits A, B, and C, as attached, are in addition to conditions set forth elsewhere in these Contract Documents. If the conditions set

forth elsewhere are more stringent and/or restrictive, then those conditions shall prevail over the conditions set forth in this Section.

END OF SECTION

EXHIBIT A: GRANT TERMS & CONDITIONS

FEDERAL REQUIREMENTS

This Contract will be financed, in whole or part, with assistance from the California State Water Resources Control Board ("SWRCB") Drinking Water State Revolving Fund ("SRF"), the U.S. Environmental Protection Agency ("EPA") Community Grants Program for Critical Water Infrastructure Replacements, and the U.S. Department of Agriculture ("USDA") Forest Service.

The terms, conditions, and requirements of the District's SRF Construction Installment Sale Agreement, EPA Grant Agreement, and USDA Forest Service Federal Financial Assistance Award (collectively, the "Funding Agreements") are incorporated into this Contract by reference. Copies of the Funding Agreements are available upon request. Contractor shall comply with all requirements in and arising out of the Funding Agreements, and all federal requirements applicable to this Contract, including but not limited to the provisions listed in this Exhibit.

Contractor shall comply with 2 CFR 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, which is expressly incorporated herein by reference. The full text is available at: <https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200?toc=1>

Compliance with the following provisions provided herein is mandatory. Failure to comply may constitute a material breach of contract.

2 CFR 200 REQUIRED PROVISIONS

Appendix II to Part 200 (A) - Remedies.

The Parties shall comply with the administrative, contractual, or legal remedies in the Contract Documents when Contractor violates or breaches the Contract terms and shall comply with the applicable sanctions and penalties as appropriate in the Contract Documents.

Appendix II to Part 200 (B) - Termination for Cause/Convenience.

The Parties shall comply with the termination for cause provision and the termination for convenience provision in the Contract Documents.

Appendix II to Part 200 (C) – Equal Employment Opportunity.

A. Since the Contract meets the definition of a "federal assisted construction contract" in 41 CFR 60-1.3, Contractor agrees as follows during the performance of the Contract:

1. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. 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, sexual orientation, gender identity, 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. Contractor agrees to post in conspicuous places available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

2. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

3. Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with Contractor's legal duty to furnish information.

4. 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 by the agency contracting officer, advising the labor union or workers' representative of Contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

5. 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.

6. Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

7. In the event of Contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and Contractor may be declared ineligible for further Government 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.

8. Contractor will include the provisions of paragraphs (1) through (8) 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. Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance:

B. Provided, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, Contractor may request the United States to enter into such litigation to protect the interests of the United States.

C. District 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 District 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 Construction Contract.

D. District agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractor 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.

E. District 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 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, District 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 the grant (contract, loan, insurance, guarantee) for this project; 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.

Appendix II to Part 200 (D), (E) – Davis-Bacon Act; Contract Work Hours and Safety Standards Act.

Contractor shall comply with the Davis-Bacon Act (40 U.S.C. 3141–3148), the Copeland Anti-Kickback Act (40 U.S.C. 3145), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701–3708), as applicable. These labor standards provisions required by Appendix II to 2 CFR 200 are set forth in Exhibit B: Federal Labor Standards, which are incorporated herein by reference and made part of this Contract.

Appendix II to Part 200 (F) – Rights to Inventions Made Under a Contract or Agreement.

This provision is not applicable to the Contract.

Appendix II to Part 200 (G) – Clean Air Act and Federal Water Pollution Control Act.

A. Contractor shall comply with the following:

1. Pursuant to the Clean Air Act, (1) Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq., (2) Contractor agrees to report each violation to District and understands and agrees that District will, in turn, report each violation as required to assure notification to the Federal awarding agency and the appropriate Environmental Protection District Regional Office, and (3) Contractor agrees to include these requirements in each subcontract exceeding \$150,000.

2. Pursuant to the Federal Water Pollution Control Act, (1) Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., (2) Contractor agrees to report each violation to District and understands and agrees that District will, in turn, report each violation as required to assure notification to the Federal awarding agency and the appropriate Environmental Protection Agency Regional Office, and (3) Contractor agrees to include these requirements in each subcontract exceeding \$150,000.

Appendix II to Part 200 (H) – Debarment and Suspension.

A. This Contract is a covered transaction for purposes of 2 CFR 180 and 2 CFR 3000 regarding federal regulations governing non-procurement debarment and suspension. As such Contractor is required to verify that none of Contractor's principals (defined at 2 CFR 180.995) or its affiliates (defined at 2 CFR 180.905) are excluded (defined at 2 CFR § 180.940) or disqualified (defined at 2 CFR § 180.935).

B. Contractor must comply with 2 CFR 180, subpart C and 2 CFR 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

C. This certification is a material representation of fact relied upon by District. If it is later determined that Contractor did not comply with 2 CFR 180, subpart C and 2 CFR 3000, subpart C, in addition to remedies available to District, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

D. Contractor agrees to comply with the requirements of 2 CFR 180, subpart C and 2 CFR 3000, subpart C throughout the Contract. Contractor further agrees to include a provision requiring such compliance in its subcontracts.

E. Contractor warrants that it is not debarred, suspended, or otherwise excluded from or ineligible for participation in any federal programs. Contractor also agrees to verify that all subcontractors performing work under this Contract are not debarred, disqualified, or otherwise prohibited from participation in accordance with the requirements above. Contractor further agrees to notify District in writing immediately if Contractor or its subcontractors are not in compliance during the term of this Contract.

F. The District will not award a contract to parties listed on the government exclusions in the System for Award Management (<https://sam.gov/entity-information>). As such, Contractor is required to verify that none of Contractor's principles or subcontractors are excluded.

Appendix II to Part 200 (I) – Byrd Anti-Lobbying Act:

Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the District who in turn will forward the certification(s) to the awarding agency. The Lobbying Certification and Standard Form-LLL, “Disclosure Form to Report Lobbying” are included in the Exhibit C: Grant Forms section of this package.

Appendix II to Part 200 (J) – §200.323 Procurement of Recovered Materials.

A. Contractor shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement.

B. In the performance of this Contract, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired: competitively within a timeframe providing for compliance with the contract performance schedule; meeting contract performance requirements; or at a reasonable price.

C. Information about this requirement, along with the list of EPA-designate items, is available at EPA's Comprehensive Procurement Guidelines website, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

D. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

Appendix II to Part 200 (K) – §200.216 Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment:

A. Contractor shall not contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system funded under this Contract. As described in Public Law 115–232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

1. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

2. Telecommunications or video surveillance services provided by such entities or using such equipment.

3. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

B. See Public Law 115-232, section 889 for additional information.

Appendix II to Part 200 (L) – §200.322 Domestic Preferences for Procurement.

A. Contractor shall, to the greatest extent practicable, purchase, acquire, or use goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts.

B. For purposes of this section:

1. “Produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

2. “Manufactured products” means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

GENERAL FUNDING PROVISIONS

Build America, Buy America Preference

This project is funded in whole or in part with federal financial assistance and is subject to the Build America, Buy America Act (BABA), Pub. L. 117-58, §§ 70901 to 70927, and its implementing regulations at 2 CFR Part 184. Contractors and subcontractors shall comply with all applicable requirements.

A. Buy America Preference: None of the funds provided under this award may be used for an infrastructure project unless:

1. All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;

2. All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for

determining the minimum amount of domestic content of the manufactured product;
and

3. All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States. The construction material standards are listed below.

- a. Incorporation into an infrastructure project. The Buy America Preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America Preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.
- b. Categorization of articles, materials, and supplies. An article, material, or supply should only be classified into one of the following categories: (i) Iron or steel products; (ii) Manufactured products; (iii) Construction materials; or (iv) Section 70917(c) materials. An article, material, or supply should not be considered to fall into multiple categories. In some cases, an article, material, or supply may not fall under any of the categories listed in this paragraph. The classification of an article, material, or supply as falling into one of the categories listed in this paragraph must be made based on its status at the time it is brought to the work site for incorporation into an infrastructure project. In general, the work site is the location of the infrastructure project at which the iron, steel, manufactured products, and construction materials will be incorporated.
- c. Application of the Buy America Preference by category. An article, material, or supply incorporated into an infrastructure project must meet the Buy America Preference for only the single category in which it is classified.
- d. Determining the cost of components for manufactured products. In determining whether the cost of components for manufactured products is greater than 55 percent of the total cost of all components, use the following instructions:
 1. For components purchased by the manufacturer, the acquisition cost, including transportation costs to the place of incorporation into the manufactured product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

2. For components manufactured by the manufacturer, all costs associated with the manufacture of the component, including transportation costs as described above, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the manufactured product.

B. Construction material standards: The Buy America Preference applies to the following construction materials incorporated into infrastructure projects. Each construction material is followed by a standard for the material to be considered “produced in the United States.” Except as specifically provided, only a single standard should be applied to a single construction material.

(1) Non-ferrous metals. All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

(2) Plastic and polymer-based products. All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

(3) Glass. All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

(4) Fiber optic cable (including drop cable). All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

(5) Optical fiber. All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

(6) Lumber. All manufacturing processes, from initial debarking through treatment and planning, occurred in the United States.

(7) Drywall. All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

(8) Engineered wood. All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

C. The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

D. Contractor and Subcontractor Certification: The Contractor shall ensure that all subcontractors comply with BABA requirements. Contractor and subcontractors shall obtain written certifications from manufacturers and suppliers that all covered materials meet BABA requirements. Contractor shall submit a BABA compliance certification to South Tahoe Public Utility District at contract completion (or sooner if requested), confirming that all iron, steel, manufactured products, and construction materials incorporated into the project meet BABA requirements or that valid waivers have been obtained.

E. Questions: For questions regarding BABA compliance, contact South Tahoe Public Utility District.

F. Contractor shall include this Build America, Buy America Act provision, in all subcontracts.

American Iron and Steel (AIS).

A. Contractor acknowledges that all of the iron and steel products used in the Project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Contract. Contractor hereby represents, warrants and covenants to and for the benefit of the District and the EPA that (a) Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the District or the EPA.

1. Definitions.

a. "iron and steel products" mean the following products made primarily of iron or steel, where "primarily" means 50% or greater iron/steel, measured by materials costs: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and ferrous construction materials.

b. "steel" means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements.

2. Domestic preference.

a. This term and condition requires that all iron and steel products used for a project for the construction, alteration, maintenance or repair of a public water system or treatment work are produced in the United States except as provided in paragraph (b)(2) of this section and condition. "Produced in the United States means all manufacturing processes, beginning with initial melting, must occur in the United States.

b. This requirement shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency finds that: (i) applying the requirement would be inconsistent with the public interest; (ii) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or (iii) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

c. The Build America, Buy America (BABA) Act requirements do not supersede the AIS requirements, and both provisions still apply and work in conjunction. Compliance with AIS requirements meets the BABA requirements for iron and steel.

B. Contractor shall include this provision in all subcontracts.

Davis-Bacon and Related Acts.

A. Davis–Bacon Act, as amended (40 U.S.C. 3141–3148). Contractor shall comply with the Davis–Bacon Act (40 U.S.C. 3141–3144, and 3146–3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, Contractor shall be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, Contractor shall pay wages not less than once a week. The non–Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. Contractor shall also comply with the Copeland “Anti–Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. All suspected violations shall be reported to the applicable Federal funding agency. Award of this contract is conditioned upon Contractor’s acceptance of the applicable U.S. Department of Labor wage determination. Contractors shall include these labor standards provisions in all subcontracts. Refer to Exhibit B: Federal Labor Standards for additional Davis-Bacon Act provisions, applicable wage determination requirements, and the required Davis-Bacon construction site posting.

B. Contract Work Hours and Safety Standards Act (40 U.S.C. 3701–3708). When applicable, Contractor shall comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR 5). Under 40 U.S.C. 3702 of the Act, Contractor must compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Covered Unmanned Aircraft Systems.

To the extent applicable, Contractor shall comply with the requirements of the American Security Drone Act, Pub. L. No. 118-31, §§ 1821-32 (2023), including the prohibition on use of Federal funds for procurements and operation of covered unmanned aircraft systems from covered entities. Contractor shall ensure that any unmanned aircraft systems, including drones, purchased and/or used to complete the work under the Agreement are not manufactured or assembled by an American Security Drone Act-covered foreign entity. A list of covered foreign entities is

maintained by the Federal Acquisition Security Council (FASC) and published in the System for Award Management (SAM). Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance by the EPA or the USDA Forest Service.

Contracting with Small Businesses, Minority Businesses, Women's Business Enterprises, Veteran-Owned Businesses, and Labor Surplus Area Firms.

A. In accordance with 2 CFR 200.321, Contractor shall take the required affirmative steps to ensure that small businesses, minority businesses, women's business enterprises, veteran-owned businesses, and labor surplus area firms, as identified on the U.S. Department of Labor's list, are used when possible, as set forth below.

Such consideration means:

1. These business types are included on solicitation lists;
2. These business types are solicited whenever they are deemed eligible as potential sources;
3. Dividing procurement transactions into separate procurements to permit maximum participation by these business types;
4. Establishing delivery schedules (for example, the percentage of an order to be delivered by a given date of each month) that encourage participation by these business types; and
5. Utilizing organizations such as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

Disadvantaged Business Enterprises (DBE).

As a condition of receiving EPA and SRF funding, the District and all contractors and subcontractors shall comply with the EPA Disadvantaged Business Enterprise ("DBE") Program set forth in 40 CFR 33. For purposes of this Contract, Disadvantaged Business Enterprises or DBEs are defined below and in 40 CFR 33.

A. Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. Contractor shall carry out the applicable requirements of 40 CFR 33 in the award and administration of subcontracts funded in whole or in part with EPA financial assistance. Failure to comply with these requirements shall constitute a material breach of this Contract and may result in termination or other legally available remedies.

B. Contractor agrees to make good faith efforts whenever procuring construction, equipment, services and supplies pursuant to 40 CFR Section 33.301, including the specific six good faith efforts at 40 CFR 33.301(a)-(f). Good Faith Efforts are described below.

C. Disadvantaged Business Enterprises are:

1. Entities owned and/or controlled by socially and economically disadvantaged individuals as described by Title X of the Clean Air Act Amendments of

1990 (42 U.S.C. 7601 note) (10% statute), and Public Law 102-389 (42 U.S.C. 4370d) (8% statute), respectively;

2. Minority Business Enterprise (MBE) - entities that are at least 51% owned and/or controlled by a socially and economically disadvantaged individual as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note), and Public Law 102-389 (42 U.S.C. 4370d), respectively;

3. Women Business Enterprise (WBE) - entities that are at least 51% owned and/or controlled by women;

4. Small Business Enterprise (SBE);

5. Small Business in a Rural Area (SBRA);

6. Labor Surplus Area Firm (LSAF); or

7. Historically Underutilized Business (HUB) Zone Small Business Concern or a concern under a successor program.

D. Certifying DBE Firms. Under the DBE Program, entities can no longer self-certify, and contractors and sub-contractors must be certified at bid opening. Contractors and sub-contractors must provide to the District proof of DBE certification. Certifications will be accepted from the following:

1. The U.S. Environmental Protection Agency (USEPA)

2. The Small Business Administration (SBA)

3. The Department of Transportation's State implemented DBE Certification Program (with U.S. citizenship)

4. Tribal, State and Local governments

5. Independent private organization certifications

If an entity holds one of these certifications, it is considered acceptable for establishing status under the DBE Program.

E. Six Good Faith Efforts. Contractor agrees to make good faith efforts whenever procuring construction, equipment, services and supplies pursuant to 40 CFR Section 33.301, including the specific six good faith efforts at 40 CFR 33.301(a)-(f). Such efforts shall include:

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.

2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in

the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

5. Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.

6. If the prime contractor awards subcontracts, require the prime contractor to take the five good faith efforts listed above.

To ensure qualified DBEs are informed of the project, Contractor must circulate the advertisement for bids for each project by posting in a newspaper or on an established e-Procurement website such as Planet Bids (www.planetbids.com), DBE Good Faith (www.dbegoodfaith.com), or an equivalent website.

F. Required Documentation and Reporting.

1. Bidders List: Contractors must create and maintain, and submit to District, a Bidders List. The Bidders list must include all firms that bid or quote on prime contracts, or bid or quote on subcontracts, including both DBEs and non-DBEs. Information retained on the Bidder's List must include the following:

- a. Entity's name with point of contact;
- b. Entity's mailing address and telephone number;
- c. The project description on which the entity bid or quoted and when;
- d. Amount of bid/quote; and
- e. Entity's status as a DBE or non-DBE.

A sample Bidders List form is located in the Exhibit C: Grant Forms section of this package.

2. Proof of Good Faith Efforts: Contractor shall complete and submit all required DBE participation forms, as set forth in the Exhibit C: Grant Forms section of this package, with its bid proposal.

3. Recordkeeping: The District and prime contractors shall maintain all records related to DBE solicitations, certifications, bids, quotes, contract awards, and subcontracting for the period required in the Record Retention section of this package.

Environmental Compliance.

A. Contractor acknowledges that the Project may be subject to the National Environmental Policy Act ("NEPA"), the California Environmental Quality Act ("CEQA"), Section 106 of the National Historic Preservation Act (54 USC 306108), the regulations and ordinances of the Tahoe Regional Planning Agency ("TRPA"), and other applicable federal, state, and local environmental regulatory requirements. Contractor shall not commence or continue any portion of the work requiring environmental clearance until authorized in by District.

B. Contractor shall comply with all applicable environmental and cultural resource approvals, permits, mitigation measures, monitoring requirements, conditions of approval, and any approved Cultural Resources Report or related documentation prepared for the Project.

C. The specific environmental and cultural resource requirements applicable to the Project, including procedures in the event of discovery of historic properties, archaeological resources, or human remains, are set forth in the General Conditions section of this Contract and are incorporated herein by this reference. Contractor shall strictly comply with those requirements and obligations.

SRF PROVISIONS

Contractor Acknowledgment.

Funding for this Project has been provided in full or in part through an agreement with the California State Water Resources Control Board (SWRCB) Drinking Water State Revolving Fund (SRF) and is capitalized through a variety of funding sources, including grants from the United States Environmental Protection Agency and state bond proceeds. The contents of this document do not necessarily reflect the views and policies of the foregoing, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Compliance with Applicable Laws, Rules, and Requirements.

A. Contractor shall comply with all applicable federal and state laws, rules, guidelines, regulations, and requirements.

B. Contractor shall include this provision in all subcontracts.

Build America, Buy America (BABA).

A. Contractor shall comply with the Build America, Buy America Act, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the Build America, Buy America Act provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

American Iron and Steel (AIS).

A. Contractor acknowledges and agrees to comply with the American Iron and Steel provision, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the AIS provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

Davis-Bacon and Related Acts Requirements.

A. By accepting this Contract, Contractor acknowledges and agrees to comply with the Davis-Bacon and Related Acts Requirements for Contractors and Subcontractors Under EPA Grants. The full text of these requirements is available at the following links:

https://www.epa.gov/system/files/documents/2023-10/dbra_requirements_for_contractors_and_subcontractors_under_epa_grants.pdf

https://www.epa.gov/system/files/documents/2023-10/dbra_requirements_for_contracts_in_excess_of_100_000_under_epa_grants.pdf

B. Contractors must verify registration in approved U.S. Department of Labor apprenticeship programs. The California Department of Industrial Relations (CDIR) and the California Apprenticeship Council (CAC) are no longer recognized by the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (DOL/ETA OA). Therefore, all apprentices working on construction projects financed through SRF agreements must be registered in a bona fide apprenticeship program recognized by the Bureau of Apprenticeship and Training of the U.S. Department of Labor.

C. Contractor shall include this provision in all subcontracts.

D. Contractor shall refer to the General Funding Provisions section of this Exhibit for additional federal requirements and Exhibit B: Federal Labor Standards for additional Davis-Bacon Act provisions, applicable wage determination requirements, and the required Davis-Bacon construction site posting.

Disadvantaged Business Enterprises (DBE).

A. Contractor acknowledges and agrees to comply with the DBE provision, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the DBE provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

Records, Audit and Inspection.

A. Contractor must maintain all books, records and other material relative to the Project for a minimum of thirty-six (36) years after Project completion.

B. Contractor must make available to the State Water Board, the California State Auditor, the Bureau of State Audits, the USEPA, the USEPA's Office of Inspector General, the Internal Revenue Service, the Governor, the District, or any authorized representatives of the aforementioned, all books, records and other material relative to the Project for inspection, copying and audit at all reasonable times and at a minimum during normal business hours.

C. Contractor must allow interviews during normal business hours of any employees who might reasonably have information related to such records.

D. Contractor shall include this provision in all subcontracts.

Bonding.

Contractor shall furnish a Performance Bond in accordance with the Contract.

Non-Discrimination.

A. Contractor must not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, sexual orientation, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, denial of family care leave, or genetic information, gender, gender identity, gender expression, or military and veteran status.

B. Contractor shall comply with the provisions of the Fair Employment and Housing Act and the regulations promulgated thereunder. (Gov. Code, § 12990, subds. (a)–(f) et seq.; Cal. Code Regs., tit. 2, § 7285 et seq.)

C. Contractor must comply with all applicable federal civil rights regulations, including statutory and national policy requirements. (2 CFR 200.300). This includes, to the greatest extent practicable and to the extent permitted by law, the requirement to respect and protect the freedom of persons and organizations to engage in political and religious speech. (Executive Order 13798).

D. Contractor must give written notice of its obligations under this provision to labor organizations with which it has a collective bargaining or other agreement.

E. Contractors and subcontractors must ensure that the evaluation and treatment of their employees and applicants for employment are free from discrimination and harassment.

F. Contractor shall include this provision in all subcontracts.

Insurance.

A. Contractor shall include the State Water Board, its officers, agents, employees, and servant as additional insured for all insurance policies required by this Contract.

B. Contractor shall include this provision in all subcontracts.

Excluded Parties.

A. Contractor shall not subcontract with any party who is debarred or suspended or otherwise excluded from or ineligible for participation in any work overseen, directed, funded, or administered by the State Water Board program. The State Water Board's List of Disqualified Businesses and Persons is located at http://www.waterboards.ca.gov/water_issues/programs/enforcement/fwa/dbp.shtml

B. A Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Certification located in the Exhibit C: Grant Forms section in this package is required to do business with the District.

C. Contractor shall include this provision in all subcontracts.

Administrative Remedies.

Contractor personally attests that all information it furnishes related to funds disbursed or costs claimed for reimbursement is true, accurate, and complete to the best of Contractor's knowledge. The State Water Board may impose civil liability administratively against Contractor if Contractor fails to do so (Reference Wat. Code § 13498).

Trafficking.

A. Contractor and its employees warrant that it will not engage in severe forms of trafficking in persons, procure a commercial sex act during the term of this Contract, or use forced labor in the performance of this Contract.

B. Contractor shall include this provision in all subcontracts.

Miscellaneous.

A. Contractor will comply with directives or orders issued pursuant to Division 7 of the Water Code. Contractor shall include this provision in all subcontracts.

B. Contractors shall comply with, USEPA's Scientific Integrity Policy, available at <https://www.epa.gov/osa/policy-epa-scientific-integrity>, when conducting, supervising, and communicating science and when using or applying the results of science. For purposes of this condition scientific activities include, but are not limited to, computer modelling, economic analysis, field sampling, laboratory experimentation, demonstrating new technology, statistical analysis, and writing a review article on a scientific issue. Contractor must refrain from acts of research misconduct, including publication or reporting, as described in USEPA's Policy and Procedures for Addressing Research Misconduct, Section 9.C, and must ensure scientific findings are generated and disseminated in a timely and transparent manner. Contractor shall include this provision in all subcontracts.

C. Contractor agrees to comply with the requirements of the U.S. Environmental Protection Agency's Program for the Utilization of Small, Minority, and Women's Business Enterprises referenced in the General Funding Provisions section of this package.

EPA COMMUNITY GRANT PROGRAM PROVISIONS

Build America, Buy America (BABA).

A. Contractor shall comply with the Build America, Buy America Act, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the Build America, Buy America Act provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

American Iron and Steel (AIS).

A. Contractor acknowledges and agrees to comply with the American Iron and Steel Requirement, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the AIS provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

Davis-Bacon and Related Acts (DBRA) Acknowledgement.

A. By accepting this Contract, Contractor acknowledges and agrees to comply with the Davis-Bacon and Related Acts Requirements for Contractors and Subcontractors Under EPA Grants. The full text of these requirements is available at the following links:

https://www.epa.gov/system/files/documents/2023-10/dbra_requirements_for_contractors_and_subcontractors_under_epa_grants.pdf

https://www.epa.gov/system/files/documents/2023-10/dbra_requirements_for_contracts_in_excess_of_100_000_under_epa_grants.pdf

B. Contractor shall include this provision in all subcontracts.

C. Contractor shall refer to the General Funding Provisions section of this Exhibit for additional federal requirements and Exhibit B: Federal Labor Standards: Federal Labor Standards for additional Davis-Bacon Act provisions, applicable wage determination requirements, and the required Davis-Bacon construction site posting.

Davis-Bacon Wages.

A. Contractor shall refer to the General Funding Provisions section of this Exhibit for additional federal requirements and Exhibit B: Federal Labor Standards: Federal Labor Standards for additional Davis-Bacon Act provisions, applicable wage determination requirements, and the required Davis-Bacon construction site posting.

Disadvantaged Business Enterprises (DBE).

A. Contractor acknowledges and agrees to comply with the DBE provision, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the DBE provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

Debarment and Suspension.

This contract is a covered transaction for purposes of 2 CFR 180 and 2 CFR 1532. Contractor shall comply with Subpart C of 2 CFR Part 180, as implemented and supplemented by 2 CFR 1532.

A. Contractor shall not enter into any lower tier covered transaction with a person that is suspended, debarred, or otherwise excluded from participation in Federal assistance programs. Contractor shall verify exclusion status through <https://sam.gov/SAM/> or by obtaining appropriate certification.

B. Contractor shall include a term or condition in all lower tier covered transactions requiring compliance with 2 CFR Part 180 and 2 CFR Part 1532 and shall require similar flow-down in subsequent lower tier covered transactions.

C. Contractor shall disclose to District any information required under 2 CFR 180.335 related to disclosure of suspension, debarment, or eligibility status. Failure to comply may result in

remedies permitted by law, including suspension, debarment, termination, or other administrative remedies.

Contract Administration Provisions (40 CFR 33.302)

- A. Contractor agrees to pay its subcontractors for satisfactory performance no more than 30 days from Contractor's receipt of payment from the District.
- B. Contractor agrees to notify District prior to any termination of a DBE subcontractor for convenience.
- C. If a DBE subcontractor fails to complete work under a subcontract for any reason, Contractor agrees to employ the six good faith efforts at 40 CFR 33.301 if soliciting a replacement subcontractor.

Miscellaneous.

- A. Contractor agrees to comply with the requirements of the U.S. Environmental Protection Agency's Program for the Utilization of Small, Minority, and Women's Business Enterprises referenced in the General Funding Provisions section of this package.
- B. Contractors shall comply with, USEPA's Scientific Integrity Policy, available at <https://www.epa.gov/osa/policy-epa-scientific-integrity>, when conducting, supervising, and communicating science and when using or applying the results of science. For purposes of this condition scientific activities include, but are not limited to, computer modelling, economic analysis, field sampling, laboratory experimentation, demonstrating new technology, statistical analysis, and writing a review article on a scientific issue. Contractor must refrain from acts of research misconduct, including publication or reporting, as described in USEPA's Policy and Procedures for Addressing Research Misconduct, Section 9.C, and must ensure scientific findings are generated and disseminated in a timely and transparent manner. Contractor shall include this provision in all subcontracts.

USDA FOREST SERVICE GRANT PROVISIONS

Debarment and Suspension

- A. Contractor shall immediately inform the District if they or any principles or subcontractors are excluded, debarred, or suspended from entering into covered transactions with the federal government according to the terms of 2 CFR 180. This applies whether the exclusion, debarment or suspension is voluntary or involuntary.
- B. Contractor shall comply with Subpart C of 2 CFR 180 by verifying, prior to entering into any subcontract or lower tier covered transaction under this Contract, that the proposed subcontractor or lower tier participant is not debarred, suspended, proposed for debarment, or otherwise excluded from participation in Federal assistance programs, and by ensuring that such requirements are included in and flowed down to all lower tier covered transactions. Contractor shall verify exclusion status through <https://sam.gov/SAM/> or by obtaining appropriate certification.

C. Contractor must complete the form AD-1048, Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion, Lower Tier Covered Transactions, included in the Exhibit C: Grant Forms section of this package.

Buy America Build America

A. Contractor shall comply with the Build America, Buy America Act, as referenced in the General Funding Provisions section of this Exhibit.

B. Contractor shall include the Build America, Buy America Act provision, as referenced in the General Funding Provisions section of this Exhibit, in all subcontracts.

Text Messaging While Driving

Contractor is encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POVs or GOVs when driving while on official Government business or when performing any work for or on behalf of the Government. Reference Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving."

Davis-Bacon Act

A. Contractor agrees that laborers and mechanics shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code (commonly referred to as the "Davis-Bacon Act").

B. Contractor shall include this provision in all subcontracts.

C. Contractor shall refer to the General Funding Provisions section of this Exhibit for additional federal requirements and Exhibit B: Federal Labor Standards for additional Davis-Bacon Act provisions, applicable wage determination requirements, and the required Davis-Bacon construction site posting.

EXHIBIT B: FEDERAL LABOR STANDARDS

DAVIS-BACON ACT COMPLIANCE

A. This Project is funded with federal financial assistance that requires compliance with the with the Davis-Bacon Act (40 U.S.C. 3141–3148), which includes the following:

1. Include required wage determinations and required clauses in subcontractor bids and contracts.
2. Verify registration in approved U.S. Department of Labor Apprenticeship Programs.
3. Facilitate access to employees for the District to conduct wage rate interviews.
4. Submit weekly certified payroll to the District within seven days after the regular payment date of the payroll period.
5. Post in a conspicuous location applicable wage determinations and Davis-Bacon posters at construction site.
6. Contractors and subcontractors shall be prepared to make available any Davis-Bacon documentation to State Water Board, EPA, USFS, DOL, and any other federal auditing authorities.
7. After construction:
 - a. Certified payrolls and interview forms must be kept for three (3) years.
 - b. Davis-Bacon documentation must remain available for review by the State Water Board, EPA, USFS, DOL, and any other federal auditing authorities for a period of at least three (3) years, or for the number of years specified in the Grant Terms and Conditions section, whichever is longer, following completion of construction.

B. Davis-Bacon compliance is required for the entirety of the construction activities financed by the assistance agreement through completion of construction, no matter when construction commences.

C. Reference Links:

1. U.S. Department of Labor
 - a. Davis-Bacon and Related Acts: <http://www.dol.gov/whd/programs/dbra/index.htm>
 - b. Wage Determination Online: <https://sam.gov/content/wage-determinations>
 - c. Office of Apprenticeship: <http://www.doleta.gov/oa/>

DAVIS-BACON ACT REQUIRED CONTRACT CLAUSES

A. Requirements for Contractors and Subcontractors Under EPA Grants

The contractor acknowledges that by entering into this contract with a contracting agency, funded by an Environmental Protection Agency assistance agreement (grant), the contractor agrees to comply with the following terms and conditions in accordance with 29 CFR 5.5, if this contract is for activities covered under Davis-Bacon and Related Acts (DBRA) and exceeds (or will exceed) \$2,000. Definitions for many of the terms used below are provided in 29 CFR 5.2.

**The required contract clauses below are also applicable to U.S. Forest Service funding.*

(a) Required Contract Clauses

(1) Minimum Wages

(i) Wage rates and fringe benefits All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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.

As provided in paragraphs (d) and (e) of this section, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of this section; 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph (a)(4) of this section. 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 classifications and wage rates conformed under paragraph (a)(1)(iii) of this section) and the Davis-Bacon poster (WH-1321) must 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) Frequently recurring classifications

(A) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR Part 1, a wage determination may contain, pursuant to

§ 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph (a)(1)(iii) of this section, provided that:

(1) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(2) The classification is used in the area by the construction industry; and

(3) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(B) The Administrator will establish wage rates for such classifications in accordance with paragraph (a)(1)(iii)(A)(3) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

(iii) Conformance

(A) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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; and

(2) The classification is used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(C) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a

determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(E) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs (a)(1)(iii)(C) and (D) of this section. The contractor must furnish a written copy of such determination to each affected worker, or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph (a)(1)(iii)(C) or (D) of this section must 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.

(iv) Fringe benefits not expressed as an hourly rate 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(v) Unfunded plans 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, in accordance with the criteria set forth in § 5.28, 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.

(vi) Interest In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

(2) Withholding

(i) Withholding requirements

The EPA, grant recipient, subrecipient at any tier, and/or contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in paragraph (a) of this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2).

The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph (a)(3)(iv) of this section, the EPA, grant recipient, subrecipient at any tier, and/or contracting agency may

on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, 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.

(ii) Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

(A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(B) A contracting agency for its procurement costs;

(C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(D) A contractor's assignee(s);

(E) A contractor's successor(s); or

(F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

(3) Records and certified payrolls

(i) Basic record requirements

(A) Length of record retention All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(B) Information required Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(C) Additional records relating to fringe benefits Whenever the Secretary of Labor has found under paragraph (a)(1)(v) of this section 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must 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.

(D) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

(ii) Certified payroll requirements

(A) Frequency and method of submission The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts covered work is performed, certified payrolls to the contracting agency if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(B) Information required

The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph (a)(3)(i)(B) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

(C) Statement of Compliance Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(1) That the certified payroll for the payroll period contains the information required to be provided under paragraph (a)(3)(ii) of this section, the appropriate information and basic records are being maintained under paragraph (a)(3)(i) of this section, and such information and records are correct and complete;

(2) That each laborer or mechanic (including each helper and apprentice) working 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; and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(D) Use of Optional Form WH-347 The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(C) of this section.

(E) Signature The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(F) Falsification The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(G) Length of certified payroll retention The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

(iii) Contracts, subcontracts, and related documents The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed. (iv) Required disclosures and access

(A) Required record disclosures and access to workers The contractor or subcontractor must make the records required under paragraphs (a)(3)(i) through (iii) of this section, and any other documents that the EPA, recipient, or subrecipient at any tier, and/or contracting agency, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the EPA, recipient, or subrecipient at any tier, and/or contracting agency, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(B) Sanctions for non-compliance with records and worker access requirements If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for

an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(C) Required information disclosures Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the Environmental Protection Agency if the agency is a party to the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to the EPA, recipient, or subrecipient at any tier, contracting agency, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

(4) Apprentices and Equal Employment Opportunity

(i) Apprentices

(A) Rate of pay Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(B) Fringe benefits Apprentices must 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 must be paid in accordance with that determination.

(C) Apprenticeship ratio The allowable ratio of apprentices to journey workers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph (a)(4)(i)(D) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph (a)(4)(i)(A) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(D) Reciprocity of ratios and wage rates Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journey worker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed. (ii) Equal employment opportunity The use of apprentices and journey workers under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) is reserved

(6) Subcontracts

The contractor or subcontractor must insert in any subcontracts the clauses contained in paragraphs (a)(1) through (11) of this section or a link to the DBRA Requirements for Contractors and Subcontractors Under EPA Grants document on EPA's Contract Provisions for Davis-Bacon and Related Acts webpage, along with the applicable wage determination(s) and such other clauses or contract modifications as the Environmental Protection Agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

(7) – (9) are reserved

(10) Certification of Eligibility

(i) By entering into this contract, the contractor certifies that neither it 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 40 U.S.C. 3144(b) or § 5.12(a).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

(iii) The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

(11) Anti-Retaliation

It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

(i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

(ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

(iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or (iv) Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

B. Requirements for Contracts in Excess of \$100,000 Under EPA Grants

Under the Davis-Bacon and Related Acts (DBRA), all contracts awarded under EPA assistance agreements (grants) in excess of \$100,000 that involve the employment of mechanics or laborers require contractors and subcontractors to comply with the overtime provisions of the Contract Wage Hours and Safety Standards Act (CWHSSA) at 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations in 29 CFR Part 5 and 2 CFR 200 Appendix II(E). By accepting this contract, you agree to comply with the requirements of CWHSSA described below, in addition to the DBRA Requirements for Contractors Under EPA Grants.

These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence. For the purposes of this provision, the terms "laborers and mechanics" include watchpersons and guards.

(b) Contract Work Hours and Safety Standards Act (CWHSSA).

(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 he or she is employed on such work to work in excess of forty 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 forty hours in such workweek.

(2) Violation; Liability for Unpaid Wages; Liquidated Damages

In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1).

(3) Withholding for Unpaid Wages and Liquidated Damages

(i) Withholding process.

The EPA, recipient, or subrecipient at any tier, and/or contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this paragraph (b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

(ii) Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with paragraph (a)(2)(i) or (b)(3)(i) of this section, or both, over claims to those funds by:

(A) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(B) A contracting agency for its reprocurement costs;

(C) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(D) A contractor's assignee(s);

(E) A contractor's successor(s); or

(F) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

(4) Subcontracts

The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs (b)(1) through (5) of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

(5) Anti-Retaliation

It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to

discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

(i) Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

(ii) Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

(iii) Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

(iv) Informing any other person about their rights under CWHSSA or this part.

WAGE DETERMINATIONS –

Included at End of Exhibit B

<https://sam.gov/wage-determinations>

ADDITIONAL RESOURCES

Davis-Bacon and Related Acts: <https://www.dol.gov/agencies/whd/government-contracts/construction>

Payroll Form Example (WH-347): <http://www.dol.gov/whd/forms/wh347.pdf>

Instructions for Completing Payroll Form WH-347:
<http://www.dol.gov/whd/forms/wh347instr.htm>

Wage Determinations Online: <https://sam.gov/content/wage-determinations>

WORKER RIGHTS

UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS WORKING ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

The law requires employers to display this poster where employees can readily see it.

PREVAILING WAGES

You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME

You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT

Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES

Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

RETALIATION

The law prohibits discharging or otherwise retaliating against workers for filing a complaint, cooperating in an investigation, or testifying in a proceeding under the Davis-Bacon and Related Acts.

PROPER PAY

If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.



WAGE AND HOUR DIVISION
UNITED STATES DEPARTMENT OF LABOR

1-866-487-9243
TTY: 1-877-889-5627
www.dol.gov/whd



WH1321 REV 10/17

"General Decision Number: CA20260019 01/30/2026

Superseded General Decision Number: CA20250019

State: California

Construction Type: Residential

Counties: Alameda, Contra Costa, El Dorado, Marin, Monterey, Napa, Placer, Sacramento, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Sutter, Yolo and Yuba Counties in California.

RESIDENTIAL CONSTRUCTION PROJECTS (including single family homes and apartments up to and including 4 stories)

Modification Number	Publication Date
0	01/02/2026
1	01/09/2026
2	01/16/2026
3	01/23/2026
4	01/30/2026

ASBE0016-002 01/01/2024

AREA 1: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: EL DORADO, MONTEREY, PLACER, SACRAMENTO, SAN BENITO, SANTA CRUZ, SOLANO, SONOMA, SUTTER, YOLO, & YUBA COUNTIES

	Rates	Fringes

Asbestos Workers/Insulator
(Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems)

Area 1.....	\$ 84.76	25.07
Area 2.....	\$ 64.56	25.07

ASBE0016-009 05/01/2024

AREA 1: EL DORADO, MONTEREY, PLACER, SACRAMENTO, SAN BENITO, SANTA CRUZ, SOLANO, SANOMA, SUTTER, YOLO & YUBA COUNTIES

AREA 2: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO & SANTA CLARA 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.....	\$ 34.56	11.40
Area 2.....	\$ 36.53	9.27

BRCA0003-001 08/01/2024

	Rates	Fringes

MARBLE FINISHER.....	\$ 42.06	19.80

BRCA0003-002 05/01/2024

	Rates	Fringes

BRICKLAYER

(7) Marin, Napa, San Francisco, San Mateo, Solano, Sonoma.....	\$ 57.02	28.50
(8) Alameda, Contra Costa, San Benito, Santa Clara.....	\$ 56.94	26.28
(9) El Dorado, Placer, Sacramento, Sutter.....	\$ 52.76	25.01
(16) Monterey, Santa Cruz...	\$ 54.18	27.82

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) Gunite nozzle person shall receive \$1.25 per hour above the regular rate.

BRCA0003-007 07/01/2024

	Rates	Fringes

TERRAZZO FINISHER.....	\$ 44.93	20.98
TERRAZZO WORKER.....	\$ 60.58	29.79

FOOTNOTE: Base machine operator: \$1.00 per hour additional.

BRCA0003-009 08/01/2024

	Rates	Fringes

MARBLE MASON.....	\$ 61.72	30.31

BRCA0003-012 04/01/2024

	Rates	Fringes

TILE FINISHER

Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano.....	\$ 37.75	19.28
El Dorado, Placer, Sacramento, Sutter, Yolo,		

3/9/26, 3:29 PM

SAM.gov

Yuba.....	\$ 35.00	17.44
Sonoma.....	\$ 35.78	19.23
Tile Layer		
Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano.....	\$ 59.92	22.62
El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba.....	\$ 55.55	21.08
Sonoma.....	\$ 56.79	22.54

CARP0022-001 07/01/2023

San Francisco County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 60.39	33.52
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 60.54	33.52
Journeyman Carpenter.....	\$ 60.39	33.52
Millwright.....	\$ 60.49	35.11

CARP0035-005 07/01/2021

AREA 1: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano & Sonoma Counties

AREA 2: Monterey, San Benito & Santa Cruz Counties

AREA 4: El Dorado, Placer, Sacramento, Sutter, Yolo, & Yuba Counties

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1.....	\$ 54.85	31.93
Area 2.....	\$ 48.97	31.93
Area 4.....	\$ 48.12	31.93
Drywall Stocker/Scrapper		
Area 1.....	\$ 27.43	18.58
Area 2.....	\$ 24.49	18.58
Area 4.....	\$ 24.07	18.58

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		

<https://sam.gov/wage-determination/CA20260019/4>

3/49

3/9/26, 3:29 PM

SAM.gov

Filer.....	\$ 52.80	30.82
Journeyman Carpenter.....	\$ 52.65	30.82
Millwright.....	\$ 52.75	32.41

CARP0046-001 07/01/2023

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 60.39	33.52
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 54.66	33.52
Journeyman Carpenter.....	\$ 54.51	33.52
Millwright.....	\$ 57.01	35.11

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-003 07/01/2023

El Dorado (East), Placer (East), Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 60.39	33.52
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 53.31	33.52
Journeyman Carpenter.....	\$ 53.16	33.52
Millwright.....	\$ 55.66	35.11

CARP0152-001 07/01/2020

Contra Costa 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.....	\$ 52.80	30.82
Journeyman Carpenter.....	\$ 52.65	30.82
Millwright.....	\$ 52.75	32.41

CARP0180-001 07/01/2021

Solano County

<https://sam.gov/wage-determination/CA20260019/4>

4/49

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

CARP0217-001 07/01/2023

San Mateo County

Rates Fringes

Carpenters

Bridge Builder/Highway Carpenter.....	\$ 60.39	33.52
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 60.54	33.52
Journeyman Carpenter.....	\$ 60.39	33.52
Millwright.....	\$ 60.49	35.11

CARP0405-001 07/01/2021

Santa Clara County

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

CARP0405-002 07/01/2021

San Benito County

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

CARP0505-001 07/01/2021

Santa Cruz County

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

CARP0605-001 07/01/2021

Monterey County

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

CARP0713-001 07/01/2021

Alameda County

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

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

ELEC0006-003 12/01/2025

SAN FRANCISCO COUNTY

Rates Fringes

Sound & Communications

Installer.....\$ 58.83 3%+29.75
 Technician.....\$ 67.65 3%+29.75

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; 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; excluding 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); excluding energy management systems.

ELEC0006-005 06/01/2025

SAN FRANCISCO COUNTY

Rates Fringes

ELECTRICIAN.....\$ 55.50 3%+23.98

Work on residential wood frame remodel and repair in all wood-constructed buildings not to exceed 24 living units; and new wood frame single structure 1 or 2 family houses, or on all wood- constructed buildings not to exceed 20 living units under 1 roof excluding projects or tracts containing more than 2 houses, or more than 1 building

ELEC0006-009 06/01/2024

SAN FRANCISCO COUNTY:

Rates Fringes

ELECTRICIAN

All other work.....\$ 91.25 3%+45.315

ELEC0180-002 12/01/2023

NAPA & SOLANO COUNTIES

Rates Fringes

ELECTRICIAN.....\$ 38.50 21.16

ELEC0234-002 12/30/2025

MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES:

Rates Fringes

ELECTRICIAN

Zone A.....\$ 70.41 33.76
 Zone B.....\$ 77.45 33.97

Zone A: All of Santa Cruz, Monterey, and San Benito Counties within 25 air miles of Highway 1 and Dolan Road in Moss Landing, and an area extending 5 miles east and west of Highway 101 South to the San Luis Obispo County Line

Zone B: Any area outside of Zone A

ELEC0234-004 12/01/2021

MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES

Rates Fringes

Sound & Communications

Installer.....\$ 47.93 24.09
 Technician.....\$ 55.12 24.30

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; 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; excluding 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); excluding energy management systems.

ELEC0302-002 03/01/2025

CONTRA COSTA COUNTY

Rates Fringes

CABLE SPLICER.....\$ 74.54 36.09
 ELECTRICIAN.....\$ 66.26 35.84

ELEC0302-004 12/01/2025

CONTRA COSTA COUNTY

Rates Fringes

Sound & Communications

Installer.....\$ 53.08 3%+29.25
 Technician.....\$ 61.04 3%+29.25

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or

3/9/26, 3:29 PM

SAM.gov

jobs; excluding 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); excluding energy management systems.

ELEC0332-002 06/01/2025

SANTA CLARA COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 47.35	23.49

ELEC0332-004 12/01/2025

SANTA CLARA COUNTY

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 58.33	31.00
Technician.....	\$ 67.08	31.26

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; 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; excluding 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); excluding energy management systems.

ELEC0340-001 02/01/2016

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Four stories.....	\$ 39.06	24.51
Work on single family homes and apartments up to and including 3 stories.....	\$ 23.10	12.48

ELEC0340-004 03/01/2025

COLUSA, PLACER, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 40.00	25.50
Technician.....	\$ 46.00	25.68

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control

<https://sam.gov/wage-determination/CA20260019/4>

9/49

3/9/26, 3:29 PM

SAM.gov

function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; 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; excluding 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); excluding energy management systems.

ELEC0401-006 01/01/2021

EL DORADO AND PLACER COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 31.88	3%+7.50

ZONE PAY:

Zone 1 - 0 to 70 miles \$0.00 Per Hour
Zone 2 - 70 to 90 miles \$5.00 Per Hour
Zone 3 - 91 miles and over \$7.00 Per Hour

ELEC0551-003 12/01/2025

MARIN AND SONOMA COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 41.00	3%+23.03

ELEC0595-004 06/01/2025

ALAMEDA COUNTY

	Rates	Fringes
CABLE SPLICER.....	\$ 87.40	3%+46.79
ELECTRICIAN.....	\$ 76.00	3%+46.79

ELEC0595-007 12/01/2024

ALAMEDA COUNTY

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 56.68	3%+26.65
Technician.....	\$ 65.18	3%+26.65

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; 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; excluding 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); excluding

<https://sam.gov/wage-determination/CA20260019/4>

10/49

energy management systems.

ELEC0617-002 06/01/2025

SAN MATEO COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 86.00	51.07

ELEV0008-001 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 84.05	38.435+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.

ENGI0003-009 06/30/2025

EL DORADO, MONTEREY, NAPA, PLACER, SACRAMENTO, SAN BENITO, SANTA CRUZ, SONOMA, SUTTER, YOLO AND YUBA COUNTIES

""AREA 1"" WAGE RATES ARE LISTED BELOW

""AREA 2"" RECEIVES AN ADDITIONAL \$2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1.....	\$ 65.54	34.69
GROUP 2.....	\$ 64.09	34.69
GROUP 3.....	\$ 62.69	34.69
GROUP 4.....	\$ 61.36	34.69
GROUP 5.....	\$ 60.15	34.69
GROUP 6.....	\$ 58.88	34.69
GROUP 7.....	\$ 57.79	34.69
GROUP 8.....	\$ 56.71	34.69
GROUP 8-A.....	\$ 54.69	34.69

OPERATOR: Power Equipment
(Cranes and Attachments -
AREA 1:)

GROUP 1		
Cranes.....	\$ 66.39	34.69
Oiler.....	\$ 43.79	31.15
Truck crane oiler.....	\$ 46.08	31.15
GROUP 2		
Cranes.....	\$ 64.70	34.69
Oiler.....	\$ 42.83	31.15
Truck crane oiler.....	\$ 45.07	31.15
GROUP 3		
Cranes.....	\$ 63.06	34.69

Hydraulic.....	\$ 44.44	31.15
Oiler.....	\$ 42.55	31.15
Truck crane oiler.....	\$ 44.83	31.15
GROUP 4		
Cranes.....	\$ 45.76	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)

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 (scrappers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed construction 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 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; Caryl 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 signalperson; 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); Signalperson; 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

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;

AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS, TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SANTA CLARA, SANTA CRUZ, SOLANO, YOLO, AND YUBA COUNTIES

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ELDORADO COUNTY:

Area 1: North Central part
Area 2: Remainder

MONTEREY COUNTY

Area 1: Remainder
Area 2: Southwestern part

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

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 Northeast border with Shasta County

Area 2: Remainder

TULARE COUNTY:

Area 1: Remainder

Area 2: Eastern part

ENGI0003-010 06/30/2025

ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SOLANO COUNTIES

""AREA 1"" WAGE RATES ARE LISTED BELOW

""AREA 2"" RECEIVES AN ADDITIONAL \$2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1.....	\$ 65.54	34.69
GROUP 2.....	\$ 64.09	34.69
GROUP 3.....	\$ 62.69	34.69
GROUP 4.....	\$ 61.36	34.69
GROUP 5.....	\$ 60.15	34.69
GROUP 6.....	\$ 58.88	34.69
GROUP 7.....	\$ 57.79	34.69
GROUP 8.....	\$ 56.71	34.69
GROUP 8-A.....	\$ 54.69	34.69
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		
Cranes.....	\$ 66.39	34.69
Oiler.....	\$ 35.59	28.03
Truck crane oiler.....	\$ 38.05	28.03
GROUP 2		
Cranes.....	\$ 64.70	34.69
Oiler.....	\$ 35.34	28.03
Truck crane oiler.....	\$ 37.83	28.03
GROUP 3		
Cranes.....	\$ 63.06	34.69
Hydraulic.....	\$ 37.20	28.03
Oiler.....	\$ 35.11	28.03
Truck crane oiler.....	\$ 37.58	28.03
GROUP 4		
Cranes.....	\$ 37.86	28.03

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)

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; Grader setter, 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 (scrappers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed construction 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 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; Caryl 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 signalperson; 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); Signalperson; 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; Guniting/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

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;

AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS, TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SANTA CLARA, SANTA CRUZ, SOLANO, YOLO, AND YUBA COUNTIES

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

ENGI0003-011 06/30/2025

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1.....	\$ 55.85	28.56
AREA 2.....	\$ 57.85	28.56
GROUP 2		
AREA 1.....	\$ 52.25	28.56
AREA 2.....	\$ 54.25	28.56
GROUP 3		
AREA 1.....	\$ 47.64	28.56
AREA 2.....	\$ 49.64	28.56

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 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, CONTRA COSTA, MARIN, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SANTA CLARA, SANTA CRUZ, SOLANO, YOLO, AND YUBA COUNTIES

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ELDORADO COUNTY:

Area 1: North Central part
Area 2: Remainder

MONTEREY COUNTY

Area 1: Remainder
Area 2: Southwestern part

PLACER COUNTY:

Area 1: All but the Central portion
Area 2: Remainder

IRON0377-001 01/01/2025

ALAMEDA, CONTRA COSTA, SAN MATEO, SANTA CLARA COUNTIES

	Rates	Fringes

Ironworkers:		
Fence Erector.....	\$ 45.78	26.51
Ornamental, Reinforcing		
and Structural.....	\$ 55.33	35.15

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:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

IRON0377-003 01/01/2025

SAN FRANCISCO CITY and COUNTY

	Rates	Fringes

Ironworkers:		
Fence Erector.....	\$ 45.78	26.51
Ornamental, Reinforcing		
and Structural.....	\$ 55.83	35.15

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:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

IRON0433-005 01/01/2025

REMAINING COUNTIES

	Rates	Fringes

IRONWORKER		
Fence Erector.....	\$ 45.78	26.51
Ornamental, Reinforcing		
and Structural.....	\$ 50.70	35.15

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:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LAB00067-007 06/30/2025

AREA 1: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO, SANTA CLARA

AREA 2: EL DORADO, MONTEREY, PLACE, SACRAMENTO, SAN BENITO, SANTA CRUZ, SOLANO, SONOMA, SUTTER, YOLO, AND YUBA COUNTIES:

	Rates	Fringes
LABORER (ASBESTOS/MOLD/LEAD LABORER)		
AREA 1.....	\$ 39.15	30.03
AREA 2.....	\$ 38.15	30.03

SCOPE OF WORK: Covers site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LAB00185-001 06/26/2023

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS)		
Construction Specialist.....	\$ 36.20	27.30
GROUP 1.....	\$ 35.50	27.30
GROUP 1-a.....	\$ 35.72	27.30
GROUP 1-c.....	\$ 35.55	27.30
GROUP 1-e.....	\$ 36.05	27.30
GROUP 1-f.....	\$ 30.37	23.20
GROUP 2.....	\$ 35.35	27.30
GROUP 3.....	\$ 35.25	27.30
GROUP 4.....	\$ 28.94	27.30
Laborers: (GUNITE)		
GROUP 1.....	\$ 36.46	27.30
GROUP 2.....	\$ 35.96	27.30
GROUP 3.....	\$ 35.37	27.30
GROUP 4.....	\$ 35.25	27.30
Laborers: (WRECKING)		
GROUP 1.....	\$ 35.50	27.30
GROUP 2.....	\$ 35.35	27.30
Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS)		
Establishment Warranty		
Period.....	\$ 28.94	27.30
New Construction.....	\$ 35.25	27.30

FOOTNOTE: Laborers working off or with or from bos'n chairs,

swinging scaffolds, belts (not applicable to workers entitled to receive the wage rate set forth in Group 1-a): \$0.25 per hour additional.

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; 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 (underground structures). 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; 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: All 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 CLASSIFICATION

GROUP 1: Structural nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite 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)

LAB00185-003 07/01/2023

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 36.29	25.55
LAB00185-007 07/01/2023		

EL DORADO, MARIN, NAPA, PLACER, SACRAMENTO, SOLANO, SONOMA, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54
Work on a swing stage scaffold: \$1.00 per hour additional.		
LAB00261-001 06/26/2023		

MARIN, SAN FRANCISCO, AND SAN MATEO COUNTIES

	Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS)		
Construction Specialist....	\$ 37.20	27.30
GROUP 1.....	\$ 36.50	27.30
GROUP 1-a.....	\$ 36.72	27.30
GROUP 1-c.....	\$ 36.55	27.30
GROUP 1-e.....	\$ 37.05	27.30
GROUP 1-f.....	\$ 31.37	23.20
GROUP 2.....	\$ 36.35	27.30
GROUP 3.....	\$ 36.25	27.30
GROUP 4.....	\$ 29.94	27.30
See groups 1-b and 1-d under laborer classifications.		
Laborers: (GUNITE)		
GROUP 1.....	\$ 37.46	27.30
GROUP 2.....	\$ 36.96	27.30
GROUP 3.....	\$ 36.37	27.30
GROUP 4.....	\$ 36.25	27.30
Laborers: (WRECKING)		
GROUP 1.....	\$ 36.50	27.30
GROUP 2.....	\$ 36.35	27.30

Landscape Laborer (GARDENERS,
HORTICULTURAL & LANDSCAPE
LABORERS)

Establishment Warranty		
Period.....	\$ 29.94	27.30
New Construction.....	\$ 36.25	27.30

FOOTNOTE: Laborers working off or with or from bos'n chairs, swinging scaffolds, belts (not applicable to workers entitled to receive the wage rate set forth in Group 1-a): \$0.25 per hour additional.

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; 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 (underground structures). 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; 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: All 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 CLASSIFICATION

GROUP 1: Structural nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunitelaborer

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)

LAB00261-008 07/01/2023

MARIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 37.54	25.55

LAB00261-011 07/01/2023

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
MASON TENDER, BRICK.....	\$ 37.05	27.45

FOOTNOTES: Underground work such as sewers, manholes, catch basins, sewer pipes, telephone conduits, tunnels and cut trenches: \$5.00 per day additional. Work in live sewage: \$2.50 per day additional.

LAB00261-012 07/01/2023

EL DORADO, MARIN, NAPA, PLACER, SACRAMENTO, SOLANO, SONOMA, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00261-013 07/01/2023

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
PLASTER TENDER.....	\$ 41.93	30.32

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00270-001 06/26/2023

AREA ""A"" - SANTA CLARA COUNTY

AREA ""B"" - MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES

	Rates	Fringes

Laborers: (CONSTRUCTION CRAFT

LABORERS - AREA A:)

Construction Specialist....	\$ 37.20	27.30
GROUP 1.....	\$ 36.50	27.30
GROUP 1-a.....	\$ 36.72	27.30
GROUP 1-c.....	\$ 36.55	27.30
GROUP 1-e.....	\$ 37.05	27.30
GROUP 1-f.....	\$ 37.08	27.30
GROUP 2.....	\$ 36.35	27.30
GROUP 3.....	\$ 36.25	27.30
GROUP 4.....	\$ 29.94	27.30

See groups 1-b and 1-d under laborer classifications.

Laborers: (CONSTRUCTION CRAFT

LABORERS - AREA B:)

Construction Specialist		
Group.....	\$ 36.20	27.30
GROUP 1.....	\$ 35.50	27.30
GROUP 1-a.....	\$ 35.72	27.30
GROUP 1-c.....	\$ 35.55	27.30
GROUP 1-e.....	\$ 36.05	27.30
GROUP 1-f.....	\$ 36.08	27.30
GROUP 2.....	\$ 35.35	27.30
GROUP 3.....	\$ 35.25	27.30
GROUP 4.....	\$ 28.94	27.30

Laborers: (GUNITE - AREA A:)

GROUP 1.....	\$ 37.46	27.30
GROUP 2.....	\$ 36.96	27.30
GROUP 3.....	\$ 36.37	27.30
GROUP 4.....	\$ 36.25	27.30

Laborers: (GUNITE - AREA B:)

GROUP 1.....	\$ 36.46	27.30
GROUP 2.....	\$ 35.96	27.30
GROUP 3.....	\$ 35.37	27.30
GROUP 4.....	\$ 35.25	27.30

Laborers: (WRECKING - AREA A:)

GROUP 1.....	\$ 36.50	27.30
GROUP 2.....	\$ 36.35	27.30

Laborers: (WRECKING - AREA B:)

GROUP 1.....	\$ 35.50	27.30
GROUP 2.....	\$ 35.35	27.30

Landscape Laborer (GARDENERS,

HORTICULTURAL & LANDSCAPE

LABORERS - AREA A:)

Establishment Warranty		
Period.....	\$ 29.94	27.30
New Construction.....	\$ 36.25	27.30

Landscape Laborer (GARDENERS,

HORTICULTURAL & LANDSCAPE

LABORERS - AREA B:)

Establishment Warranty

Period.....\$ 28.94
New Construction.....\$ 35.25

27.30
27.30

FOOTNOTE: Laborers working off or with or from bos'n chairs, swinging scaffolds, belts (not applicable to workers entitled to receive the wage rate set forth in Group 1-a): \$0.25 per hour additional.

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 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 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 (underground structures). 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; 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: All 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 CLASSIFICATION

GROUP 1: Structural nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunitelaborer

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)

LAB00270-002 07/01/2023

SANTA CLARA AND SANTA CRUZ COUNTIES

	Rates	Fringes

MASON TENDER, BRICK

Santa Clara County.....	\$ 35.29	26.85

Santa Cruz County.....	\$ 35.29	26.85

LAB00270-006 07/01/2023

MONTEREY AND SAN BENITO COUNTIES

	Rates	Fringes

LABORER

Mason Tender-Brick.....	\$ 36.29	25.55

LAB00270-008 07/01/2023

SANTA CLARA & SANTA CRUZ

	Rates	Fringes

PLASTER TENDER.....	\$ 40.68	29.68

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00270-009 07/01/2023

MONTEREY AND SAN BENITO COUNTIES:

	Rates	Fringes

Plasterer tender.....	\$ 40.68	29.68

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00304-001 06/26/2023

ALAMEDA COUNTY

	Rates	Fringes

Laborers: (CONSTRUCTION CRAFT LABORERS)

Construction Specialist....	\$ 37.20	27.30

GROUP 1.....	\$ 36.50	27.30

GROUP 1-a.....	\$ 36.72	27.30

GROUP 1-c.....	\$ 36.55	27.30

GROUP 1-e.....	\$ 37.05	27.30

GROUP 1-f.....	\$ 37.08	27.30

GROUP 2.....	\$ 36.35	27.30

GROUP 3.....	\$ 36.25	27.30

GROUP 4.....	\$ 29.94	27.30

See groups 1-b and 1-d under laborer classifications.

Laborers: (GUNITe)

GROUP 1.....	\$ 37.46	27.30

GROUP 2.....	\$ 36.96	27.30

GROUP 3.....	\$ 36.37	27.30

GROUP 4.....	\$ 36.25	27.30

Laborers: (WRECKING)

GROUP 1.....	\$ 36.50	27.30

GROUP 2.....	\$ 36.35	27.30

Landscape Laborer (GARDENERS,

HORTICULTURAL & LANDSCAPE

LABORERS)

Establishment Warranty

Period.....	\$ 29.94	27.30

New Construction.....	\$ 36.25	27.30

FOOTNOTE: Laborers working off or with or from bos'n chairs, swinging scaffolds, belts (not applicable to workers entitled to receive the wage rate set forth in Group 1-a): \$0.25 per hour additional.

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; 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 (underground structures). 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; 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: All 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 CLASSIFICATION

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)

LAB00304-006 07/01/2023

ALAMEDA COUNTY

	Rates	Fringes
Brick Tender.....	\$ 37.05	27.45

FOOTNOTES: Work on jobs where heat-protective clothing is required: \$2.00 per hour additional. Work at grinders: \$.25 per hour additional. Manhole work: \$2.00 per day additional.

LAB00304-007 07/01/2023

ALAMEDA AND CONTRA COSTA COUNTIES:

Rates	Fringes
Plasterer tender.....\$ 41.93	30.32

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00324-001 06/26/2023

AREA ""A"" - CONTRA COSTA COUNTY

AREA ""B"" - NAPA, SOLANO, AND SONOMA COUNTIES

Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS - AREA A:)	
Construction Specialist.....\$ 37.20	27.30
GROUP 1.....\$ 36.50	27.30
GROUP 1-a.....\$ 36.72	27.30
GROUP 1-c.....\$ 36.55	27.30
GROUP 1-e.....\$ 37.05	27.30
GROUP 1-f.....\$ 37.08	27.30
GROUP 1-g (Contra Costa County).....\$ 36.70	27.30
GROUP 2.....\$ 36.35	27.30
GROUP 3.....\$ 36.25	27.30
GROUP 4.....\$ 29.94	27.30

See groups 1-b and 1-d under laborer classifications.

Laborers: (CONSTRUCTION CRAFT LABORERS - AREA B:)	
Construction Specialist.....\$ 36.20	27.30
GROUP 1.....\$ 35.50	27.30
GROUP 1-a.....\$ 35.72	27.30
GROUP 1-c.....\$ 35.55	27.30
GROUP 1-e.....\$ 36.05	27.30
GROUP 1-f.....\$ 36.08	27.30
GROUP 2.....\$ 35.35	27.30
GROUP 3.....\$ 35.25	27.30
GROUP 4.....\$ 28.94	27.30

Laborers: (GUNITE - AREA A:)	
GROUP 1.....\$ 37.46	27.30
GROUP 2.....\$ 36.96	27.30
GROUP 3.....\$ 36.37	27.30
GROUP 4.....\$ 36.25	27.30

Laborers: (GUNITE - AREA B:)	
GROUP 1.....\$ 36.46	27.30
GROUP 2.....\$ 35.96	27.30
GROUP 3.....\$ 35.37	27.30
GROUP 4.....\$ 35.25	27.30

Laborers: (WRECKING - AREA A:)	
GROUP 1.....\$ 36.50	27.30
GROUP 2.....\$ 36.35	27.30

Laborers: (WRECKING - AREA B:)	
GROUP 1.....\$ 35.50	27.30
GROUP 2.....\$ 35.35	27.30

Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)	
Establishment Warranty Period.....\$ 29.94	27.30
New Construction.....\$ 36.25	27.30
Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)	

Establishment Warranty Period.....\$ 28.94	27.30
New Construction.....\$ 35.25	27.30

FOOTNOTE: Laborers working off or with or from bos'n chairs, swinging scaffolds, belts (not applicable to workers entitled to receive the wage rate set forth in Group 1-a): \$0.25 per hour additional.

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 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 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 (underground structures). 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 1 g: CONTRA COSTA COUNTY: Pipelayer (including grade checking on connection with peiplying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; ?ressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole from setters

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: All 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 CLASSIFICATION

GROUP 1: Structural nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunit 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)

LAB08324-011 07/01/2023

SOLANO AND SONOMA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 36.84	26.24

FOOTNOTE: Refractory work where heat-protective clothing is required: \$2.00 per hour additional.

LAB08324-015 07/01/2023

CONTRA COSTA COUNTY

	Rates	Fringes
Brick Tender.....	\$ 37.05	27.45

FOOTNOTES: Work on jobs where heat-protective clothing is required: \$2.00 per hour additional. Work at grinders: \$.25 per hour additional. Manhole work: \$2.00 per day additional.

LAB08324-017 07/01/2023

EL DORADO, MARIN, NAPA, PLACER, SACRAMENTO, SOLANO, SONOMA, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54

Work on a swing stage scaffold: \$1.00 per hour additional.

PAIN0016-002 01/01/2025

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

Rates	Fringes

Painters:	
Brush.....\$ 43.45	22.80

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.

PAIN0016-009 01/01/2024

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SANTA CRUZ AND SONOMA COUNTIES

Rates	Fringes

SOFT FLOOR LAYER.....\$ 59.00	33.03

PAIN0016-011 01/01/2025

AREA 1: ALAMEDA, CONTRA COSTA, NAPA, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SOLANO AND SONOMA COUNTIES

AREA 2: EL DORADO COUNTY, MONTEREY, PLACER, SACRAMENTO, SAN BENITO, SANTA CRUZ, SIERRA, SUTTER AND YUBA COUNTIES

Rates	Fringes

Drywall Finisher/Taper	
AREA 1.....\$ 63.76	32.69
AREA 2.....\$ 59.63	31.29

PAIN0016-013 01/01/2025

ALAMEDA, CONTRA COSTA, MARIN, MONTEREY, NAPA, SAN BENITO, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO & SONOMA COUNTIES

Rates	Fringes

PAINTER.....\$ 53.38	28.04

FOOTNOTES:

Spray Work: \$0.50 additional per hour.

Exotic Materials: \$1.25 additional per hour

PAIN0016-019 01/01/2025

SAN FRANCISCO COUNTY

Rates	Fringes

PAINTER.....\$ 57.00	28.04

PAIN0169-006 01/01/2024

ALAMEDA, CONTRA COSTA, MARIN, MONTEREY, NAPA, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SANTA CRUZ, SONOMA COUNTIES;and 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.....\$ 56.22	34.00

* PAIN0567-002 07/01/2025

EL DORADO AND PLACER COUNTIES

Rates	Fringes

PAINTER	
Paper Hanger.....\$ 42.19	16.16
Brush and Roller.....\$ 39.43	16.16
Spray Painter.....\$ 41.43	16.16

PREMIUMS:

Spray & Paperhanger = \$0.85/hr

Special Coatings (Brush), & Sandblast = \$0.50/hr

Special Coatings (Spray), & Steeplejack = \$1.00/hr

Swing Stage = \$2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-008 07/01/2022

EL DORADO AND PLACER COUNTIES

Rates	Fringes

SOFT FLOOR LAYER.....\$ 34.27	16.47

PAIN0567-011 07/01/2024

EL DORADO AND PLACER COUNTIES

Rates	Fringes

DRYWALL FINISHER/TAPER.....\$ 42.79	16.12

STEEPLEJACK-Drywall Finisher over 40 ft with open space below: \$1.50 additional per hour.

PAIN0767-002 01/01/2024

EL DORADO, PLACER, SACRAMENTO, SOLANO, SUTTER, YOLO AND YUBA COUNTIES

Rates	Fringes
GLAZIER.....\$ 43.25	35.62

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.

FOOTNOTE: Employee required to wear a body harness shall receive \$1.50 above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2022

HIGHWAY IMPROVEMENT

Rates	Fringes
Parking Lot Striping/Highway Marking:	
GROUP 1.....\$ 40.83	17.62
GROUP 2.....\$ 34.71	17.62
GROUP 3.....\$ 35.11	17.62

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

PAIN1237-002 01/01/2024

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

Rates	Fringes
SOFT FLOOR LAYER.....\$ 48.54	26.59

PLAS0066-001 07/01/2019

ALAMEDA, CONTRA COSTA, SAN FRANCISCO AND SAN MATEO COUNTIES:

Rates	Fringes
PLASTERER.....\$ 42.41	30.73

PLAS0300-002 07/01/2018

Rates	Fringes
PLASTERER	
AREA 224: San Benito, Santa Clara & Santa Cruz Counties.....\$ 32.88	31.68
AREA 295: El Dorado, Napa, Placer, Sacramento, Solano, Sonoma, Sutter, Yolo & Yuba Counties.....\$ 32.70	31.68
AREA 337: Monterey County...\$ 32.88	31.68

AREA 355: Marin County.....\$ 36.73 31.68

PLAS0300-005 07/01/2016

Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...\$ 32.15	23.27

PLUM0038-003 07/01/2025

MARIN, SAN FRANCISCO & SONOMA COUNTIES

Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)	
(1) Wood Frame Construction in San Francisco, and all work in Marin & Sonoma Counties.....\$ 82.00	48.18
(2) New Construction in San Francisco County.....\$ 91.00	49.49

PLUM0038-007 07/01/2025

MARIN, SAN FRANCISCO & SONOMA COUNTIES

Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....\$ 77.35	36.53

PLUM0062-001 01/01/2026

MONTEREY AND SANTA CRUZ COUNTIES

Rates	Fringes
PLUMBER & STEAMFITTER.....\$ 57.75	43.60

PLUM0159-002 07/01/2024

CONTRA COSTA COUNTY

Rates	Fringes
Plumber, Pipefitter, Steamfitter.....\$ 43.72	20.29

PLUM0228-002 01/01/2026

SUTTER & YUBA COUNTIES

Rates	Fringes
PLUMBER.....\$ 52.75	41.39

PLUM0342-002 07/01/2025

ALAMEDA COUNTY

Rates	Fringes
PLUMBER & STEAMFITTER.....\$ 80.50	50.45

 PLUM0343-002 01/01/2026

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 37.35	21.15

FOOTNOTES: 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.

 PLUM0350-002 08/01/2023

EL DORADO AND PLACER COUNTIES (LAKE TAHOE BASIN ONLY)

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 52.14	18.71

 PLUM0355-002 07/01/2025

ALAMEDA, CONTRA COSTA, EL DORADO, MONTEREY, NAPA, PLACER, SACRAMENTO, SAN BENITO, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter.....	\$ 36.01	18.50

 PLUM0393-002 09/01/2013

SAN BENITO & SANTA CLARA COUNTIES

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 30.90	7.90

 PLUM0447-003 07/01/2025

EL DORADO, PLACER, SACRAMENTO AND YOLO COUNTIES:

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 55.58	24.02

 PLUM0467-001 07/01/2025

SAN MATEO COUNTY

	Rates	Fringes
Plumber/Pipefitter/Steamfitter...	\$ 87.75	41.44

 ROOF0040-001 08/01/2024

SAN FRANCISCO & SAN MATEO COUNTIES:

	Rates	Fringes

ROOFER.....\$ 55.30 22.97

 ROOF0081-003 08/01/2024

ALAMEDA, CONTRA COSTA, MARIN, NAPA, SOLANO, AND SONOMA COUNTIES:

	Rates	Fringes
ROOFER.....	\$ 54.94	23.34

 ROOF0081-005 08/01/2023

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
ROOFER.....	\$ 46.73	21.36

 ROOF0095-001 08/01/2023

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
ROOFER		
Bitumastic, Enameler, Coal		
Tar, Pitch and Mastic		
worker.....	\$ 57.17	21.51
Journeyman.....	\$ 53.17	21.51
Kettle person (2 kettles)...	\$ 55.17	21.51

 * SFCA0483-002 01/01/2026

ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SOLANO AND SONOMA COUNTIES:

	Rates	Fringes
SPRINKLER FITTER.....	\$ 49.82	18.05

 SFCA0669-006 01/01/2026

MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
SPRINKLER FITTER.....	\$ 49.69	29.72

 SFCA0669-012 01/01/2026

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER.....	\$ 52.06	29.86

 * SHEE0104-002 07/01/2025

AREA 1: ALAMEDA, CONTRA COSTA, MARIN, NAPA, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SOLANO & SONOMA

AREA 2: MONTEREY & SAN BENITO

AREA 3: SANTA CRUZ

	Rates	Fringes
SHEET METAL WORKER		
AREA 1.....	\$ 67.03	50.79
AREA 2.....	\$ 60.64	39.04
AREA 3.....	\$ 55.16	34.18

SHEE0104-017 07/01/2020

EL DORADO, PLACER, SACRAMENTO, SUTTER, YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER.....	\$ 30.29	16.41

TEAM0094-001 07/01/2025

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 43.26	34.28
GROUP 2.....	\$ 43.56	34.28
GROUP 3.....	\$ 43.86	34.28
GROUP 4.....	\$ 44.21	34.28
GROUP 5.....	\$ 44.56	34.28

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 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.

=====

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>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 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 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections

under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "SU", "UAVG", "SA", or "SC" denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "SU" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007

6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

3/9/26, 3:29 PM

SAM.gov

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

=====
END OF GENERAL DECISION"

"General Decision Number: CA20260007 01/23/2026

Superseded General Decision Number: CA20250007

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

Modification Number	Publication Date
0	01/02/2026
1	01/09/2026
2	01/16/2026
3	01/23/2026

ASBE0016-001 01/01/2024

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

Asbestos Workers/Insulator
(Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)

Area 1.....	\$ 84.76	25.07
Area 2.....	\$ 64.56	25.07

ASBE0016-007 05/01/2025

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHEMA, 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.....	\$ 35.31	12.75
AREA 2.....	\$ 44.73	12.75

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 08/01/2024

Rates	Fringes

MARBLE FINISHER.....	\$ 42.06	19.80

BRCA0003-004 05/01/2024

AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SUTTER, TEHEMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY COUNTIES

Rates	Fringes

BRICKLAYER

AREA 1.....	\$ 52.76	25.01
AREA 2.....	\$ 57.02	28.50

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) Gunite nozzle person shall receive \$1.25 per hour above the regular rate.

BRCA0003-008 07/01/2024

Rates	Fringes

TERRAZZO FINISHER.....	\$ 44.93	20.98
TERRAZZO WORKER/SETTER.....	\$ 60.58	29.79

BRCA0003-010 04/01/2024

Rates	Fringes

TILE FINISHER

Area 1.....	\$ 35.00	17.44

3/9/26, 3:30 PM

SAM.gov

Area 2.....	\$ 34.76	19.22
Area 3.....	\$ 37.75	19.28
Area 4.....	\$ 35.78	19.23
Tile Layer		
Area 1.....	\$ 55.55	21.08
Area 2.....	\$ 55.17	22.52
Area 3.....	\$ 59.92	22.62
Area 4.....	\$ 56.79	22.54

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, 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 08/01/2024

	Rates	Fringes
MARBLE MASON.....	\$ 61.72	30.31

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:

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.

3/9/26, 3:30 PM

SAM.gov

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 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

3/9/26, 3:30 PM

SAM.gov

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 07/01/2023

El Dorado (West), Placer (West), Sacramento and Yolo Counties

Rates Fringes

Carpenters

Bridge Builder/Highway	
Carpenter.....\$ 60.39	33.52
Hardwood Floorlayer,	
Shingler, Power Saw	
Operator, Steel Scaffold &	
Steel Shoring Erector, Saw	
Filer.....\$ 54.66	33.52
Journeyman Carpenter.....\$ 54.51	33.52
Millwright.....\$ 57.01	35.11

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-002 07/01/2023

Alpine, Colusa, El Dorado (East), Nevada, Placer (East), Sierra, Sutter and Yuba Counties

Rates Fringes

Carpenters

Bridge Builder/Highway	
Carpenter.....\$ 60.39	33.52
Hardwood Floorlayer,	
Shingler, Power Saw	
Operator, Steel Scaffold &	
Steel Shoring Erector, Saw	
Filer.....\$ 53.31	33.52
Journeyman Carpenter.....\$ 53.16	33.52
Millwright.....\$ 55.66	35.11

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 &	

<https://sam.gov/wage-determination/CA20260007/3>

5/44

3/9/26, 3:30 PM

SAM.gov

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,	
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 06/01/2025

NAPA AND SOLANO COUNTIES

Rates Fringes

CABLE SPLICER.....\$ 69.26	3%+29.28

<https://sam.gov/wage-determination/CA20260007/3>

6/44

3/9/26, 3:30 PM

SAM.gov

ELECTRICIAN.....\$ 61.56 3%+29.28

ELEC0180-003 12/01/2025

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 53.08	30.84
Technician.....	\$ 61.04	31.08

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 03/01/2025

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
Communications System		
Sound & Communications		
Installer.....	\$ 40.00	25.50
Sound & Communications		
Technician.....	\$ 46.00	25.68

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission 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

3/9/26, 3:30 PM

SAM.gov

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 conduit.

ELEC0340-003 08/01/2025

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.....	\$ 52.70	38.68
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 01/01/2025

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.....	\$ 48.50	23.04

ZONE RATE:

70-90 miles - \$10.00 per hour
 91+ miles - \$15.00 per hour

 ELEC0551-004 06/01/2024

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 59.17	32.04

 ELEC0551-005 12/01/2025

MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 53.08	30.84
Technician.....	\$ 61.04	31.08

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 01/01/2026

MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 47.04	21.84

 ELEC0659-008 02/01/2023

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer.....	\$ 67.80	4.5%+22.15

(2) Lineman, Pole Sprayer, Heavy Line Equipment Man....	\$ 60.54	4.5%+22.15
(3) Tree Trimmer.....	\$ 37.84	4.5%+14.30
(4) Line Equipment Man.....	\$ 53.82	4.5%+19.40
(5) Powdermen, Jackhammermen.....	\$ 40.37	4.5%+14.30
(6) Groundman.....	\$ 33.37	4.5%+14.30

 ELEC1245-004 01/01/2025

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	\$ 70.16	24.71
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	\$ 53.30	22.26
(3) Groundman.....	\$ 40.76	21.76
(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 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 84.05	38.435+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 08/01/2024

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman.....	\$ 60.61	39.55
(2) Dredge Dozer; Heavy duty repairman.....	\$ 55.65	39.55
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 54.53	39.55
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 51.23	39.55

AREA 2:		
(1) Leverman.....	\$ 62.61	39.55
(2) Dredge Dozer; Heavy duty repairman.....	\$ 57.65	39.55
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 56.53	39.55
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 53.23	39.55

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

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: A1 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

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 06/30/2025

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1.....	\$ 55.85	28.56
AREA 2.....	\$ 57.85	28.56
GROUP 2		
AREA 1.....	\$ 52.25	28.56
AREA 2.....	\$ 54.25	28.56
GROUP 3		
AREA 1.....	\$ 47.64	28.56
AREA 2.....	\$ 49.64	28.56

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade

3/9/26, 3:30 PM

SAM.gov

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 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

LAKE COUNTY:

Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:

3/9/26, 3:30 PM

SAM.gov

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

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 06/30/2025

""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.....	\$ 66.96	32.53
GROUP 2.....	\$ 65.43	32.53
GROUP 3.....	\$ 63.95	32.53
GROUP 4.....	\$ 62.57	32.53
GROUP 5.....	\$ 61.30	32.53
GROUP 6.....	\$ 59.98	32.53
GROUP 7.....	\$ 58.84	32.53
GROUP 8.....	\$ 57.70	32.53
GROUP 8-A.....	\$ 55.49	32.53
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		
Cranes.....	\$ 68.59	32.53
Oiler.....	\$ 43.79	31.15
Truck crane oiler.....	\$ 46.08	31.15
GROUP 2		
Cranes.....	\$ 66.08	32.53
Oiler.....	\$ 42.83	31.15
Truck crane oiler.....	\$ 45.07	31.15
GROUP 3		
Cranes.....	\$ 64.34	32.53
Hydraulic.....	\$ 60.61	32.53
Oiler.....	\$ 42.55	31.15
Truck crane oiler.....	\$ 44.83	31.15
GROUP 4		
Cranes.....	\$ 61.30	32.53
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.....	\$ 68.81	32.53
Oiler.....	\$ 43.72	31.15
Truck Crane Oiler.....	\$ 45.95	31.15
GROUP 2		
Cranes.....	\$ 67.04	32.53
Oiler.....	\$ 43.45	31.15
Truck Crane Oiler.....	\$ 45.73	31.15
GROUP 3		
Cranes.....	\$ 65.56	32.53
Hydraulic.....	\$ 45.07	31.15
Oiler.....	\$ 43.23	31.15
Truck Crane Oiler.....	\$ 45.46	31.15
GROUP 4		
Cranes.....	\$ 63.54	32.53
GROUP 5		
Cranes.....	\$ 62.24	32.53
OPERATOR: Power Equipment (Tunnel and Underground Work - AREA 1:)		
SHAFTS, STOPES, RAISES:		
GROUP 1.....	\$ 63.06	32.53
GROUP 1-A.....	\$ 65.53	32.53
GROUP 2.....	\$ 61.80	32.53
GROUP 3.....	\$ 60.47	32.53
GROUP 4.....	\$ 59.33	32.53
GROUP 5.....	\$ 58.19	32.53
UNDERGROUND:		
GROUP 1.....	\$ 62.96	32.53
GROUP 1-A.....	\$ 65.43	32.53
GROUP 2.....	\$ 61.70	32.53
GROUP 3.....	\$ 60.37	32.53
GROUP 4.....	\$ 59.23	32.53
GROUP 5.....	\$ 58.09	32.53

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)

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 (scrappers); 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 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 signalperson; 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); Signalperson; 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

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

3/9/26, 3:30 PM SAM.gov

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

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

--

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:

3/9/26, 3:30 PM SAM.gov

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

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

IRON0118-012 01/01/2025

ALPINE, LASSEN, MODOC, SISKIYOU and TRINITY COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 43.75	34.45

IRON0118-013 01/01/2025

AMADOR, BUTTE, COLUSA,EL DORADO, GLENN,MARIN, NAPA, NEVADA, PLACER,PLUMAS, SACRAMENTO, SHASTA, SIERRA, SOLANO, SONOMA, SUTTER, TEHAMA, YOLO and YUBA COUNTIES

	Rates	Fringes
IRONWORKER.....	\$ 50.70	35.15

LABO0067-003 07/01/2024

AREA ""1"" - MARIN and NAPA COUNTIES

AREA ""2"" - ALPINE, AMADOR, BUTTE COLUSA EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
LABORER (ASBESTOS/MOLD/LEAD LABORER)		
Marin and Napa Counties....	\$ 37.75	29.69
Remaining Counties.....	\$ 36.75	29.69

LABO0067-005 01/01/2024

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, SACRAMENTO, 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.....\$ 37.26	27.32	
Area B.....\$ 36.26	27.32	
Traffic Control Person I		
Area A.....\$ 37.56	27.32	
Area B.....\$ 36.56	27.32	
Traffic Control Person II		
Area A.....\$ 35.06	27.32	
Area B.....\$ 34.06	27.32	

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.

LAB00185-002 07/01/2023

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.....\$ 36.29	25.55	

LAB00185-005 06/26/2023

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.....\$ 45.89	27.72	
GROUP 2.....\$ 45.66	27.72	
GROUP 3.....\$ 45.41	27.72	
GROUP 4.....\$ 44.96	27.72	
GROUP 5.....\$ 44.42	27.72	
Shotcrete Specialist.....\$ 46.41	27.72	

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunitite and shotcrete nozzlelemen

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; Gunitite & 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

LAB00185-006 06/26/2023

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes

LABORER (CONSTRUCTION CRAFT

LABORERS - AREA B:)

Construction Specialist		
Group.....\$ 36.20	27.30	
GROUP 1.....\$ 35.50	27.30	
GROUP 1-a.....\$ 35.72	27.30	
GROUP 1-c.....\$ 35.55	27.30	
GROUP 1-e.....\$ 36.05	27.30	
GROUP 1-f.....\$ 30.37	23.20	
GROUP 2.....\$ 35.35	27.30	
GROUP 3.....\$ 35.25	27.30	
GROUP 4.....\$ 28.94	27.30	

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE

LABORERS - AREA B:)

(1) New Construction.....\$ 35.25	27.30	
(2) Establishment Warranty		
Period.....\$ 28.94	27.30	

LABORER (GUNITITE - AREA B:)

GROUP 1.....\$ 36.46	27.30	
GROUP 2.....\$ 35.96	27.30	
GROUP 3.....\$ 35.37	27.30	
GROUP 4.....\$ 35.25	27.30	

LABORER (WRECKING - AREA B:)

GROUP 1.....\$ 35.50	27.30	
GROUP 2.....\$ 35.35	27.30	

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; Vibrascreeed, 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, 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

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LAB00185-008 07/01/2023

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00261-002 07/01/2023

MARIN COUNTY

	Rates	Fringes

LABORER (TRAFFIC CONTROL/LANE CLOSURE)

Escort Driver, Flag Person..	\$ 37.26	27.30
Traffic Control Person I...	\$ 37.56	27.30
Traffic Control Person II...	\$ 35.06	27.30

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 06/26/2023

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 45.89	27.72
GROUP 2.....	\$ 45.66	27.72
GROUP 3.....	\$ 45.41	27.72
GROUP 4.....	\$ 44.96	27.72
GROUP 5.....	\$ 44.42	27.72
Shotcrete Specialist.....	\$ 46.41	27.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Guniting 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; Guniting & 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 07/01/2023

MARIN COUNTY

	Rates	Fringes

LABORER

Mason Tender-Brick.....	\$ 37.54	25.55

LAB00261-010 06/26/2023

MARIN COUNTY

	Rates	Fringes

LABORER (CONSTRUCTION CRAFT

LABORERS - AREA A:)

Construction Specialist		
Group.....	\$ 37.20	27.30
GROUP 1.....	\$ 36.50	27.30
GROUP 1-a.....	\$ 36.72	27.30
GROUP 1-c.....	\$ 36.55	27.30
GROUP 1-e.....	\$ 37.05	27.30
GROUP 1-f.....	\$ 31.37	23.20
GROUP 2.....	\$ 36.35	27.30
GROUP 3.....	\$ 36.25	27.30
GROUP 4.....	\$ 29.94	27.30

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE

LABORERS - AREA A:)

(1) New Construction.....	\$ 36.25	27.30
(2) Establishment Warranty		
Period.....	\$ 29.94	27.30

LABORER (GUNITING - AREA A:)

GROUP 1.....	\$ 37.46	27.30
GROUP 2.....	\$ 36.96	27.30

GROUP 3.....	\$ 36.37	27.30
GROUP 4.....	\$ 36.25	27.30
LABORER (WRECKING - AREA A:)		
GROUP 1.....	\$ 36.50	27.30
GROUP 2.....	\$ 36.35	27.30

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 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 scalars (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, 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: Gunite 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 07/01/2023

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54

Work on a swing stage scaffold: \$1.00 per hour additional.

LAB00324-004 07/01/2023

NAPA, SOLANO, AND SONOMA, COUNTIES

	Rates	Fringes

LABORER (TRAFFIC CONTROL/LANE CLOSURE)

Escort Driver, Flag Person..	\$ 36.26	27.30
Traffic Control Person I....	\$ 36.56	27.30
Traffic Control Person II...	\$ 34.06	27.30

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.

LAB00324-008 06/26/2023

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 45.89	27.72
GROUP 2.....	\$ 45.66	27.72
GROUP 3.....	\$ 45.41	27.72
GROUP 4.....	\$ 44.96	27.72
GROUP 5.....	\$ 44.42	27.72
Shotcrete Specialist.....	\$ 46.41	27.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlelemen

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 07/01/2023

SOLANO AND SONOMA COUNTIES

	Rates	Fringes

LABORER

Mason Tender-Brick.....	\$ 36.84	26.24

LAB00324-013 06/26/2023

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes

LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)

Construction Specialist		
Group.....	\$ 36.20	27.30
GROUP 1.....	\$ 35.50	27.30
GROUP 1-a.....	\$ 35.72	27.30
GROUP 1-c.....	\$ 35.55	27.30
GROUP 1-e.....	\$ 36.05	27.30
GROUP 1-f.....	\$ 36.08	27.30
GROUP 2.....	\$ 35.35	27.30
GROUP 3.....	\$ 35.25	27.30
GROUP 4.....	\$ 28.94	27.30

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS,
HORTICULTURAL & LANDSCAPE
LABORERS - AREA B:)

(1) New Construction.....\$ 35.25	27.30
(2) Establishment Warranty	
Period.....\$ 28.94	27.30
LABORER (GUNITE - AREA B:)	
GROUP 1.....\$ 36.46	27.30
GROUP 2.....\$ 35.96	27.30
GROUP 3.....\$ 35.37	27.30
GROUP 4.....\$ 35.25	27.30
LABORER (WRECKING - AREA B:)	
GROUP 1.....\$ 35.50	27.30
GROUP 2.....\$ 35.35	27.30

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;

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, 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

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LAB0324-019 07/01/2023

	Rates	Fringes
Plasterer tender.....	\$ 39.77	28.54

Work on a swing stage scaffold: \$1.00 per hour additional.

PAIN0016-004 01/01/2025

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:.....	\$ 53.38	28.04

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 01/01/2025

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.....	\$ 59.63	31.29

PAIN0016-007 01/01/2025

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

	Rates	Fringes
Painters:.....	\$ 43.45	22.80

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 01/01/2024

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 59.00	33.03

PAIN0169-004 01/01/2024

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.....\$ 56.22

34.00

* PAIN0567-001 07/01/2025

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.....\$ 39.43	16.16
Paperhanger.....\$ 42.19	16.16
Spray Painter.....\$ 41.43	16.16

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 07/01/2022

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.....\$ 34.27 16.47

PAIN0567-010 07/01/2024

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.....\$ 42.79	16.12
(2) Steeplejack - Taper, over 40 ft with open space below.....\$ 44.29	16.12

PAIN0767-004 01/01/2024

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

GLAZIER.....\$ 43.25 35.62

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 07/01/2022

HIGHWAY IMPROVEMENT

Rates	Fringes

Parking Lot Striping/Highway

Marking:

GROUP 1.....\$ 40.83	17.62
GROUP 2.....\$ 34.71	17.62
GROUP 3.....\$ 35.11	17.62

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 01/01/2024

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.....\$ 48.54 26.59

PLAS0300-003 07/01/2018

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

3/9/26, 3:30 PM	SAM.gov	
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 07/01/2025		
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.....\$ 91.00	49.40	

PLUM0038-006 07/01/2025		
MARIN & SONOMA COUNTIES		
	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....\$ 77.35	36.53	

PLUM0228-001 01/01/2026		
BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES		
	Rates	Fringes
PLUMBER.....\$ 52.75	41.39	

PLUM0343-001 07/01/2025		
NAPA AND SOLANO COUNTIES		
	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial.....\$ 30.85	20.40	
All Other Work.....\$ 71.60	38.38	

DEFINITION OF LIGHT COMMERCIAL:

3/9/26, 3:30 PM

SAM.gov

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 08/01/2023

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 52.14	18.71

PLUM0355-001 07/01/2025

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.....	\$ 36.01	18.50

PLUM0442-003 01/01/2026

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 58.45	38.74

PLUM0447-001 07/01/2025

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.....	\$ 67.37	30.00
Light Commercial Work.....	\$ 55.58	24.02

ROOF0081-006 08/01/2024

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer.....	\$ 54.94	23.34

ROOF0081-007 08/01/2023		

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.....	\$ 46.73	21.36

SFCA0483-003 01/01/2026		

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 81.54	41.35

SFCA0669-003 01/01/2026		

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.....	\$ 52.06	29.86

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

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 07/01/2025		

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 43.26	34.28
GROUP 2.....	\$ 43.56	34.28
GROUP 3.....	\$ 43.86	34.28
GROUP 4.....	\$ 44.21	34.28
GROUP 5.....	\$ 44.56	34.28

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 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.

=====

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>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 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 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "SU", "UAVG", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a

weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

=====

END OF GENERAL DECISION"

EXHIBIT C: GRANT FORMS

GRANT FORMS CHECKLIST

1.To be submitted with the bid:

- a. Build America, Buy America Certification
- b. American Iron and Steel Certification
- c. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- d. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion, Lower Tier Covered Transactions (USDA)
- e. Lobbying Forms (complete one as applicable)
 - 1. Certification Regarding Lobbying, or
 - 2. Disclosure of Lobbying Activities
- f. Certification of Non-Segregated Facilities
- g. Drug-Free Workplace Certification
- h. Non-Discrimination
- i. Bidders List
- j. Good Faith Efforts Verification and Backup Documentation
- k. DBE Solicitation Log and Backup Documentation

THIS PAGE LEFT INTENTIONALLY BLANK

BUILD AMERICA, BUY AMERICA CERTIFICATION

CONTRACTOR/APPLICANT:

The Contractor acknowledges to and for the benefit of the District ("Owner") and the California Drinking Water State Revolving Fund (DWSRF) Program (the "Funding Authority") that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as "Build America, Buy America;" that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States ("Build America, Buy America Requirements") including iron and steel, manufactured products, and construction materials provided by the Contractor pursuant to this Agreement.

1. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority:
 - a) The Contractor has reviewed and understands the Build America, Buy America Requirements,
 - b) All of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and
 - c) The Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or the Funding Authority.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

THIS PAGE LEFT INTENTIONALLY BLANK

AMERICAN IRON AND STEEL CERTIFICATION

CONTRACTOR/APPLICANT:

1. Identification of American-made Iron and Steel: Consistent with the terms of the Purchaser's bid solicitation, the Bidder certifies that this bid reflects the Bidder's best, good faith effort to identify domestic sources of iron and steel for every component contained in the bid solicitation where such American-made components are available on the schedule and consistent with the deadlines prescribed in or required by the bid solicitation.

2. Verification of U.S. Production: The Bidder certifies that all components contained in the bid solicitation that are American-made have been so identified, and if this bid is accepted, the Bidder agrees that it will provide reasonable, sufficient, and timely verification to the Purchaser of the U.S. production of every component so identified.

3. Documentation Regarding Non-American-made Iron and Steel: The Bidder certifies that for any component or components that are not American-made and are so identified in this bid, the Bidder has included in or attached to the bid one or both of the following, as applicable:

- a. Identification of and citation to a categorical waiver published by the U.S. Environmental Protection Agency in the Federal Register that is applicable to such component or components, and an analysis that supports its applicability to the component or components.
- b. Verifiable documentation sufficient to the Purchaser, as required in the bid solicitation or otherwise, that the Bidder has sought to secure American made components but has determined that such components are not available on the schedule and consistent with the deadlines prescribed in the bid solicitation, with assurance adequate for the Bidder under the applicable conditions stated in the bid solicitation or otherwise.

4. Information and Detailed Justification Regarding Non- American-made Iron and Steel: The Bidder certifies that for any such component or components that are not so available, the Bidder has also provided in or attached to this bid information, including but not limited to the verifiable documentation and a full description of the bidder's effort to secure any such American-made component or components, that the Bidder believes are sufficient to provide and as far as possible constitute the detailed justification required for a waiver under section 1605 with respect to such component or components. The Bidder further agrees that, if this bid is accepted, it will assist the Purchaser in amending, supplementing, or further supporting such information as required by the Purchaser to request and, as applicable, implement the terms of a waiver with respect to any such component or components.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

THIS PAGE LEFT INTENTIONALLY BLANK

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND
VOLUNTARY EXCLUSION

CONTRACTOR/APPLICANT:

(1) The contractor certifies, by submission of this proposal, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal agencies;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the contractor is unable to certify to any of the statements in this certification, such contractor shall attach an explanation to this proposal*.

*Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate to whom it applies, initiating agency, dates of action, and the type of violation.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

THIS PAGE LEFT INTENTIONALLY BLANK



Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552a, as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 CFR §§ 180.300, 180.335, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal or civil fraud, privacy, and other statutes may be applicable to the information provided.

(Read instructions on page two before completing certification.)

- A. The prospective lower tier participant certifies, by submission of this proposal, 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;
- B. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

ORGANIZATION NAME	PR/AWARD NUMBER OR PROJECT NAME
NAME(S) AND TITLE(S) OF AUTHORIZED REPRESENTATIVE(S)	
SIGNATURE	DATE

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Instructions for Certification

- (1) By signing and submitting this form, the prospective lower tier participant is providing the certification set out on page 1 in accordance with these instructions.
- (2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.
- (3) The prospective lower tier participant must provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (4) The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 CFR Parts 180 and 417. You may contact the Department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
- (5) The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it may not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the Department or agency with which this transaction originated.
- (6) The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the General Services Administration's System for Award Management Exclusions database.
- (8) Nothing contained in the foregoing shall be construed to require establishment of a system of records to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (9) Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

THIS PAGE LEFT INTENTIONALLY BLANK

CERTIFICATION REGARDING LOBBYING

CONTRACTOR/APPLICANT:

The undersigned certifies to the best of his or her knowledge and belief that:

(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 an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in conjunction 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.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

THIS PAGE LEFT INTENTIONALLY BLANK

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

Approved by OMB

0348-0046

(See reverse for public burden disclosure.)

1. Type of Federal Action: ☐ a. contract ☐ b. grant ☐ c. cooperative agreement ☐ d. loan ☐ e. loan guarantee ☐ f. loan insurance		2. Status of Federal Action: ☐ a. bid/offer/application ☐ b. initial award ☐ c. post-award		3. Report Type: ☐ a. initial filing ☐ b. material change For Material Change Only: year _____ quarter _____ date of last report _____	
4. Name and Address of Reporting Entity: ☐ Prime ☐ Subawardee Tier _____, if known :			5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:		
6. Federal Department/Agency: Congressional District, if known :			7. Federal Program Name/Description: Congressional District, if known : CFDA Number, if applicable: _____		
8. Federal Action Number, if known :			9. Award Amount, if known : \$		
10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):			b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):		
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.			Signature: _____ Print Name: _____ Title: _____		
			Telephone No.: _____		Date: _____

Federal Use Only:

Authorized for Local Reproduction
Standard Form LLL (Rev. 7-97)

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity 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 a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

THIS PAGE LEFT INTENTIONALLY BLANK

CERTIFICATION OF NON-SEGREGATED FACILITIES

CONTRACTOR/APPLICANT:

Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, California 94105

(Applicable to federally assisted construction contracts and related subcontracts exceeding \$10,000 which are not exempt from the Equal Opportunity Clause.)

The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specified time period) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he will retain such certifications in his files.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

THIS PAGE LEFT INTENTIONALLY BLANK

DRUG-FREE WORKPLACE CERTIFICATION

CONTRACTOR/APPLICANT:

The contractor or applicant named above hereby certifies compliance with Government Code Section 8355 in matters relating to providing a drug-free workplace. The above named contractor or applicant will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).
 2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
 3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract or loan:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by the terms of the company's statement as a condition of employment on the contract or loan.
-

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

THIS PAGE LEFT INTENTIONALLY BLANK

NON-DISCRIMINATION CLAUSE

CONTRACTOR/APPLICANT:

1. During the performance of this contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of sex, race, religion, color, national origin, ancestry, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), marital status, age (over 40) or denial of family care leave. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900 (a-f), set forth in Chapter 5 of Division 4 of Title 2 or the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractor shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
 2. The contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.
-

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor or loan recipient to the above described certification. I hereby certify that the Contractor will abide by the above requirements. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME:

DATE EXECUTED:

EXECUTED IN COUNTY OF:

CONTRACTOR/APPLICANT SIGNATURE:

TITLE:

DISADVANTAGED BUSINESS ENTERPRISES GOOD FAITH EFFORTS VERIFICATION

Prime Contractor Name:	
Project Name:	
Point of Contact Name:	
Address:	
Phone Number:	
Email:	

South Tahoe Public Utility District, in accordance with 40 CFR part 33, and in order to meet Environmental Protection Agency (EPA) funding requirements, requires Bidders to provide information pertaining to Good Faith Efforts to subcontract with DBEs. Below is a summary of the Six Good Faith Efforts to be carried out. The full text may be found in the General Funding Provisions in Exhibit A.

- 1) Ensure DBEs are made aware of contracting opportunities by including qualified DBEs on solicitation lists.
- 2) Assure that DBEs are solicited whenever they are potential sources. Whenever possible, post solicitations for bids or proposals for a minimum of 30 days.
- 3) Divide project requirements into smaller tasks or quantities to permit maximum DBE participation.
- 4) Establish delivery schedules that encourage DBE participation.
- 5) Use the services of the Small Business Administration (SBA) and the Minority Business Development Agency (MBDA).
- 6) Require each subcontractor to perform the same steps outlined above.

This Good Faith Efforts Verification Form summarizes the Contractor's efforts and is due within 48 hours of submitting your bid proposal unless a specific date for submission is identified in Section 00 20 00 Instructions to Bidders. Additional backup documentation and the following forms must also be submitted.

- Bidders List (Due with Bid)
- DBE Solicitation Log and backup documentation (Due with bid proposal unless a specific date for submission is identified in Section 00 20 00 Instructions to Bidders)

Backup documentation must be attached to support the responses below. Documents may include proof of copies of DBE solicitations, email or phone logs, advertisements or procurement postings, documentation of communications, DBE responses (if received). Use additional pages as needed.

1. **Soliciting DBEs:** Contractor shall ensure that qualified DBEs are made aware of subcontracting opportunities by identifying and soliciting DBEs that may be capable of performing the work. DBE outreach must be documented in the DBE Solicitation Log submitted with this form. Supporting documentation (e.g., solicitation emails, procurement postings, or communication records) must also be provided. If additional outreach activities were performed that are not reflected in the Solicitation Log, briefly describe them below:

2. **a. Publicizing Subcontracting Opportunities:** Contractor shall make subcontracting opportunities known to potential DBE firms through reasonable outreach methods, such as procurement postings, electronic bid platforms, trade publications, or other appropriate media. If subcontracting opportunities were publicly posted or advertised, identify the platform or publication and the date(s) posted below. Supporting documentation (e.g., screenshots, advertisements, or posting confirmations) should be included with the supporting documentation submitted for this form.

Platform or Publication	Date Posted

b. DBE Solicitation Log: Contractor shall complete and submit the DBE Solicitation Log documenting all DBE firms contacted regarding subcontracting opportunities for this project. The log must identify each DBE contacted, how the firm was identified, the date and method of contact, the work scope or trade solicited, and whether the firm responded. The DBE Solicitation Log must be submitted with this form and supported by documentation such as solicitation emails, bid platform notices, phone records, or other communication records.

c. DBE Solicitation Timing: For each subcontracting opportunity identified for this project, provide the following information. Use additional sheets if necessary.

Work Scope / Trade	Date Opportunity was Solicited	Quote Due Date Provided to Subs	Days Provided to Respond

Whenever practicable, solicitations should be issued at least 30 calendar days before quotes are due. If fewer than 30 days were provided, explain why.

- 3. Division of Work to Facilitate DBE Participation:** Describe any efforts to divide work items into smaller tasks or subcontracting opportunities to encourage DBE participation.

- 4. Delivery Schedules:** Did the Contractor consider structuring subcontracting in a manner that facilitates participation by DBEs, including scheduling work scopes or delivery timelines in a way that allows DBE firms to reasonably perform the work.

- ☐ Yes, subcontracting opportunities were structured to encourage DBE participation where practicable.
- ☐ Not applicable. The nature of the work or project schedule did not allow for alternative scheduling or packaging.

If applicable, describe any efforts made.

Contracting with a Group of DBEs: Contractor considered whether subcontracting opportunities could be structured to allow participation by multiple DBE firms, including the use of a consortium or joint effort when the scope of work is too large for a single DBE firm to perform independently.

If applicable, describe any efforts made.

- ☐ Not applicable. The subcontracting opportunities did not require or allow for a consortium of DBE firms.

- 5. Resources used to identify potential DBEs (check all that apply):**

☐ DBE directory search (EPA, SBA, DOT, Tribal, State, or Local)	☐ Procurement website posting (PlanetBids or similar)
☐ Existing solicitation lists	☐ Outreach to SBA or MBDA
☐ Direct email or written solicitation	☐ Other: _____

☐ Telephone outreach

Certification

By signing below, Contractor certifies that it has made the Good Faith Efforts described in this form in accordance with 40 CFR Part 33, and that the information provided and supporting documentation submitted are true and correct to the best of its knowledge. The Contractor further certifies that any DBE firms identified in connection with this project are currently certified at the time of bid opening by a recognized certifying entity. The Contractor agrees to include the applicable DBE requirements of 40 CFR Part 33 in all subcontracts and to require subcontractors at all tiers to make the same Good Faith Efforts when procuring lower-tier subcontractors, equipment, services, or supplies. The Contractor agrees to maintain all records supporting these Good Faith Efforts for 36 years after project completion or longer if required by applicable funding agreements.

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____

THIS PAGE LEFT INTENTIONALLY BLANK

BIDDERS LIST

Instructions: The Contractor must complete a Bidders List identifying all firms that submitted bids or quotes for this project, including both DBEs and non-DBEs. For each entity, indicate the type of work or service provided, bid or quote amount, whether the firm is a certified DBE, and whether the entity was selected. The template below may be used, or Contractor may create their own template with the same information.

Project name:

Prime Contractor:

Subcontractor Quote Due Date(s):

Entity's Name	Point of Contact	Prime or Sub	Service Provided	Amount of Bid or Quote	DBE (Y/N)	Selected (Y/N)	Type of DBE (MBE, WBE, Micro, Tribe, etc.)

Provide complete list. Use additional sheets, if necessary

THIS PAGE IS LEFT INTENTIONALLY BLANK

DBE SOLICITATION LOG

Instructions: Contractor shall complete this log to document all DBE firms contacted regarding subcontracting opportunities for this project. List each DBE identified as a potential source and contacted for work. Attach supporting documentation when available, such as solicitation emails, bid platform notices, phone records, or other communication records. Use additional pages if necessary. The template below may be used, or Contractor may create their own template with the same information.

Project Name:

Prime Contractor:

Contact Name:

[illegible]

THIS PAGE IS LEFT INTENTIONALLY BLANK

DIVISION 01

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 01 10 00

GENERAL PROJECT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Description of construction delivered under Contract, separate Contracts and restrictions affecting construction activities.

PART 2 SUMMARY OF WORK

2.01 PROJECT DESCRIPTION

- A. The Project will install approximately 8,700 linear feet of 16" ductile iron waterline on Pioneer Trail from Marshall Trail to Susquehanna Drive. Project will install fire hydrants at 1000 foot spacing along a critical urban-wildland interface. This project will also eliminate a Pressure Reducing Valve (PRV) station while installing three new PRV stations. The Project involves connections between six pressure zones. Pioneer Trail is a significant roadway maintained by El Dorado County DOT with major portions of the Project occurring on US Forest Service owned land subject to a Special Use Permit. The Project is subject to a SWPPP.

2.02 DEFINITION OF WORK

- A. The Work to be performed under the Contract Documents shall include the furnishings of all labor, materials, equipment, tools, transportation, and incidentals necessary for the completion of all Work for the 2026 Pioneer Trail Waterline Project.

2.03 LOCATION OF PROJECT

- A. The Work is located within the District boundaries at or near South Lake Tahoe, California.

PART 3 WORK RESTRICTIONS

3.01 CONTRACTOR'S USE OF PREMISES

- A. Contractor access during construction shall be limited to those areas of the site indicated on the Plans. Access to additional areas of the site may be granted to Contractor with approval of the Engineer.

- B. Contractor access ways, staging areas and materials storage are shown on the Plans and within the Project SWPPP.
- C. Safety and security of the Contractor's equipment and materials on District property is the responsibility of the Contractor.
- D. Contractor's use of premises shall be limited to those activities that are necessary for the completion of the Work, and shall be limited to the Work Hours defined in Part 3.02
- E. Overnight storage of equipment on road shoulder within the Right of Way will be allowed if the following requirements are met:
 - 1. Driveways and other entrances or exits from properties are not to be obstructed.
 - 2. A 24 hour contact number is provided to the District in the event that equipment must be moved for any reason.
 - 3. Areas for proposed overnight storage of equipment are digitally photographed in advance by the Contractor and the photographs are provided to the District.
 - 4. Any damage or land disturbance caused by storing of equipment overnight will be repaired on a daily basis by the Contractor at the Contractor's expense.
 - 5. Area's used for overnight storage of equipment will be brought back to conditions equivalent to the pre-project conditions at the contractor's expense.
 - 6. The safety and security of equipment and storage area is the sole responsibility of the Contractor.
 - 7. Storage is authorized in writing by the El Dorado County DOT and the Engineer in compliance with TRPA, Lahontan, USFS, and SWPPP requirements.

3.02 WORK HOURS

- A. On-site work hours shall be as indicated on the Plans.

3.03 WORK BY OTHERS

- A. The District, utility companies, and others may be working within the project area while the Work is in progress. If so, the Contractor shall schedule its work, in conjunction with these other persons to minimize mutual interference, to the extent reasonably possible within the time constraints of this Project.
- B. Others working on associated facilities and probably interfacing with the Contractor at some time during the execution of the work include:
 - 1. Operations and Maintenance personnel of the South Tahoe Public Utility District;
 - 2. Other utilities and/or agencies including, but not limited to, El Dorado County, USFS, Southwest Gas, Liberty Utilities, AT&T and Spectrum cable suppliers.

- C. The Contractor shall cooperate to make the necessary connections at a minimum cost and time delay for all involved. In the event of lack of agreement, the Engineer will determine how and where the interface shall be made and his decision shall be final.

3.04 USE OF COMPLETED PORTIONS, RIGHT TO OPERATE UNSATISFACTORY EQUIPMENT OR FACILITIES

- A. The District may, at any time, and from time to time, during the performance of the work, enter the work site for the purpose of installing any necessary work by the District labor or other contracts, and for any other purpose in connection with the installation of facilities. In doing so, the District shall endeavor not to interfere with the Contractor and the Contractor shall not interfere with other work being done by or on behalf of the District.
- B. If, prior to completion and final acceptance of all the work, the District takes possession of any structure or facility (whether completed or otherwise) comprising a portion of the work with the intent to retain possession (as distinguished from temporary possession contemplating the return to the Contractor) then, while the District is in possession of the same, the Contractor shall be relieved of liability for loss or damage to such structure other than that resulting from the Contractor's fault or negligence. Such taking of possession by the District shall not relieve the Contractor from any provisions of this Contract respecting such structure, other than to the extent specified in the preceding sentence, nor constitute a final acceptance of such structure or facility.
- C. If, following installation of any equipment or facilities furnished by the Contractor, defects requiring correction by the Contractor are found, the District shall have the right to operate such unsatisfactory equipment or facilities and make reasonable use thereof until the equipment or facilities can be shut down for correction of defects without injury to the District.

3.05 PUBLIC CONVENIENCE

- A. This section defines the Contractor's responsibility with regard to convenience of the public and public traffic in connection with his operations.
- B. The Contractor shall so conduct its operations as to offer the least possible obstruction and inconvenience to the public and shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public.
- C. Unless otherwise provided in the Contract Documents, all public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible.
- D. Spillage resulting from hauling operations along or across any publicly traveled way shall be removed immediately by the Contractor at its expense.

- E. Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners.
- F. Convenient access to driveways, houses, and buildings along the line of the work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition. When the abutting property owner's access across the right-of-way line is to be eliminated, or to be replaced under the Contract by other access facilities, the existing access shall not be closed until the replacement access facilities are usable.
- G. Water shall be supplied if ordered by the Engineer for the alleviation or prevention of dust nuisance affecting the public and traffic, as provided in Section 01 50 00, Part 2.06.

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for cash and quantity allowances for products, installation, testing and contingencies.

PART 2 PRICE AND PAYMENT PROCEDURES

2.01 PROGRESS PAYMENT

- A. Progress Payment Spreadsheet. By the first Monday of the month, the District will provide the Contractor a Progress Payment Spreadsheet (Spreadsheet). In consultation with the Engineer (or Engineer's designee), the parties will work collaboratively to determine the estimated bid item quantities (or percentage of work) completed by the Contractor through the end of the previous month. By close of business on Friday of that week, the Contractor will submit the Spreadsheet, along with such supporting documentation and calculations required by the Contract Documents, to the District. The Engineer will review the Spreadsheet and determine whether the estimated quantities are correct. If the estimated quantities are not correct in the opinion of the District, the Engineer and Contractor will attempt to resolve differences in the estimated quantities. If an agreement cannot be reached for a particular item quantity, the proposed Pay Estimate Package provided to the Contractor will be based on the District's estimated quantity for the item.
- B. Pay Estimate Package. The District will prepare the proposed Pay Estimate Package and distribute it to the Contractor. Within three (3) calendar days of receiving the proposed Pay Estimate Package, the Contractor shall review the proposed Pay Estimate Package and submit an executed Pay Estimate Package to the District pursuant to Public Contract Code section 20104.50. The Contractor is responsible for the accuracy of the submitted Pay Estimate Package and by submitting the Pay Estimate Package to the District, the Contractor verifies the accuracy of the pay quantities. Upon receipt, the District shall review the Pay Estimate Package to determine whether it is undisputed and suitable for payment. If the Pay Estimate Package is unsuitable for payment, it shall be returned to Contractor as soon as practicable, but not later than seven (7) calendar days after receipt, accompanied by a document setting forth in writing the reasons why the Pay Estimate Package is not proper. The Contractor shall make the necessary corrections and resubmit the Pay Estimate Package within three (3) days of receiving the Pay Estimate Package unsuitable for payment. After receipt of a Pay Estimate Package that is determined by the District to be undisputed and suitable for payment, the Pay Estimate Package will be presented to the District Board of

Directors for approval at a future Board meeting. The District shall have the right to adjust any estimate of quantity and to subsequently correct any error made in any estimate for payment. Nothing in this section waives any rights or remedies reserved for the District, including, but not limited to, withholding payment of encumbered funds, under this Contract or allowed by law..

- C. The payment request may, under separate line item, give consideration to materials on hand as a convenience to the Contractor. Consideration shall only be upon Contractor's request, and shall be presented in a form that is acceptable to the Engineer for counting and tracking materials. Materials on hand will be paid only for materials delivered to the work site, and for which the Contractor provides paid invoices. The Contractor shall be responsible for updating the summary on a monthly basis to zero out items that have been installed in the prior month.
- D. In reviewing the payment request, the Engineer shall deduct from the amount of the request:
 - 1. amounts due to the District for equipment or materials furnished or services rendered;
 - 2. amounts due to the District under the terms of the Contract; and
 - 3. amounts required to be deducted by federal, state or local governmental authority.
- E. The Contractor shall submit with each payment request the Contractor's conditional waiver of lien for the entire amount covered by such payment request, in the forms prescribed by California Civil Code §3262.
- F. Not Used.
- G. The Contractor may, in accordance with the provisions of Public Contract Code section 22300, substitute securities for any monies which the District may withhold to insure performance under the Contract.
- H. When, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the Contract, no pay payment request will be prepared and no payment will be made.
- I. No payment request or payment shall be considered to be an approval or acceptance of any work, materials, or equipment. Estimated amounts and values of work done and materials and equipment furnished will be conformed with actual amounts and values as they become available in subsequent payment requests, progress payments and the final estimate and payment. All requests and payments will be subject to correction in subsequent and final payment requests and payment.
- J. No payments made under the Contract, including progress payments and the final payment, shall be evidence of the performance of the Contract, either wholly or in part, and no payment shall be construed to be an acceptance of any defective or incomplete work or improper materials.
- K. If the validity of a properly filed request for payment by the Contractor is not disputed, payment of the request by the District shall include interest at the rate provided in Subdivision (a) of Section 685.010 of the Code of Civil Procedures if

payment has not been made within thirty (30) days after the proper submission of the claim to the District. The District shall review each payment request as soon as practicable after receipt for the purpose of determining whether the payment request is a proper payment request. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. A request returned pursuant to this subsection shall be accompanied by a written explanation of the reasons why the payment request is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this subsection shall be reduced by the number of days by which the District exceeds the seven (7) day return requirement set forth above.

2.02 FINAL PAYMENT

- A. Final Payment shall be in conformance with the terms set forth Section 01 77 00, Closeout Procedures.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for the management and coordination of subcontractors and coordination with other Contractors and the District.

PART 2 PROJECT MANAGEMENT AND COORDINATION

2.01 RESPONSIBILITY OF CONTRACTOR

- A. If any part of the Work depends on proper execution or results of the work of others, 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. Failure of the Contractor to so inspect and report constitutes 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.

2.02 CONTRACT DOCUMENTS

- A. The Contractor shall keep one copy of the Contract Documents, Shop Drawings, Change Orders and other modifications in good order, available to the Engineer and his representatives, and convenient to the work site. This set of Contract Documents shall be marked as the project progresses to record the details of all changes made during construction. Contract Drawings shall include schematic depictions of changes, and Specifications shall include redline strikeout of changes to language; showing only reference to related Requests for Information, Shop Drawings or written directive will not suffice.
- B. During the progress meetings, defined in Part 3.02 below, such documents shall be reviewed to ascertain that all changes have been recorded.
- C. If the Contractor, in the course of the work, finds any discrepancy between the Contract Documents and the physical condition of the locality, or any errors or omissions in the Contract Documents, or in the layout as given by points and instructions, the Contractor shall follow the procedures outlined in Section 00 72 00, General Conditions.

2.03 SEPARATE CONTRACTS

- A. The District reserves the right to let other contracts in connection with this work. The Contractor shall afford such other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with the other contractor's work.
- B. To insure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and the drawings.

2.04 COOPERATION OF CONTRACTORS

- A. Should construction be under way by other forces or by other Contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to said limits, the Contractor shall cooperate with all such other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.
- B. When two or more contractors are employed on related or adjacent work, each shall conduct its operation 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 work, to persons or property caused to the other by his operations, and for loss caused the other due to its unnecessary delays or failure to finish the work within the time specified for completion.

2.05 COORDINATION OF WORK

- A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with the Contract Documents, the Contractor shall obtain from each of its subcontractors a similar schedule which shall be integrated into the construction schedule. The Contractor shall then be responsible for all parties maintaining these schedules and coordinating required modifications as approved by the District.

2.06 SUPERINTENDENCE

- A. Contractor's Representative: The Contractor shall designate in writing before starting work an individual as authorized representative who shall have the authority to represent and act for the Contractor. This authorized representative shall be present at the site of the work at all times while work is actually in progress on the Contract. The Contractor shall not change representatives without the written approval of the Engineer.

- B. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for the performance and supervision of any emergency work which may be required.
- C. It is the intent of this section that the Contractor (1) supervise all work, including that of subcontractors, (2) be responsible for the quality and conformance with contract provisions of all work, and (3) maintain responsibility for the actions of subcontractors and suppliers at the job site. The Contractor is solely responsible, at all times, for the superintendence of the work and for its safety and progress.
- D. 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, such direction will be given by the Engineer, which shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which the orders are given.
- E. Any order given by the Engineer, not otherwise required by the Contract Documents to be in writing, will on request of the Contractor, be given or confirmed by the Engineer in writing.
- F. The Contractor shall place on record at the District, and keep current, the name of the Contractor's representative and the phone number at which he can be contacted at such times that he is not at the work site (such as after working hours and on holidays and weekends) to respond to District requests to correct safety and other problems that may arise in connection with the work.

2.07 CHARACTER OF WORKERS

- A. If any Subcontractor, or person employed by the Contractor or any Subcontractor shall fail or refuse to carry out the directions of the District or its agents or shall appear to the District or its agents to be incompetent or to act in a disorderly, unsafe, or improper manner, that person shall be removed from the project work immediately on the request of the District or its agents, and such person shall not again be employed on the work. Such discharge shall not be the basis for any claim for compensation or damages against the District, or any of its officers or agents.

2.08 SAFETY

- A. 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 instruction as is necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to electrical work, work involving excavation, and in work involving confined spaces.
- B. The Contractor shall provide its personnel with additional training to address the following:
 - 1. Temporary Traffic Control

2. Wildland Fire Safety

- C. Contractor shall be required to comply with the District's Lockout/Tagout program and procedures. A copy of the program will be provided to the Contractor prior to the start of work.
- D. Refer to Section 01 33 00, Submittals Process, for submittals requirements pertaining to project safety.

PART 3 PROJECT MEETINGS

3.01 PRECONSTRUCTION CONFERENCE

- A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the Engineer will arrange a pre-construction conference to be attended by the Contractor's superintendent, the District, the Engineer, or his representative, and representatives of utilities, major subcontractors, and others involved in the execution of the Work.
- B. The purpose of this conference shall be to establish a working understanding between the parties and to discuss the Construction Schedule prepared in accordance with Section 01 32 00, Part 2.01, shop drawing submittals preparation and processing in accordance with Section 01 33 00, Part 2.02, cost breakdown of major lump sum items, applications for payments and their processing, and such other subjects as may be pertinent for the execution of the Work.

3.02 PROGRESS MEETINGS

- A. The Contractor shall arrange and conduct progress meetings. These meetings shall be conducted weekly and shall be attended by the Contractor's superintendent and representatives of all subcontractors, utilities, and others, that are active in the execution of the Work. The purpose of these meetings shall be to expedite the work of any subcontractor or other organization that is behind schedule, resolve conflicts, and in general coordinate and expedite the execution of the Work.
- B. The agenda of progress meetings shall include review of progress and schedule, review of payment requests at monthly intervals, review of narrative report, review of the latest Construction Schedule update, and review of the record documents if necessary.

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for scheduling, recording and reporting progress.

PART 2 SCHEDULING

2.01 PROGRESS SCHEDULE

- A. The Contractor shall submit within ten (10) days after execution of the Contract a schedule or schedules which shall show the dates at which the Contractor will start and complete several parts. This schedule shall conform to the completion time specified in the Contract.
- B. The Contractor shall review and, if necessary, revise the progress schedule at least once a month and in any event shall submit a current schedule to the Engineer at his request at any time during the contract period.

2.02 SCHEDULE REVIEW

- A. The Work and the Construction Schedule shall be reviewed to verify that:
 - 1. Start and finish dates of activities fall within the Contract Time.
 - 2. Durations and progress of all activities are reasonable.
- B. Items that shall be included (but not limited to) in the schedule:
 - 1. All critical material delivery dates;
 - 2. All critical shop drawings submittal dates;
 - 3. Any requested system shut-downs, in accordance with the requirements of Section 01 73 00, Execution, Part 2.02;
 - 4. Any requested exceptions from the work restrictions defined in Section 01 10 00, General Project Requirements; and
 - 5. Beginning and end of earthwork-related activities, including paving.
 - 6. Beginning and end of watermain segments, including dates for water main pressure testing and disinfection activities.
 - 7. Each waterline intertie shall be identified separately.
 - 8. Connection of existing customers to new services.
 - 9. Compliance with the work sequence and constraints set forth in Section 01 73 00, Execution, Part 2.06.
- C. The CONTRACTOR, in his submitted construction schedule, shall specifically address the requirement to have all work completed by the

project completion deadline enforced by TRPA. The submitted schedule will be rejected if it does not establish how the CONTRACTOR proposes to meet this condition. A schedule submitted by the CONTRACTOR and accepted by the District that calls for the completion of the project before the stipulated project completion deadline, does not change the Contract Time as listed in Part 2.04 of Section 00 72 00. No compensation will be allowed for required schedule extensions that do not cause the Contract Time as originally stated to change.

- D. All other scheduling aspects of the installation project shall be addressed by the CONTRACTOR, especially those aspects considered by the CONTRACTOR and/or the OWNER to be critical to the completion of the project within the stipulated Contract Time as identified in Section 00 72 00, General Conditions, Part 2.04.
- E. **Inclement Weather:** In conformance with regulatory requirements and safe working practices, the District has recognized that adverse weather conditions may affect the Contractor's ability to proceed with certain portions of the Work on a given day if, for example, the site is wet or snow covered, or winds are high. The Contract Time established in the contract documents takes into consideration adverse weather conditions, including but not limited to precipitation, wind, and thunderstorms, within the average climatic range. The Contractor's schedule shall allow enough time for these inclement weather events, and shall reflect the following number of weather delay days per month for activities that are potentially impacted by adverse weather conditions:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	4	4	4	3	2	2	2	2	3	4	4

The District does not consider cold temperatures (below 40 degrees Fahrenheit) to be an inclement weather event, and cautions the Contractor that cold weather may occur at any time of year. It is the responsibility of the Contractor to account for extended periods of cold weather in the project schedule, and to implement controls to allow work to continue during periods of cold at no additional cost to the District. The District will not consider claims for additional cost due to delays caused by cold, because of a failure by the Contractor to implement necessary controls.

- F. The receipt or approval of any schedules by the District shall not in any way relieve the Contractor of its obligations under the Contract.

2.03 REVISIONS TO CONSTRUCTION SCHEDULE

- A. The Contractor shall submit a revised Construction Schedule within five (5) days of the occurrence of any of the following:
 - 1. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or control point requirement, by thirty

- (30) working days or ten percent (10 percent) of the remaining duration, whichever is less.
2. Delays in submittals, deliveries, or work stoppages are encountered which make replanning or rescheduling of the work necessary.
 3. The Schedule does not represent the actual prosecution and progress of the project as being performed in the field.
- B. Acceptance of the revised Construction Schedule and all supporting data is contingent upon compliance with other related requirements in the Contract Documents and any other prior agreements or requirements with or by the Engineer.
- C. The cost of revisions to the Construction Schedule resulting from Contract changes will be included in the cost for the change in the Work, and will be based on the complexity of the revision or Change Order, hours expended in analyzing the change, and the total cost of the change.
- D. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 01 32 20

WEB-BASED CONSTRUCTION DOCUMENT MANAGEMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures and requirements for managing construction documentation and submittals for the Work.
 - 2. Responsibilities of the Contractor and the District for the management of construction documentation and submittals.
- B. The District and Contractor shall utilize Procore Technologies, Procore Construction Software (Procore) system for electronic submittal and tracking of all data and documents (unless specified otherwise by the District's representative) throughout the duration of the Contract.
 - 1. Procore is a web-based electronic media service hosted by Procore Technologies utilizing their Procore web solution.
 - 2. Procore will be paid for by the District, and the District will maintain the Service Agreement with Procore.
 - 3. Procore will be made available to the Contractor, their personnel, subcontractor personnel, suppliers, and consultants.
 - 4. The joint use of this system is to facilitate electronic exchange of information, automation of key processes, and overall management of Contract Documentation.
 - 5. Procore shall be the primary means of project information submission and management for the project.
- C. The intent of utilizing a web based construction management application is to reduce cost and schedule risk, improve quality and safety, and maintain a healthy team dynamic by improving information flow, reducing non-productive activities, reducing rework and decreasing turnaround times.

1.02 DEFINITIONS

- A. "Copy" or "Copies" shall refer to electronic copies unless a hard copy is specified. Where a hard copy is specified, both electronic and paper versions shall be submitted.

1.03 USER ACCESS LIMITATIONS

- A. The Engineer will control the Contractor's access to Procore by allowing access and assigning user profiles to accept Contractor personnel.
- B. User profiles will define levels of access into the system and determine assigned function-based authorizations and user privileges.

- C. Subcontractors and suppliers will be given access to Procore by and through the Contractor. Entry of information exchanged and transferred on Procore between the Contractor and its subcontractors, suppliers and consultants shall be the responsibility of the Contractor.

1.04 JOINT OWNERSHIP OF DATA

- A. Data entered in a collaborative mode (i.e., entered with the intent to share as determined by permissions and workflows within the Procore system) by the District and the Contractor shall be jointly owned.

1.05 AUTOMATED SYSTEM NOTIFICATION AND AUDIT LOG TRACKING

- A. Review comments made (or lack thereof) by the District on Contractor-submitted documentation shall not be interpreted as changes to the Contract nor shall they relieve the Contractor from compliance with the Contract Documents.
- B. As discussed elsewhere in these Contract Documents, the Contractor is responsible for managing, tracking and documenting the Work to comply with the requirements of the Contract Documents.
- C. The District's acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation, and does not constitute validation of the Contractor's submitted documentation.
- D. In compliance with Public Contract Code §1601, Procore provides both (1) automatic transmission of receipts confirming that documents submitted by Contractor have been received by the District, and (2) an electronic online record of the history of transmission and receipt of each document submitted by the Contractor.

1.06 SUBMITTALS

- A. See Section 01 33 00 for submittal requirements.
- B. Preconstruction submittals:
 - 1. Contractor shall provide a list of personnel responsible for Procore administration within one week following the Notice to Proceed.
 - 2. The list shall include key personnel's roles and responsibilities, including email addresses. Contractor should also identify the corporations' system administrator on the list.

1.07 COMPUTER SYSTEM REQUIREMENTS

- A. The Contractor shall use computer hardware and software that meets the requirements of the Procore system, as recommended by Procore Technologies, to access and utilize Procore. As recommendations are modified by Procore, the Contractor shall upgrade their system(s) to meet or exceed the recommendations. The cost to procure or upgrade the Contractor's computer systems to meet Procore requirements shall be the

responsibility of the Contractor, and will not be considered a justifiable basis for cost or time modification to the Contract.

- B. The Contractor shall be responsible for providing connectivity to the Procore system through DSL, cable, T-1 or wireless communication systems at no additional cost to the District. If connectivity is to be established at the Site, the means of connection shall be acceptable to the District. The minimum bandwidth requirement for using the system is 25 mb/s. It is recommended that a faster connection be used when uploading pictures and files into the system.
- C. Procore is web based and supports the current versions of Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari. Older versions may be supported, however the newest versions will provide the best experience.
- D. Procore provides a mobile application (app) for both iOS and Android devices.
 - 1. The mobile app is expected to be utilized by District and Contractor representatives on-site. The iOS app currently supports iOS 17.1 and 18 and iOS or iPad OS devices which support these software versions. The Android app supports Android 13 and newer versions.
 - 2. While compatibility is based on software requirements, the user experience will be impacted by the mobile hardware being utilized. Procore recommends devices be replaced every 2-3 years to keep up with the demands of up-to-date software requirements. Procore also recommends a minimum of 64 GB of free storage including 5-10 GB of free storage per project on each device.
 - 3. Devices may not be Jailbroken or Rooted as these processes significantly compromise the security of the data on the device.
- E. The Contractor shall ensure that PDF files are compatible with Adobe Acrobat 9.0 or later. Vector PDF shall be used for all drawing files and as often as possible for all PDF files.

1.08 CONTRACTOR RESPONSIBILITY

- A. The Contractor shall be responsible for the validity of their information placed in Procore and for the abilities of their personnel.
- B. Accepted users shall be knowledgeable in the use of computers, including internet browsers, email programs, CAD drawing applications, and Portable Document Format (pdf) document distribution program.
- C. The Contractor shall utilize the existing forms in Procore to the maximum extent possible. If a required form does not exist in Procore, the Contractor must include a form of their own or provided by the District as an attachment to a submittal or other document.
- D. PDF documents will be created through electronic conversion rather than optically scanned, whenever possible. If optically scanned, the document shall be converted through an OCR (Optical Character Reader) so that all

documents are searchable. The Contractor is responsible for the training of their personnel in the use of Procore and the other programs indicated above, as needed. Lack of training will not be considered a justifiable basis for cost or time modification to the Contract.

E. User Access Administration

1. The Contractor shall provide a list of key project personnel for the District's review and acceptance.
2. Each user must have a unique email address.
3. The Contractor is responsible for adding users to the project directory, as appropriate. The Contractor will be given permission to add personnel to Procore. The Contractor will be responsible for managing the permissions of each user they add to the Directory.
4. The District reserves the right to perform a security check on all potential users.
5. There is no limit to the number of users which may be added to the Directory and given access to Procore.
6. The Contractor may add Subcontractor companies to the project directory and provide access to Procore tools for subcontractor use. The Contractor is responsible for managing the workflow of their Subcontractors.

1.09 CONNECTIVITY PROBLEMS

- A. Procore is a web-based environment and, therefore, subject to the inherent speed and connectivity problems of the internet. The Contractor is responsible for its own connectivity to the internet. Procore response time is dependent on the Contractor's equipment, including processor speed, internet access speed, etc., and current traffic on the internet. The District will not be liable for any delays associated from the usage of Procore including, but not limited: slow response time, down time periods, connectivity problems, or loss of information. The Contractor will ensure that they maintain connectivity to the Procore system (whether at the home office or project site). Under no circumstances shall the usage of Procore be grounds for a time extension or cost adjustment to the Contract.

1.10 TRAINING

- A. Procore training is provided at no cost at <https://learn.procore.com/>. The training is self-paced learning through videos and interactive web pages. The Contractor Project Manager is expected to complete the Project Management Certification at a minimum; this course is approximately 3 hours. The Quality & Safety (1-2 hours) and Financial Management (3-4 hours) are also recommended for complex projects. Contractor Superintendents are expected to complete the Superintendent Certification at a minimum; this course is approximately 3.5 hours. Specific Procore tool trainings are also available.
- B. Contractor shall arrange and pay for the facilities and hardware/software required to facilitate all training.

PART 2 PRODUCTS

2.01 DESCRIPTION

- A. Procore project management application (no equal) provided by Procore Technologies at:

<https://www.procore.com/>

2.02 SOFTWARE CAPABILITIES

- A. It is intended that the contractor utilize the following capabilities of the Procore Software. Some functions will be initiated by District staff or their representatives, other functions will be initiated by the Contractor and/or their Subcontractors.
- B. Directory
1. Provides a directory of all team member's contact information that is accessible from web and mobile.
- C. Dashboards
1. Provides a dashboard that shows the status of all currently assigned items with drill down capability to see the subject, assignee and due date of each item.
- D. Drawings
1. Provides access to a system maintained current set of drawings on web and mobile, with access to all previous revisions as well.
 2. Provides automatic hyperlinking capability for detail callouts.
 3. Provides drawing markup capabilities on web and mobile.
 4. Provides ability to link RFIs, Submittals, Punchlist Items, Photos and Project Documents to the drawings.
 5. Drawing Markups are carried forward when new revisions are uploaded.
 6. Markups and linked documentation are able to be public or private.
- E. Specifications
1. Provides ability to upload project specifications and manage them at the individual specification level.
 2. Provides ability to view and search specifications on web and mobile.
 3. Provides ability to upload revisions to individual specifications and maintain all revision history.
 4. Provides an auto-generated current specification log that provides access to the current version of each specification.
 5. Provides ability to link specifications to submittals and view the specification from the submittal.
- F. Schedule
1. Provides ability to display schedules from typical scheduling software such as Microsoft Project, Primavera P3, Primavera P6 or Asta Powerproject.

- G. Requests for Information (RFIs)
 - 1. Provides ability to create RFIs with assignees, due dates and attachments.
 - 2. Provides ability for assignees to respond to RFIs both via the software and by responding to the system generated email.
 - 3. Provides an auto-generated log of all RFIs.
- H. Submittals
 - 1. Provides ability to upload a submittal register of all expected submittals.
 - 2. Provides ability to create multi-step approval workflows for submittals, with reminder notifications for the current assignee.
 - 3. Provides the ability to upload any file type without size restrictions.
 - 4. Provides an auto-generated submittal log.
- I. Documents
 - 1. Provides a storage location for miscellaneous project documents.
 - 2. There is no file size storage limit.
 - 3. Provides download tracking.
 - 4. Provides the ability to revise and check out files, with access to all previous revisions.
- J. Financial Management
 - 1. Provides ability to manage contracts, payment applications, change events, and change orders through the software.
- K. Meetings
 - 1. Provides ability to create, edit and view meeting minutes from web and mobile.
 - 2. Provides ability to create action items with assignees and due dates from a meeting item.
- L. Daily Log
 - 1. Provides daily log entry from web and mobile with automatic capture of daily weather conditions.
 - 2. Provides ability to attach photographs to entries directly from mobile.
- M. Photos
 - 1. Provides ability to upload and view photos from web and mobile.
 - 2. Provides ability to markup photos from mobile to clarify anything important in the photo.
 - 3. Provides ability to link photos to specific locations on drawings.
- N. Inspections
 - 1. Provides ability to create inspections from web and mobile.
 - 2. Provides ability to create a deficiency item from an inspection that can be assigned and tracked to completion.
- O. Deficiency Tracking

1. Provides a means for recording, assigning and confirming completion of any deficiency or observation noted during the course of construction.
- P. Punchlist
1. Provides ability to create punchlist items from web and mobile and link them to specific locations on the drawings.
 2. Provides ability to distribute punchlist items to all contractors, for contractors to mark them as resolved with photographic proof of resolution via mobile, and for the items to be marked as complete via mobile or web.

PART 3 EXECUTION

3.01 PROCORE UTILIZATION

- A. Procore shall be utilized in connection with all document and information management required by these Contract Documents. Documents and information to be submitted electronically include, but are not limited to, the documents described in Part 3.02 below.
- B. Procore shall be utilized for on-site documentation of construction activities including, but not limited to, the activities described in Part 3.03 below.
- C. Procore shall be utilized for Schedule and Meetings management including, but not limited to, the activities described in Part 3.04 below.
- D. Procore shall be utilized for all financial documentation required by the contract including, but not limited to, the activities described in Part 3.05 below.

3.02 SUBMITTALS

- A. Shop Drawings
 1. Shop drawing and design data documents shall be submitted as PDF attachments to the Procore submittal workflow process and form. Examples of shop drawings include, but are not limited to:
 - a. All shop drawings identified in Section 01 33 00, Part 2.03.
 - b. Standard manufacturer installation drawings.
 - c. Drawings prepared to illustrate portions of the work designed or developed by the Contractor.
 - d. Steel fabrication, piece, and erection drawings.
 - e. Electrical interconnection drawings.
- B. Product Data
 1. Product data shall be submitted as PDF attachment to the Procore submittal workflow process and form. Examples of product data include, but are not limited to:
 - a. All product data identified in Section 01 33 00, Part 2.03.
 - b. Manufacturer's printed literature.

- c. Preprinted product specification data and installation instructions.
- d. Made in America Certification, if required by Contract.

C. Samples

- 1. Sample submittals shall be physically submitted as specified in Section 01 33 00, Part 2.04. Contractor shall enter submittal data information into Procore with a copy of the submittal form(s) attached to the sample. Photographs of the samples shall be attached to the submittal in Procore. Examples of samples include, but are not limited to:
 - a. Product finishes and color selection samples.
 - b. Product finishes and color verification samples.
 - c. Finish/color boards.
 - d. Physical samples of materials, including soil samples.

D. Administrative Submittals

- 1. All correspondence and pre-construction submittals shall be submitted using Procore. Examples of administrative submittals include, but are not limited to:
 - a. Permits
 - b. Lists of project personnel and contact information
 - c. Project schedule and progress schedules, as required in Section 01 32 00 and Part 3.02.D.2, below.
 - d. Requests for Information (RFI)
 - e. Shut-down Requests and Demolition Requests
 - f. Evidence of qualifications
- 2. Network Analysis Schedules and associated reports and updates. Each schedule submittal specified in these Contract Documents shall be submitted as a native backed-up file of the scheduling program being used. The schedule shall also be posted as a PDF file.
- 3. Plans for safety, demolition, environmental protection, and similar activities, as identified in Section 01 33 00, Part 2.06, and elsewhere in these Contract Documents.
- 4. Any general correspondence submitted.

E. Compliance Submittals

- 1. Test reports, certificates and manufacturer field report submittals shall be submitted on Procore as PDF attachments. Examples of compliance submittals include, but are not limited to:
 - a. Certificates of Compliance, as identified in Section 01 33 00, Part 2.05
 - b. Field test reports
 - c. Quality control certifications
 - d. Manufacturers documentation and certifications for quality of products and materials provided

F. Record and Closeout Submittals

- 1. Operations and maintenance data closeout submittals shall be submitted on Procore as PDF documents during the approval and review stage as specified, with hard copy sets of documents submitted for final. Examples of record submittals include, but are not limited to:
 - a. Preventive Maintenance Forms

- b. O&M Manuals, as identified in Section 01 33 00, Part 2.07
 - c. Extra materials, Spare Stock, etc.: Submittal forms shall indicate when actual materials are submitted. Photos of spare parts shall be attached to the submittal in Procore.
2. Other Closeout submittals
- a. Contractor red-line markups (in both pdf and editable form).
 - b. Contractor photographs.
 - c. Survey data (in both pdf and editable form).

3.03 CONSTRUCTION ACTIVITY DOCUMENTATION

- A. Daily Logs
- 1. Daily Logs will be utilized by District staff and their assignees to record daily construction activities. These logs will be available for the Contractor to view, but will be owned by the District.
- B. Photos
- 1. The Photos tool can be utilized by both District and Contractor staff. This tool is intended to document the work in progress.
 - 2. Contractor shall coordinate with District representatives to classify photos into Albums and tag Locations and Trades as appropriate.
 - 3. Photos can be taken directly in the Procore mobile application.
- C. Observations
- 1. District representative will utilize the Observations tool to track specific events, quality, safety, warranty, or environmental concerns.
 - 2. District representatives may assign observations to Contractor staff to address. Contractor shall address identified issues and respond in Procore with comments as appropriate, and update the Status to Ready to Review once addressed.
- D. Punch List
- 1. District representative or Contractor will add items to the Pump List and add Assignees.
 - 2. District representative will typically assign items to the Contractor and it will be the responsibility of the Contractor to add Subcontractor Assignees when needed.
 - 3. Contractor shall mark items as Ready for Review once completed and District representative will Resolve and Close each item.

3.04 SCHEDULING AND MEETINGS

- A. Schedule
- 1. The Contractor shall utilize Procore's Schedule tool to provide and update the Master Schedule in accordance with specification section 01 32 00 – Construction Progress Documentation.
 - 2. Procore supports importing MPP, MPX, XER, PP, XML, PPX, and other files. Visit <https://support.procore.com/> for additional details.
 - 1) The Master Schedule will be a Read-Only project schedule.
 - 2) Updating the Master Schedule requires updates be made in an external application and imported into Procore.

3. Lookahead Schedules shall be prepared to show a detailed schedule encompassing the upcoming three-to-six-week period.
 - a. Lookahead Schedules will be generated from the Master Schedule.
 - b. Lookahead schedules shall be prepared at a minimum interval of every two weeks during periods of active construction activity.
- B. Meetings
 1. The Meetings tool shall be used to schedule construction progress meetings in accordance with specification section 01 31 00 – Project Management and Coordination.
 2. The Meetings tool shall be used to create agenda items which may be assigned to Procore users.
 3. Meeting Minutes shall be recorded within this tool.

3.05 FINANCIAL MANAGEMENT

- A. Commitments
 1. The District's Contract Specialist will create the Project Commitment for the Contract.
 - a. For Lump Sum contracts (contracts where the majority of bid items are Lump Sum as opposed to Unit Price), the Contractor will be required to enter a Schedule of Values to further break down each Lump Sum bid item.
 - b. For Unit Price contracts, the unit prices provided in the bid will be utilized for tracking progress and payment.
 2. Change Events, Change Orders, RFQs (Requests for Quotations), and Invoices will be tied to the Commitment
- B. Change Events
 1. Change Events shall be used to track all changes to the contract including, but not limited to, no-cost changes, contract change requests, additional work tracked on a time and material basis, and requests for changes to the Contract Time.
 2. Change Events may be initiated by the District or the Contractor.
 3. Additional or reduced costs shall be provided by the Contractor using the RFQ (Request for Quote) tool.
- C. Change Orders
 1. Upon review and approval of Change Events, the District will create a Change Order including one or more Change Events. The District will route the Change Order to the Contractor for review and approval within the Procore Workflow. Upon Contractor approval, the District will route for internal review prior to finalizing.
 2. Once the Change Order has been approved by the District's internal staff, it will be presented to the District's Board of Directors for approval.
 3. Once the Board of Directors has approved a Change Order, the PDF document will be routed for electronic signature using Adobe Sign.
 4. Once the Change Order Document is fully executed, the document will be copied into Procore and the Change Order will be Approved and

added to the Commitment, allowing for payment to be requested on Invoices.

- D. Invoicing
 - 1. Applications for Payment will be submitted by the Contractor by utilizing the Invoicing Tool.
 - 2. The District's Contract Specialist will create the monthly Billing Periods.
 - 3. The Contractor will create and submit invoices for approval in accordance with specification section 01 20 00 – Price and Payment Procedures.
 - 4. District representatives will review and Return or Approve the submitted invoice. Comments will be tracked using the associated Workflow.
 - 5. The PDF document will be prepared by the District's Contracts Specialist routed for electronic signature using Adobe Sign and the executed document will be copied into Procore.

3.06 CORRESPONDENCE

- A. The Correspondence tool allows for custom tools to be created for common project correspondence items when an existing Procore tool is not available.
- B. Certified Payroll Reports
 - 1. When Certified Payroll Reports (CPR) are required to be submitted to the District, the Contractor shall utilize the Correspondence tool.
 - 2. Each CPR shall include the Start and End date of the week being submitted.
 - 3. For each CPR Correspondence, there is a separate attachment area for General Contractor reports and Subcontractor reports.
 - a. The attachment filename shall include the contractor or subcontractor company name as well as any unique identifiers such as CPR number and/or date.
 - b. Multiple subcontractor reports can be submitted on the same Correspondence item but must be separate file attachments.
 - 4. CPRs may be returned to the Contractor if revisions and resubmittal are required.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 01 33 00
SUBMITTALS PROCESS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for processing of submittals during the construction stage.
 - 2. The requirements of this Section are in addition to the requirements for individual materials and equipment stated elsewhere in these Contract Documents.

PART 2 SUBMITTAL PROCEDURES

2.01 GENERAL INSTRUCTIONS FOR SUBMITTALS

- A. The Contractor shall submit to the Engineer such schedules, reports, drawings, lists, literature samples, instructions, directions, and guarantees as are specified or reasonably required for construction, operation, and maintenance of the Work in ample time for each to serve its purpose and function. All submittals shall be provided to the District within the time necessary to allow District review, to allow resubmittal and second review, if necessary, and to avoid delays in the work.
- B. Further, the Contractor must submit to the District for approval, any land use agreements between the Contractor and private property owners that affect the project.
- C. Each type of product shall have a separate submittal. For example, waterline pipe, sewer pipe, valves, aggregate base, and manholes will each require a submittal.
- D. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with all pertinent data, capacities, clearances, diagrams, controls, connections, anchorage, and supports. Present a sufficient level of detail for assessment of compliance with contract documents.
- E. Each submittal shall be assigned a unique number. Submittals shall be numbered sequentially. The submittal numbers shall be clearly noted on the transmittal. Original submittals shall be assigned a numeric submittal number. Resubmittals shall bear an alphanumeric system which consists of the number assigned to the original submittal for that item followed by a letter of the alphabet to represent that it is a subsequent of the original. For example, if Submittal 25 requires a resubmittal, the first resubmittal will bear the designation "25-A", the second resubmittal will bear the designation "25-B", and so on.

- F. Resubmittals of submittals will be reviewed and returned in the same review period as for the original submittal. It is considered reasonable that the Contractor shall make a complete and acceptable submittal by the second submission of a submittal item. The District reserves the right to withhold monies due to the Contractor to cover additional costs of any review beyond the second submittal.
- G. The drawings, lists, prints, specifications, samples, and other data required as project submittals and described herein shall become a part of the Contract Documents, and a copy of the same shall be kept with the job site Contract Documents, and the fabrications furnished shall be in conformance with the same. However, the Engineer's review of the above drawings, lists, prints, specifications, samples, or other data shall in no way release the Contractor from its responsibility for the proper completion of the requirements of this Contract nor for fulfilling the purpose of the installation nor from Contractor's liability to replace the same, should it prove defective or fail to meet the specified requirements.

2.02 CRITICAL EQUIPMENT SUBMITTALS

- A. The Contractor shall make shop drawing submittals to the Engineer in a timely manner for the Work to be completed within the specified Contract time. No contract extensions will be granted based solely on submittal review time.
- B. Critical equipment requiring early submittal for completion of the project include (but are not limited to):
 - 1. Piping
 - 2. Valves, bends, and fittings
 - 3. PRVs – Vaults, Valves, Instrumentation, and Electrical Equipment
- C. Requests for substitution of critical equipment shall be made within 14 days after the Contract is signed.

2.03 SHOP DRAWINGS

- A. The Plans & Specifications shall be supplemented by such shop drawings prepared by the Contractor as are necessary to adequately control the work. Shop Drawings, layout diagrams, catalog data, test reports and information in sufficient detail to show complete compliance with all specified requirements shall be furnished to the Engineer covering, without limitation, the items included in the Materials and Equipment List.
- B. The Contractor, at its own expense, shall make such changes in the required drawings as may be necessary to conform to the Contract Documents. After completion of such review, verification, and revising, the Contractor shall stamp and sign the drawings indicating his approval and submit the Shop Drawings and pertinent data to the Engineer for review.
- C. In addition, if the Contractor submits shop drawings of equipment by manufacturers other than those listed in the specifications, provide the following information with the submittal:
 - 1. The name and address of at least three companies or agencies that are currently using the equipment.

2. The name and telephone number of at least one person at each of the above companies or agencies whom the Engineer may contact.
 3. A description of the equipment that was installed at the above locations. The description shall be in sufficient detail to allow the Engineer to compare it with the equipment that is proposed to be installed with this project.
- D. Prior to the Engineer's review of such drawings, any work which the Contractor may perform on the fabrications covered by the drawings shall be at Contractor's own risk and the District will not be responsible for any expenses or delays incurred by the Contractor for changes to make the drawings conform to the Contract Documents.
- E. Unless otherwise indicated elsewhere in these Contract Documents, Shop drawings and data shall be submitted to the Engineer with sufficient number as will allow the Engineer to retain four (4) copies of each submittal. The submittal shall clearly indicate the specific area of the Contract Documents for which the submittal is made. Any additional copies received by the Engineer will be returned to the Contractor's representative at the job site. The Engineer's notations of the actions taken will be noted on the returned copies
- F. Unless otherwise stated, the ENGINEER shall have fourteen (14) days from the date of receipt of shop drawings for review. No changes shall be made by the CONTRACTOR in any shop drawings after they have been reviewed and accepted by the ENGINEER.
- H. CONTRACTOR agrees that shop drawings processed by the ENGINEER are not Contract Change Orders; that the purpose of shop drawings submitted by the CONTRACTOR is to demonstrate to the ENGINEER that the CONTRACTOR understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and by detailing the fabrication methods he intends to use. It is expressly understood, however, that favorable review of the CONTRACTOR's shop drawings shall not relieve the CONTRACTOR of any responsibility for accuracy of dimensions and details, or for mutual agreements of dimensions and details. It is mutually agreed that the CONTRACTOR shall be responsible for agreement and conformity of his shop drawings with the Specifications. CONTRACTOR further agrees that if deviations, discrepancies, or conflicts between shop drawings and Specifications are discovered either prior to or after shop drawings are processed by the ENGINEER, the Specifications shall control and shall be followed.
- I. Full compensation for furnishing all shop drawings shall be considered as included in the prices paid for the Contract items of work to which such drawings relate and no additional compensation will be allowed therefor. Any cost related to the ENGINEER's review of any particular set of shop drawings more than twice, due to incompleteness or unacceptability, shall be borne by the CONTRACTOR, and the DISTRICT reserves the right to withhold such costs from payments due the CONTRACTOR.

2.04 SAMPLES

- A. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or supplier in sufficient quantities or amounts for testing or examination, without additional charge.
- B. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. 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.
- C. Testing of samples shall be in conformance with the requirements of Part 2.04 of Section 01 43 00, Quality Assurance.

2.05 CERTIFICATE OF COMPLIANCE

- A. A Certificate of Compliance shall be furnished prior to the use of any materials for which the Contract Documents require that such a certificate be furnished. In addition, when so authorized in the Contract Documents, the Engineer 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 Contract. 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. The Certificate of Compliance shall be in a form approved and prepared by the District.
- B. 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. In the event of rejection, the Contractor shall remove the rejected materials, at its cost, and replace them with conforming materials.
- C. The District reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.
- D. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

2.06 SAFETY SUBMITTALS

- A. Shoring and Trench Safety Plan - Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent support, and the Contractor shall conduct its operations and act in such a manner in order to ensure compliance with this law. In accordance with Section 6705 of the State Labor Code, the Contractor shall submit to the District specific plans to show details of provisions

for worker protection from caving ground. The Contractor shall furnish to the Engineer working drawings of the Contractor's trench safety plan, which must be accepted not less than fifteen (15) days before beginning excavation for any trench or trenches five (5) feet or more in depth required under this Contract. The trench safety plan working drawings shall be detailed plans showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such plan varies from the shoring system standards established by the Construction Safety Orders of the California Occupational Safety and Health Administration or the Federal safety standards of the Department of Health, Education and Welfare, the plan shall be prepared by a registered civil or structural engineer. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders, or less effective than that required by said Federal Safety Standards. Submission of this plan in no way relieves the Contractor from the requirement to maintain safety in all operations performed by him or his Subcontractors.

- B. In accordance with General Industry Safety Orders, Article 108 (Title 8, California Code of Regulations, Section 5156 et seq.), the Contractor shall submit to the District their program plan for controlling, and, where appropriate, for protecting employees from, confined space hazards and for regulating employee entry into confined spaces.

2.07 OPERATIONS AND MAINTENANCE MANUALS

- A. Submit electronic copies of completed Preventive Maintenance and Operating Requirement form **only**, summarizing the manufacturer's maintenance instructions and recommendations for the following equipment/materials supplied for the project:
 - 1. Pipe
 - 2. Gate & Butterfly Valves
 - 3. Fittings
 - 4. Hydrants
 - 5. PRVs

A blank data sheet and a sample data sheet are attached to this Section.

- B. Submit four paper copies and one electronic copy of all manufacturer's operation and maintenance (O&M) manuals and data for the following equipment:
 - 1. Pressure reducing valvesPrepare and organize the material in three-ring binders with divider tabs and labels. Include a table of contents.
- C. O&M manuals shall include:
 - 1. A list of equipment furnished for Project with name, address, and telephone numbers of equipment furnished;
 - 2. A list of serial numbers of equipment furnished;
 - 3. A copy of shop drawings for mechanical, electrical, and instrument equipment in final form;
 - 4. Complete operating and maintenance instructions for each and every item of equipment, setting forth in detail and step-by-step the procedure for starting, stopping, operating, and maintaining the system as installed;
 - 5. Any test reports required by the Specifications;

6. A schedule of recommended maintenance intervals;
 7. Complete parts list of replaceable parts, their part numbers, and the name and address of their nearest vendor.
 8. Tabulation of motor nameplate horsepower, nameplate current, field-measured current, overload relay setting, and catalog number for polyphase motors, if applicable.
 9. A list of fuses, lamps, seals, and other expendable equipment and devices, if applicable. Specify size, type and ordering description. List name, address, e-mail address, fax number and telephone number of vendor.
 10. With each O&M submittal, the Contractor shall also submit a completed Preventive Maintenance and Operating Requirement sheet, summarizing the manufacturer's maintenance instructions and recommendations. A blank data sheet and a sample data sheet are attached to this Section.
- D. O&M Manuals specified herein are in addition to any operation, maintenance or installation instructions required by the Contractor to install, test and start up equipment.

2.08 PROJECT REDLINES

- A. Periodically during the project, the Contractor shall submit to the District for review and comment:
1. A copy of the Contract Documents, or relevant portions thereof, marked to identify all changes made during construction, as directed in Section 01 31 00, Part 2.02. The Contract Documents shall be marked to show in explicit detail all modifications and changes to the Contract requirements. It will not be sufficient for the Contractor to simply reference a separate written document; the details of the change must be shown on the working set of the Contract Documents.
 2. Utility data collected by the Contractor in conformance with the requirements of Section 01 73 00, Part 2.05.D, and
 3. Survey data collected by the Contractor in conformance with Section 01 73 00, Part 2.03, in a tabular form acceptable to the District.

The Contractor shall submit these documents in the manner directed in Part 2.03 of this Section.

- B. The District may require the Contractor to submit redlines for review within five (5) business days when any of the following occur:
1. At the completion of a particular phase of work;
 2. At the completion of a particular discipline of work;
 3. At the completion of a particular structure; and
 4. Any time it is requested by the Engineer.
- Project-specific requirements for timing of redline submittals will be established at the pre-construction meeting.
- C. At the completion of the Project the redlines, with review comments provided by the District, shall be submitted as the Contract Record Documents in accordance with Section 01 77 00, Part 2.06 within fifteen (15) days of completion of the Work.

THIS PAGE LEFT INTENTIONALLY BLANK

Preventive Maintenance and Operating Requirement Sheets

Preventive Maintenance Program		Equipment Record Number	
EQUIPMENT DESCRIPTION		ELECTRICAL OR MECHANICAL DATA	
Name: Tag No:		Size:	
Serial No.:		Model:	
Vendor:			
Vendor Address:		Type:	
		Mfr.:	
Vendor Rep:		Voltage:	Amps:
Phone:		Phase:	rpm:
Warranty Period:		Install Date:	
Asset Life Expectancy:			
Initial Meter Reading: 1.		Units:	
2.		Units:	
Other equip. info:			
Maintenance Work to be Done			Frequency*

*D - Daily; W - Weekly; B - Biweekly; M - Monthly; Q - Quarterly;
S - Semiannually; A - Annually.

Preventive Maintenance and Operating Requirement Sheets

OPERATING REQUIREMENTS AND REFERENCE	
PARTS LIST	
Description	Replaceable?
PERFORMANCE CRITERIA*	

* including, but not limited to vibration tolerances, alignment limits, and heat generation limits

SAMPLE

Preventive Maintenance and Operating Requirement Sheets

Preventive Maintenance Program		Equipment Record Number	
EQUIPMENT DESCRIPTION		ELECTRICAL OR MECHANICAL DATA	
Name: Influent Pump No. 1 Tag No.: P01		Size: 15 hp	
Serial No.: 123456ABC		Model: 140T Frame Serial No. 987654ZY Class F Insulation W/Space Heater	
Vendor: ABC Pump Co.			
Vendor Address: 1111 Pump Circle Newport Beach, CA 92663		Type:	
		Mfr.: DEF Motors, Inc.	
Vendor Rep: XYZ Equipment, Inc.		Voltage: 460	Amps: 20
Phone: 714/752-0505		Phase: 3	rpm: 1,800
Warranty Period: 2 years		Install Date: 8/15/17	
Asset Life Expectancy: 20 years			
Initial Meter Reading: 1. 12.3		Units: Hours	
2.		Units:	
Other equip. info:			
Maintenance Work to be Done			Frequency*
1. Operate all valves and check such things as a) bearing temperature, b) changes in running sound, c) suction and discharge gauge readings, d) pump discharge rate, and e) general condition of the drive equipment.			D
2. Check packing.			D
3. Checking pumping unit for any dust, dirt, or debris.			W
4. Lubricate bearing frame and motor bearings (consult manufacturer's instructions for type of grease or oil).			Q
5. Disassemble and change or repair the following: a) impeller, b) shafts, c) shaft sleeve, d) rotary seals, and e) sleeve bearings.			A

*D - Daily; W - Weekly; B - Biweekly; M - Monthly; Q - Quarterly;
S - Semiannually; A - Annually.

Preventive Maintenance and Operating Requirement Sheets

OPERATING REQUIREMENTS AND REFERENCE	
For manufacturer's instructions regarding installation, operation, maintenance, and trouble shooting of this equipment, see Volume ____, Section ____.	
PARTS LIST	
Description	Replaceable?
Impellor type, diameter and part number	Y
Coupling size, style, and part number	Y
Motor type, and part number	Y
Bearing numbers	Y
Filter	Y
Shaft sizes - pump and motor	Y
Seal size and composition	Y
Pump housing numbers	Y
Pump control valve, manufacturer and size	Y
PERFORMANCE CRITERIA*	

* including, but not limited to vibration tolerances, alignment limits, and heat generation limits

END OF SECTION

SECTION 01 35 00
SPECIAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for special project situations.

PART 2 SPECIAL PROCEDURES

2.01 EMERGENCY WORK

- A. In an emergency affecting the safety of life, or of the work, or of adjoining property, the Contractor, without special instruction or authorization from the Engineer, is required to act at its discretion to prevent such threatened loss or injury. Any compensation claimed by the Contractor on account of emergency work shall be determined as specified under Part 2.11 of Section 00 72 00, General Conditions.
- B. Should the Engineer deem an emergency condition to exist, the Contractor shall immediately do those things and take those steps ordered by the Engineer. The decision of the Engineer in this respect shall be final and conclusive. Any claims for compensation made by the Contractor on account of emergency work shall be determined as specified under Part 2.11 of Section 00 72 00, General Conditions.

2.02 ARCHAEOLOGICAL ARTIFACTS

- A. If the Contractor encounter items of suspected archaeological significance are during excavation, the Contractor shall immediately stop excavation and inform the Engineer. The Contractor can resume excavation upon approval of the Engineer after consultation with the District's consulting archaeologist.

2.03 SUSPENSION OF WORK

- A. The Engineer may at any time, by notice in writing to the Contractor, suspend any part of the work for such period of time as may be necessary to prevent improper execution of the work on the project by the Contractor, its Subcontractors or agents, and the Contractor shall have no claim for damages or additional compensation on account of any such suspension.
- B. The District may at any time suspend any part or all of the work upon ten (10) days written notice to the Contractor, who shall immediately discontinue all work suspended except for all operations to prevent loss or damage to work already executed as may be directed by the Engineer. In the event a part of

the work is suspended, the Contractor, if the suspension is not through his fault or the fault of its Subcontractors or agents, shall be paid on the same basis as Extra Work for costs of work performed in accordance with such orders of the Engineer during such suspension, provided that this shall not include any cost pertaining to work not suspended by said notice. Work shall be resumed by the Contractor after such suspension on written notice from the District. In the event of suspension of the entire work by the District, the Contractor, if the suspension is not through fault of the Contractor or the fault of his Subcontractors or agents, shall be paid the sum of \$500.00 for each calendar day during which the entire work shall have been suspended. This amount is fixed as liquidated damages in full settlement of all costs and expenses, losses, and damages resulting to the Contractor from such suspension. The parties expressly agree that it is impractical to determine the actual amount of damage to Contractor by reason of such delay and that this liquidated damages clause is reasonable under the circumstances existing at the time the Contract was made. Work shall be resumed by the Contractor after such suspension on written notice from the District.

- C. In the event of any suspension of the work in whole or in part B above, the Contractor shall be entitled to an extension of time to complete the work to the extent of the delay caused to the Contractor.
- D. In the event the entire work shall be suspended by order of the District, as provided above, and remains suspended for a period of sixty (60) consecutive days, through no fault of the Contractor, and notice to resume the work shall not have been served on the Contractor, the Contractor may, at its option, by written notice to the District, terminate the Contract in the same manner as if the termination had been initiated by the District, and the District shall have no claim for damages because of such termination of the Contract.
- E. In the event the District or the Engineer receives or obtains notice of any termination, suspension, voiding, cancellation, or lack of existence of, or of any material reduction of coverage in, any policy of insurance required to be maintained by the Contractor or any subcontractor, the District or the Engineer, without any prior notice and without prejudice to any other remedy of the District, may immediately suspend work under the contract and order the Contractor and/or subcontractor(s) off the work site immediately, until the required insurance is reinstated or obtained. In the event of suspension under this paragraph, Contractor shall not be responsible for payment of liquidated damages established under Subpart B (above).

2.04 TERMINATION FOR DEFAULT - DAMAGES FOR DELAY - TIMELY EXTENSION

- A. The District may, without prejudice to any other right or remedy, service written notice upon Contractor of its intention to terminate this Contract if the Contractor: (1) refuses or fails to diligently prosecute the work as defined in Subpart B (below), (2) fails to complete the Work within the required times defined in Section 00 72 00, (3) files a bankruptcy petition or is adjudged a bankrupt; (iv) should make a general assignment for the benefit of its

creditors; (v) should have a receiver appointed, or (vi) violates any requirements of law or the Contract Documents.

- B. The Contractor shall at all times employ such force, labor plant, materials, and tools as will be sufficient, in the opinion of the Engineer, to prosecute the work at not less than the rate provided in the progress schedule and to complete the work within the time limits fixed by the Contract.
- C. The District may, after giving ten (10) days written notice to the Contractor, terminate its right to proceed with the work or such part of the work as to which there has been delay. The notice of intent to terminate shall contain the reasons for such intention to terminate.
- D. The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:
 - 1. The delay in the completion of the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to Acts of God, acts of the public enemy, acts of the District, acts of another contractor in the performance of a Contract with the District, fires, floods, excluding site flooding due to groundwater, epidemics, quarantine restrictions, strikes, lockouts, freight embargoes, unusually severe weather, or delays of subcontractors and suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of either the Contractor or such subcontractors and suppliers; and
 - 2. The Contractor, within ten (10) days from the beginning of any such delay (unless the Engineer grants further period of time before the date of final payment under the Contract), notifies the Engineer in writing of the causes of delay and requests an extension of time.
- E. The Engineer shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in the Engineer's judgment, the findings of fact justify such an extension, and the findings of fact shall be final and conclusive on the parties.
- F. A request for an extension of time, or the granting of an extension of time, shall not constitute a basis for any claim against the District for additional compensation or damages unless caused by the District or another contractor employed by the District.
- G. If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of creditors, or if a receiver should be appointed for the Contractor on account of insolvency and not be discharged within ten (10) days after his appointment, or if the Contractor fails to make prompt payments to subcontractors or suppliers, or should he persistently disregard laws, ordinances, or the instructions of the Engineer, or otherwise commit a material breach of any provisions of the Contract, the District may, after giving ten (10) days written notice to the Contractor, terminate the Contract and the Contractor's right to proceed with the work.

- H. The rights and remedies of the District provided in this section are in addition to any of the rights and remedies provided by law or under this Contract.
- I. In addition to the District's rights under this section, if at any time before completion of the work under the Contract, it shall be determined by the District that reasons beyond the control of the parties render it impossible or against the interests of the District to complete the work, or if the work shall be stopped by an injunction of a court of competent jurisdiction or by order of any competent authority, the District may, upon ten (10) days written notice to the Contractor, discontinue the work and terminate the Contract. Upon service of such notice of termination, the Contractor shall discontinue the work in such manner, sequence, and at such times as the Engineer may direct. The Contractor shall have no claim for damages for such discontinuance or termination, nor any claim for anticipated profits on the work thus dispensed with, nor any other claim except for the work actually performed up to the time of discontinuance, including the cost of materials and equipment on hand, in transit, or on definite commitment and any extra work ordered by the Engineer to be done, nor for any claim for liquidated damages in accordance with the provisions of Part 2.03. The value of the work performed and the cost of materials and equipment delivered to the site will be determined by the Engineer in accordance with the procedure prescribed for the making of the final application for payment. The Contractor shall assign to the District, as directed by the Engineer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the District shall have the right to settle or to pay any termination settlement proposal arising out of those terminations. As directed by the Engineer, the Contractor shall transfer title and deliver to the District:
 - 1. the fabricated or unfabricated parts, work-in-progress, completed work, supplies, and other materials produced or acquired for the work terminated; and
 - 2. the completed or partially completed plans, drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to the District.

2.05 RIGHTS OF DISTRICT UPON TERMINATION

- A. In the event the right of the Contractor to proceed with the work, or any portion thereof, has been terminated because of the fault of the Contractor and the Contractor has been given ten (10) days notice to cure such fault and has not done so, the District may issue a notice of termination to the Contractor and the Contractor's surety.
- B. Upon termination the Contractor shall not be entitled to receive any further payment until the work is finished. If upon completion of the work the total cost to the District, including engineering, legal, and other consultant fees, costs of managerial and administrative services, construction costs, and liquidated damages shall be less than the amount which would have been paid if the work had been completed by the Contractor in accordance with the terms of the Contract, then the difference shall be paid to the Contractor in the same manner as the final payment under the Contract. If the total cost

incurred by the District on account of termination of the Contract and subsequent completion of the work by the District by whatever method the District may deem expedient shall exceed said amount which the Contractor would otherwise have been paid, the Contractor and his sureties shall be liable to the District for the full amount of such excess expense.

- C. Upon termination, if the District takes over the Work, the District may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plant, and other property belonging to the Contractor as may be left on the Project site.
- D. The rights and remedies of the District provided in this Section are in addition to any of the rights and remedies provided by law or under this Contract.

2.06 FAILURE TO COMPLETE THE WORK IN THE TIME AGREED UPON; LIQUIDATED DAMAGES

- A. Liquidated Damages -In case all the work is not completed before or upon the expiration of the time limit as set in the Bid, Contract, and Progress Schedule, or within any time extensions that may have been granted, substantial damage will be sustained by the District; it is impracticable to determine the actual amount of damage by reason of such delay. It is, therefore, agreed that the Contractor and its Surety shall be liable for and pay to the District as damages, and not as a penalty, the amount specified in Section 00 72 00, General Conditions, for each and every day's delay in finishing the work in excess of the number of days specified. The parties expressly agree that this liquidated damage clause is reasonable under the circumstances existing at the time the Contract was made.
- B. In addition to liquidated damages for delay, if the delay results in the imposition of regulatory fines for late performance, it is agreed that the Contractor and its Surety shall be liable for and pay to the District as damages, and not as a penalty, the liquidated amount specified in Section 00 72 00.
- C. Exclusions - Notwithstanding the provisions above, the Contractor shall not be liable for liquidated damages or delays caused by the removal or relocation of utilities when such removal or relocation is the responsibility of the District or the owner of the utility under Government Code Section 4215.

2.07 RESPONSIBILITY FOR REPAIR OF FACILITIES

- A. All public or private facilities, including but not limited to gravel surfacing at existing canals, structures, telephone cables, roadways, curbs, gutters, parking lots, private drives, levees, and embankments for creeks, ponds, and reservoirs disturbed during construction of the work shall be repaired and/or replaced by the Contractor to match facilities existing prior to construction. In addition, the Contractor shall be responsible for any settlement damage to such facilities or adjoining areas for a period of one year after acceptance of such required facilities.

2.08 DISTRICT'S REPAIR

- A. In the event the Contractor refuses or neglects to make good any loss or damage for which it is responsible under this Contract, the District may, or by the employment of others, remedy any such loss or damage, and the cost and expense of doing so, including any reasonable engineering, legal, and other consultant fees, and any costs of administrative and managerial services, shall be charged to the Contractor. Such costs and expenses may be deducted by the District from claims for payment made by the Contractor for work completed or remaining to be completed as provided for in Part 2.04 of Section 01 20 00, Price and Payment Procedures.

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: permits, licenses, restrictions, lands, easements and right-of-ways required for the project.

PART 2 REQUIREMENTS

2.01 GENERAL COMPLIANCE WITH LAWS - PERMITS, REGULATIONS, TAXES

- A. Contractors and subcontractors will comply with all applicable federal and state laws, rules, guidelines, regulations, and requirements.
- B. Contractor is an independent contractor and shall at his sole cost and expense comply with all laws, rules, ordinances, and regulations of all governing bodies having jurisdiction over the work, obtain all necessary permits and licenses, pay all manufacturers' taxes, sales taxes, use taxes, processing taxes, and all federal and state taxes, insurance, and contributions for social security and unemployment which are measured by wages, salaries, or any remuneration paid to Contractor's employees, whether levied under existing or subsequently enacted laws, rules, or regulations. Contractor shall also pay all property tax assessments on materials or equipment used until acceptance by the District.
- C. If any discrepancy or inconsistency is discovered in the Contract Documents, or in this Contract in relation to any such law, rule, ordinance, regulation, order or decree, the Contractor shall forthwith report the same to the Engineer in writing.
- D. Without limitation, materials furnished and performance by the Contractor shall comply with Safety Orders of the Division of Industrial Safety, State of California, Federal Safety regulations of the Bureau of Labor, Department of Labor, and any other applicable Federal regulations.
- E. The Contractor, upon request, shall furnish evidence satisfactory to the District and Engineer that any or all of the foregoing obligations have been or are being fulfilled. The Contractor warrants to the District that it is licensed by all applicable governmental bodies to perform this Contract and will remain so licensed throughout the progress of the work, and that it has, and will have, throughout the progress of the work, the necessary experience, skill and financial resources to enable him to perform this Contract.
- F. Contractor shall be responsible for familiarity with the Americans with Disabilities Act (ADA) (42 USC§12101 et seq.) and California Government Code 11135(b). The Work shall be performed in compliance with ADA regulations.

- G. The Contractor shall be responsible for familiarity with local requirements for the diversion of recyclable waste materials. The Work shall be performed in compliance with these requirements. Upon request, the Contractor will be required to present weight tickets and written proof of diversion. All costs incurred for these waste diversion efforts shall be the responsibility of the Contractor.
- H. In accordance with Revenue and Taxation Code §107.6, the Contract Documents may create a possessory interest subject to personal property taxation for which Contractor will be responsible at no additional cost to the District.

2.02 ENVIRONMENTAL AND CULTURAL COMPLIANCE

- A. In addition to the requirements set forth in Part 2.01, above, for general compliance with laws, permits, regulations and taxes, the Contractor, by entering into this Contract, shall be obligated to abide by the requirements of any project-specific environmental and cultural resource documents prepared for and adopted by the District, notwithstanding specific rules and requirements not being specifically identified within these Specifications and Plans.
- B. Project-specific documents are, by reference, made part of this Contract, are available for download at the District's website (<https://www.stpud.us/current-notices>), and include the following:
- [Notice of Intent \(April, 2025\)](#)
 - [Draft Negative Declaration \(April, 2025\)](#)
 - [Initial Study \(April, 2025\)](#)
 - [Biological Evaluation \(April, 2025\)](#)
- C. Cultural Monitoring by the Washoe Tribe, USFS Staff, STPUD, and designated consultant representatives.

2.03 PERMITS AND LICENSES

- A. Procurement of Permits and Licenses:
1. Permits and licenses, of a temporary nature, necessary for the prosecution of the work shall be secured and paid for by the Contractor. The Contractor shall obtain and pay the fees for the following permits.

Name or Type of Permit	Permitting Agency
Business Permit	El Dorado County
EDC DOT Encroachment (secured by District), rider required.	El Dorado County DOT
Construction Permit – SWPPP (secured by District, reporting by District/consultant)	Lahontan Regional Water Quality Control Board
Tree Removal Permit	US Forest Service, LTBMU. \$80 due from contractor.
Special Use Permit Amendment (secured by District)	US Forest Service, LTBMU

Project Permit (obtained by District)	TRPA
Construction water permit for water obtained from District-owned fire hydrants (fee waived)	South Tahoe PUD

2. Permits, licenses, and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the District unless otherwise specified. The following permits for the permanent work have been obtained by the District:
 - a. Waste Discharge Permit for discharging water for pressure testing, leakage testing, and disinfection into the sewer collection system.
 - b. El Dorado County Encroachment Permit
 - c. Tahoe Regional Planning Agency Permit
 - d. RWQCB Construction Activity Stormwater Permit.
 - e. Liberty Utilities, New Service Requirements
 - f. USFS Special Use Permit

- B. The Contractor shall procure all permits and licenses, as described in Part 2.02.A.1, pay all charges, fees, and taxes and give all notices necessary and incidental to the due and lawful prosecution of work.

- C. The Contractor shall be aware of and abide by the conditions and restrictions of the TRPA permit for this project. The standard conditions of approval applicable to this project (Attachment Q – Standard Conditions for Grading) are available from the TRPA website (www.trpa.org) for review by the Contractor.

- D. The Contractor shall be aware of and abide by the conditions and restrictions of the Lahontan Regional Water Quality Control Board permits for this project, including but not limited to Waste Discharge Requirements (WDRs) and/or Stormwater Pollution Prevention Plan (SWPPP) as applicable. A copy is included in the Appendices.

- E. The Contractor shall be aware of and abide by the conditions and restrictions of the City of South Lake Tahoe and the County of El Dorado. It shall be the Contractor's responsibility to obtain all necessary permits from the City of South Lake Tahoe and El Dorado County.

- F. Not used.

- G. California Contractor's License: the Contractor shall have a valid California contractor's license for the type of work required on this Contract, as specified in Sections 00 10 00, Solicitation, and 00 20 00, Instructions for Procurement.

- H. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as shown on the Plans and described in the Specifications. The Contractor shall promptly notify the Engineer in writing of any variance and any necessary changes shall be adjusted as provided in the Contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations and without such notice to the Engineer, Contractor shall bear all related costs.

2.04 LANDS FOR WORK, RIGHT-OF-WAY CONSTRUCTION ROADS

- A. The District will provide the lands, easements, right-of-ways, and/or encroachment permits necessary or other rights to enter and work on lands necessary for the performance of the work. Other permits and licenses are addressed by Part 2.02. Should the Contractor find it advantageous to use any additional land for any purpose whatever, the Contractor shall provide for the use of such land at its risk and expense. The Engineer shall be furnished with a copy of written agreements or otherwise be notified in writing of additional working space which is acquired. Nothing herein contained and nothing marked on the Plans shall be interpreted as giving the Contractor exclusive occupancy of the territory provided by the District. When two or more contracts are being executed at one time on the same or adjacent land in such a manner that work on one contract may interfere with that on another, the Engineer shall decide which contractor shall cease work, and which shall continue, or whether the work on both contracts shall progress at the same time and in what manner, and the decision of the Engineer shall be final and binding. When the territory of one contract is the necessary or convenient means of access for the performance of another contract, such privilege of access or any other reasonable privilege may be granted by the Engineer to the contractor so desiring, to the extent, amount, in the manner, and at the time permitted. No such decision as to the method or time of conducting the work or the use of territory shall be the basis of any claim for delay or damage.
- B. Lands, easements, or right-of-ways to be furnished by the District for construction operations will be specifically shown on the Plans.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. List of reference standards used in the Contract Documents.

1.02 ABBREVIATIONS AND DEFINITIONS

- A. Terms used in these Contract Documents shall have the meaning stipulated in Section 00 71 00, Contracting Definitions.

PART 2 REFERENCES

2.01 GENERAL

- A. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards or requirement so the respective issuing agencies which have been published as of the date of execution of the Contract, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances or governing codes. No requirements set forth herein or indicated in the Contract shall be waived because of any provision of, or omission from, said standard or requirements.

2.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Without limiting the generality of other requirements of the Specifications, all Work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. References herein to "Building Code" or "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO). Similarly, references to "Mechanical Code" or "Uniform Mechanical Code", "Plumbing Code" or "Uniform Plumbing Code", "Fire Code" or "Uniform Fire Code", shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as used by the local agency as of the date of execution of the Contract, as adopted by the

agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments or other lawful changes thereto.

- C. In case of conflict between codes, reference standards, drawing and the Contract, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the District for clarification and direction prior to ordering or providing any materials or furnishing labor.
- D. The Contractor shall construct the Work indicated herein in accordance with the requirements of the Contract and the referenced portions of those referenced codes, standards and specifications listed herein.

END OF SECTION

SECTION 01 43 00

QUALITY ASSURANCE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for reactive activities to evaluate completed activities and elements for conformance with the requirements.
 - 2. The requirements of this Section are in addition to the requirements for individual materials and equipment stated elsewhere in these Contract Documents.

PART 2 REQUIREMENTS

2.01 CONFORMITY WITH CONTRACT DOCUMENTS AND ALLOWABLE DEVIATIONS

- A. Work and materials shall conform to the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on Contract Documents.
- B. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Engineer shall be the sole judge as to whether the work or materials deviate from the Contract Documents, and the Engineer's decision as to any allowable deviations shall be final and conclusive, as set forth in Section 00 72 00, General Conditions.

2.02 QUALITY CONTROL

- A. All materials and equipment shall be new and of the specified quality and, if samples have been submitted, equal to the samples found to be acceptable by the Engineer.
- B. The Work shall be performed and completed in a thorough, workmanlike manner, notwithstanding any omission in the Contract Documents; and it shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instructions before proceeding with the Work. The Engineer may, by appropriate instructions provided in conformance with Section 00 72 00, Part 2.03, correct errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

2.03 INSPECTION OF WORK

- A. Unless otherwise provided, all equipment, materials, and work shall be subject to inspection and testing by the Engineer. The Engineer will observe the progress and quality of the work and determine, in general, if the work is proceeding in

accordance with the intent of the Contract Documents. The Engineer shall not be required to make comprehensive or continuous inspections to check the quality of the work, and shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Visits and observations made by the Engineer shall not relieve the Contractor of its obligation to conduct comprehensive inspections of the work and to furnish proper materials, labor, equipment, and tools, and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

- B. Whenever the Contractor varies the period during which work is carried on each day, prior notice shall be given to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer shall 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 Engineer and other agents of the District, and agents of the Federal, State, or local governments at all times.
- C. One or more inspectors may be assigned to observe the work and to act in matters of construction under this Contract. It is understood that inspectors shall have the power to issue instructions and make decisions within the limitations of the authority of the Engineer. Such inspection shall not relieve the Contractor of its obligation to conduct comprehensive inspections of the work, to furnish proper materials, labor, equipment, and tools, and perform acceptable work, and to provide adequate safety precautions in conformance with the intent of the Contract.
- D. The Engineer and its representatives shall at all times have access to the Work wherever it is in progress, to the shops where the Work is in preparation, and to all warehouses and storage yards where materials and equipment are stored, and the Contractor shall provide safe and convenient facilities for such access and for inspection. If the Contract Documents, the Engineer's instructions, laws, ordinances, or any public authority require any material, equipment or work to be specifically tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is by an authority other than the District, of the time fixed for inspection. Inspections by the Engineer will be made promptly and, where practicable, at the source of supply.
- E. Work performed without inspection may be required to be removed and replaced under proper inspection and the entire cost of removal and replacing, including the cost of District furnished materials used in the work, shall be borne by the Contractor, regardless of whether or not the work exposed is found to be defective. Examination of questioned work, other than that installed without inspection, may be ordered by the Engineer and, if so ordered, the work must be uncovered by Contractor. If such work is found to be in accordance with the Contract Documents, the District will pay the cost of re-examination and replacement. If such work is found to be not in accordance with the Contract Documents, the Contractor shall pay such cost unless he can show that the defect in the work was caused by another Contractor, and in that event the District will pay such costs.
- F. The inspection of the work shall not relieve the Contractor of its obligation to fulfill the Contract as prescribed, or in any way alter the standard of performance

provided by the Contractor, and defective work shall be corrected and nonconforming materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work or any part shall be found defective, Contractor shall, within ten (10) calendar days, correct such defect in a manner satisfactory to the Engineer. If the Contractor shall fail or neglect to make ordered repairs of defective work or to remove the condemned materials from the work within ten (10) calendar days after direction by the Engineer in writing, the District may make the ordered repairs, or remove the nonconforming materials, and deduct the cost from any monies due the Contractor.

- G. The Contractor shall furnish promptly without additional charge all facilities, labor, and materials reasonably needed by the Engineer for performing all inspection and tests. Contractor shall be charged with any additional cost of inspection when material and workmanship are not ready at the time specified by the Contractor for its inspection.
- H. Where any part of the work is being done under an encroachment permit or building permit, or is subject to Federal, State, County or City codes, laws, ordinances, rules or regulations, representatives of the government agency shall have full access to the work and shall be allowed to make any inspection or tests in accordance with such permits, codes, laws, ordinances, rules, or regulations. If advance notice of the readiness of the work for inspection by the governing agency is required, the Contractor shall furnish such notice to the appropriate agency.
- I. The Engineer may inspect the production of the material, or the manufacture of products at the source of supply. Plant inspection, however, will not be undertaken until the Engineer is assured of the cooperation and assistance of both the Contractor and the material producer. The Engineer or its authorized representative shall have free entry at all times to such parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection.
- J. Materials, equipment, and workmanship shall be subject to the inspection of, and rejection by, the Engineer, if not in conformance with the Contract Documents. Defective materials, equipment, or Work shall be removed from the premises by the Contractor, whether in place or not, and shall be replaced with new and acceptable materials, equipment, or work. Repair of defective materials, equipment, or work shall be subject to the Engineer's acceptance.
- K. The District assumes no obligation to inspect materials at the source of supply.
- L. On all questions concerning the acceptability of materials or equipment, classification of materials, or equipment, execution of the Work, and the determination of costs, the decision of the Engineer shall be final and binding upon all parties.

2.04 SAMPLING AND TESTING

- A. Unless specified otherwise, the Contractor shall perform at its expense all tests specified or required by the Technical Specifications. The Engineer will perform such tests as he deems necessary to determine the quality of work or compliance with Contract Documents. The Contractor shall furnish promptly without additional charge all facilities, labor, and material reasonably required for performing safe and convenient tests as may be required by the Engineer. All tests by the Engineer will be performed in such a manner as will not unnecessarily delay the work.
- B. At the option of the Engineer, the source of material supplies for the Work shall be subject to tests and inspection before delivery is started and before such materials are used in the Work.
- C. In the event the Contractor protests a failing test of material in place or to be used, he shall take additional samples as specified in the Contract Documents and have additional tests run at his own expense. In the event the original test proves to have been in error, the Contractor shall be reimbursed for his direct costs of additional sampling and testing.
- D. For materials originating outside of the United States for which tests are required, provide recertification and retesting by an independent domestic testing laboratory.
- E. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.
- F. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the American Society for Testing Materials, where applicable.

2.05 MILL TESTS

- A. The Contractor, at his own expense, shall submit, in triplicate, certified copies of all required factory and mill test reports to verify material quality and composition. Any materials shipped by the Contractor from a factory or mill prior to having satisfactorily passed testing and inspection shall not be incorporated in the Work, unless the Engineer shall have notified the Contractor in writing that such testing and inspection will not be required. The cost of performing all mill and factory tests shall be paid by the Contractor unless otherwise provided in the Contract Documents.

2.06 COMPACTION TESTING

- A. The District's laboratory may perform soil compaction testing during this project. The testing completed by the District's laboratory shall be used to determine if the degree of compaction required in the specifications for earthwork has been reached in the field by the Contractor for Quality Control and payment purposes. The Contractor may wish to complete his own compaction tests in addition to or ahead of District tests to enhance his operations and for Quality Assurance purposes.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures and requirements for utilities and facilities used on site during construction.
 - 2. Procedures and requirements for temporary access facilities required to accommodate construction or the District's operations.

PART 2 TEMPORARY CONTROLS

2.01 PROTECTION OF WORK

- A. The Contractor shall be responsible for the care of all work until its completion and final acceptance; and, at its own expense, replace damaged or lost material and repair damaged parts of the work or the same may be done at its expense by the District and the Contractor and its sureties shall be liable therefore. The Contractor shall make its own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the work. The Contractor shall take all risks from floods and casualties except as provided by law, and shall make no charge for the restoration of such portions of the work as may be destroyed or damaged by flood or other casualties or because of danger from flood or other casualties or for delays from such causes. The Contractor may, however, be allowed a reasonable extension of time on account of such delays, subject to the conditions of these Contract Documents. The Contractor shall not be responsible for the cost, in excess of five percent (5%) of the contracted amount, of repairing or restoring damage to the work, if the damage was proximately caused by an earthquake in excess of a magnitude of 3.5 on the Richter Scale, or by tidal waves; provided that the work damaged was built in accordance with accepted and applicable building standards, and the Plans and Specifications of the District.
- B. The Contractor shall use extreme care during construction to prevent damage from dust to adjacent property. The Contractor, at its own expense, shall provide adequate dust control for the right-of-way and take other preventative measures as directed by the Engineer.
- C. The Contractor shall be responsible for all damage to any property resulting from trespass by the Contractor or its subcontractors, whether such trespass was committed with or without the consent or knowledge of the Contractor.

- D. The Contractor shall see that the work site is kept drained and free of all ground water and any other water which may impede the progress or execution of the Contract work.
- E. The Contractor shall be responsible for any damage caused by drainage or water runoff from construction areas and from construction plant areas.
- F. Subject to the provisions of this Section, where the work to be performed under the Contract crosses or otherwise interferes with existing streams, watercourses, canals, farm ditches, pipelines, drainage channels, or water supplies, the Contractor shall provide for such watercourse or pipelines and shall perform such construction during the progress of the work so that no damage will result to either public or private interests, and the Contractor shall be liable for all damage that may result from failure to so provide during the progress of the work.

2.02 PROTECTION OF PERSON AND PROPERTY

- A. The Contractor shall take whatever precautions are necessary to prevent damage to all existing improvements, including above ground and underground utilities, trees, shrubbery that is not specifically shown to be removed, fences, signs, mailboxes, survey markers and monuments, buildings, structures, the District's property, adjacent property, and any other improvements or facilities within or adjacent to the work. If such improvements or property are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored, at the Contractor's expense, to a condition at least as good as the condition they were in prior to the start of the Contractor's operations.
- B. The Contractor shall adopt all practical means to minimize interference to traffic and public inconvenience, discomfort or damage. The Contractor shall protect against injury any pipes, conduits, or other structures, crossing the trenching or encountered in the work and shall be responsible for any injury done to such pipes or structures, or damage to property resulting there from. The Contractor shall support or replace any such structures without delay and without any additional compensation to the entire satisfaction of the Engineer. All obstructions to traffic shall be guarded by barriers illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations and, under all circumstances, must comply with the laws and regulations of the County and the State of California relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdictions.
- C. The Contractor is cautioned that it must replace all improvements in right-of-ways and within the public streets to a condition equal to what existed prior to entry onto the job or in compliance with current laws, regulations, ordinances and codes, whichever is most restrictive.
- D. Type and time of construction required at any road subject to interference by Contract work will be determined by those authorities responsible for maintenance of said road. It shall be the responsibility of the Contractor to

determine the nature and extent of all such requirements, including provision of temporary detours as required; however, the construction right-of-way obtained by the District at affected roadways will be adequate for provision of all required detours. As required at any road crossing, the Contractor shall provide all necessary flagpersons, guardrails, barricades, signals, warning signs, and lighting to provide for the safety of existing roads and detours. Immediately after the need for temporary detours ceases, or when directed, the Contractor shall remove such detours and perform all necessary cleanup work, including replacement of fences, and removal of pavement. Included shall be all necessary replacement of existing roadway appurtenances, grading work, soil stabilization, and dust control measures, as required and directed. The cost of all work specified under this Section shall be borne by the Contractor.

- E. The Contractor shall examine all bridges, culverts, and other structures over which he will move his materials and equipment, and before using them, I shall properly strengthen such structures where necessary. The Contractor shall be responsible for any and all injury or damage to such structures caused by reason of its operations.

2.03 ACCIDENT PREVENTION AND RESPONSE

- A. Precaution shall be exercised by the Contractor at all times for the protection of persons (including employees) and property. The safety provisions of all applicable laws, and of building and construction codes shall be observed. Machinery, equipment, and other hazards shall be guarded or eliminated.
- B. The Contractor shall promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injury or serious damage are caused, the accident shall be reported immediately by telephone or messenger to the District and the Engineer.
- C. The Contractor shall make all reports as are, or may be, required by any governmental entity having jurisdiction, and permit all safety inspections of the Work being performed under this Contract. Before proceeding with any construction work, the Contractor shall take all necessary actions to comply with all provisions for safety and accident prevention.
- D. If any claim is made by anyone against the Contractor or any Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.

2.04 HAZARDS IN PROTECTED AREAS

- A. Excavation on project sites from which the public is excluded shall be marked or guarded in a manner appropriate to the degree of hazard.

2.05 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 against exposure to injury.

2.06 DUST AND EMISSIONS CONTROL

- A. The Contractor shall take any necessary steps, procedures, or means as required to prevent its operations in connection with the execution of the Work from causing abnormal dust conditions. The Contractor shall prevent dust from construction activities from being produced in amounts that may be harmful or cause a nuisance to persons living nearby or occupying buildings in the vicinity of the Work.
- B. Dust control measures shall be applied, as needed to control particulate emissions from all unpaved parts of the site, including but not limited to any unpaved road which the Contractor or any of his Subcontractors are using, excavation or fill areas, demolition areas, and stockpile and staging areas.
- C. Dust control shall be conducted by sprinkling of water, use of dust palliatives or non-toxic stabilizers, modification of operations, reducing traffic speed, covering of stockpiles, installing temporary erosion controls or any other means acceptable to governmental entities having jurisdiction, as needed to control emissions.
- D. The Contractor shall cover or wet soil and other excavated material leaving and arriving at the Work site to prevent blowing dust.
- E. All paved areas of the site, including public access roads into and out of the site, shall be kept clean by sweeping.
- F. To ensure that emissions from construction equipment exhaust will be reduced, the following measures will be implemented:
 - 1. Use alternative fuel construction equipment to the fullest extent possible.
 - 2. Minimize idling time (e.g., 5 minute maximum).
 - 3. Maintain properly tuned equipment according to equipment manufacturer's guidelines.
 - 4. Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use as specified for noise mitigation purposes.

2.07 SPECIAL CONTROLS

- A. The Contractor shall take all reasonable means to minimize inconvenience and injury to the public by dust, diversion of storm water, or other individuals or entities under its control.

2.08 NOISE ABATEMENT

- A. In inhabited areas, particularly residential, Contractor's operations shall be performed in a manner to minimize unnecessary noise. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours. The more stringent of either Cal-OSHA limits or the limits established by local ordinance shall control.
- B. In order to reduce construction-related noise, the following measures shall be implemented:
 - 1. All equipment shall be adequately muffled and maintained.
 - 2. No piece of equipment which generates maximum noise levels greater than 75 dBa measured at 50 feet shall be allowed on site.
 - 3. All pieces of equipment used on the site shall be certified as to noise emission.

2.09 ODOR CONTROL

- A. The Contractor shall take any necessary steps, procedures, or means as are required to prevent abnormal odors being caused by its operations.

2.10 DRAINAGE CONTROL

- A. In performing excavation, fill, and grading operations, care shall be taken to disturb the pre-existing drainage pattern as little as possible. Particular care shall be taken not to direct drainage water onto private property or into streets or drainage ways which are inadequate for the increased flow. Adequate drainage shall be provided to protect the Work.

2.11 EROSION CONTROL

- A. All excavated and disturbed areas, including trench excavation at the site, shall be provided with temporary erosion control. The temporary erosion control shall be by means of:
 - 1. Filter fabric fences or sediment control barriers placed to completely circumvent the down slope side of the excavation and stockpiled material;
 - 2. All spoils, waste material, or stockpiled material shall not be placed in areas subject to washout, flooding, or natural drainage areas;
 - 3. All stockpiled materials on site during or after hours shall be completely encircled with temporary erosion control devices as described in Item 1 above and covered with plastic sheeting during threat of inclement weather;
 - 4. Construction equipment and vehicles shall be restricted to approved access roads only;
 - 5. Any dewatering of trenches shall be done to avoid causing erosion or runoff from the construction site;
 - 6. Protected areas shall be regularly inspected and maintained by the Contractor during the course of the work.

- B. Adequate erosion containment as described above shall be subject to the approval of the Engineer, Lahontan, County, and the TRPA representative.

2.12 WATER POLLUTION

- A. The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, and canals from pollution with fuels, oils, bitumens, calcium chloride, and other harmful materials and shall conduct and schedule his operations so as to avoid or minimize muddying and silting of said streams, lakes, reservoirs, and canals. Care shall be exercised to preserve vegetation beyond the limits of construction. The Contractor shall comply with Section 5650 of the California Fish and Game Code and all other applicable statutes and regulations relating to the prevention and abatement of water pollution.
- B. In order to prevent groundwater degradation, the following measures shall be implemented:
 - 1. Store, maintain construction equipment (except fueling by truck) at designated staging areas with impervious surfaces;
 - 2. Maintain spill cleanup equipment with fuel trucks. Cleanup fuel spills immediately;
 - 3. Minimize the amount and duration of construction materials stored onsite. Store all construction materials that could adversely affect groundwater quality (e.g. paint, solvents, and fuels) on containment pallets or similar facilities that would prevent discharges to the ground in the event of a spill or leak;
 - 4. Maintain spill cleanup materials onsite. Respond to spills and leaks immediately to contain and remove the pollutants from the site; and
 - 5. All water resulting from construction dewatering activities shall be contained with a vacuum truck or sump pump to sewer system and not allowed to enter natural drainage courses.

2.13 TRAFFIC CONTROLS

- A. The Contractor shall implement those traffic controls required by the Plans and by project permits and applicable regulations.
- B. In order to expedite the passage of public traffic through or around the work and where ordered by the Engineer, the Contractor shall install signs, lights, flares, barricades, and other facilities for the sole convenience and direction of public traffic. Also, where directed by the Engineer, the Contractor shall provide and station competent flagpersons whose sole duties shall consist of directing the movement of public traffic through or around the work. The cost of furnishing and installing such signs, lights, flares, barricades, and other facilities, and the cost of providing and stationing such flagpersons, all for the convenience and direction of public traffic, will be considered as included in the Contract price and no additional compensation will be allowed.
- C. Flagpersons and guards, while assigned to traffic control, shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flagmen" of the California Department of

Transportation. The equipment shall be furnished and kept clean and in good repair by the Contractor at his expense.

- D. The Contractor shall prepare a detailed plan describing the method by which Contractor will provide for the convenience of the public and public traffic for submission to the appropriate governmental entity with jurisdiction over the streets, highways, roads or other property upon which work pursuant to the Contract will proceed. Contractor's plan shall be approved by such governmental entity no less than ten (10) working days prior to commencement of the work. Contractor shall amend and revise its plan in accordance with any changes directed or required by such governmental entity.

2.14 TEMPORARY PAVING

- A. Immediately after underground work is installed and backfilled, Contractor shall install and maintain one-inch (1") of temporary cold mix asphalt anywhere asphalt has been removed for that work, including access to driveways, until the permanent asphalt patch is completed. No unprotected vertical pavement edges shall be allowed at the end of the work day.

PART 3 TEMPORARY FACILITIES

3.01 GENERAL REQUIREMENTS

- A. The Contractor shall provide all temporary facilities and utilities required for prosecution of the work, protection of employees and the public, protection of the work from damage by fire, weather or vandalism, and such other facilities as may be specified or required by any applicable law, ordinance, rule, regulation, or permit, at no additional cost to the District.

3.02 ELECTRICAL SERVICE

- A. The Contractor shall be responsible, if required, for obtaining adequate temporary electrical service. The Contractor shall then provide adequate job site distribution facilities conforming to applicable codes and safety regulations.
- B. The cost of temporary electrical service shall be included in the appropriate bid items to which it is appurtenant and shall include full compensation for furnishing all labor, materials, tools, and equipment required to obtain and distribute power for construction purposes.

3.03 TEMPORARY LIGHTING

- A. The Contractor shall provide temporary lighting in all work areas sufficient to maintain during working hours a lighting level not less than the lighting level required by California OSHA standards.

3.04 HEATING AND VENTILATION

- A. The Contractor shall provide means for heating and ventilating all work areas as may be required to protect the Work from damage due to freezing, high temperatures or weather, or to provide a safe environment for workers.
- B. Unvented, direct fired heaters shall not be used in areas where freshly placed concrete will be exposed to combustible gases until at least two hours after the concrete has attained its initial set.

3.05 WATER

- A. The Contractor shall construct all facilities necessary to furnish water for its use during construction. Water used for human consumption shall be kept free from contamination and shall conform to the requirements established by State and local authorities for potable water.
- B. The Contractor shall be responsible for providing the water necessary for the project. The source shall have prior approval of the District. Construction water is available from the District potable supply. An approved backflow preventer shall be installed by the Contractor at the District's fire hydrant in accordance with District Ordinance No. 405. The water sources shall be approved prior to use by owner of the water source.
- C. The Contractor shall include the cost of construction water in the appropriate bid item to which it is appurtenant. The cost shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all the work necessary to develop a sufficient water supply and furnishing the necessary equipment for applying the water as described in these Specifications.

3.06 SANITARY CONVENIENCES

- A. The Contractor shall provide suitable and adequate sanitary conveniences for the use of all persons at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the governmental entities having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

3.07 FIRST-AID

- A. First-Aid facilities and information posters conforming, at a minimum, to the requirements of the Occupational Safety and Health Administration shall be provided in a readily accessible location or locations.

3.08 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.

3.09 SHEETING, SHORING, AND BRACING

- A. Temporary supports shall be designed with sufficient safety considerations to assure adequate load bearing capability. The Contractor shall submit design calculations by a professional registered engineer for sheeting, shoring and bracing prior to application of loads.
- B. Acceptance of design calculations does not in any way relieve the Contractor from being solely responsible for the installation of adequate sheeting and shoring for the work being undertaken. The District assumes no liability for the Contractor's operations.

3.10 TEMPORARY ENCLOSURES

- A. When sandblasting, spray painting, spraying insulation, or performing other activities which are inconvenient or dangerous to property or the health of employees or the public, the area of activity shall be enclosed adequately to contain the dust, spray, or other hazard. 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.

3.11 WARNING DEVICES AND BARRICADES

- A. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, at a minimum, conform to the requirements of Cal/OSHA.

3.12 FIRE SUPPRESSION

- A. Minimize fire danger in the vicinity of and adjacent to the construction site.
- B. A sufficient number of fire extinguishers of the type and capacity required to protect the Work and ancillary facilities shall be provided in readily accessible locations.
- C. Provide labor and equipment to protect the surrounding property from fire damage resulting from construction operations.
- D. Contractor shall secure all required hot work permits and provide for any required standby in accordance with USFS, CalFire, Lake Valley Fire, and City of South Lake Tahoe requirements.
- E. A minimum 500 gallon water supply truck and/or trailer with pump shall be provided for fire suppression adjacent to work and be readily accessible.
- F. Smoking is prohibited outside of enclosed vehicles.

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures and requirements for products used in construction.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Unless otherwise specifically stated in the Contract Documents, the Contractor shall furnish all materials necessary for the execution and completion of the work. Unless otherwise specified, all materials shall be new and shall be manufactured, handled, and installed in a workmanlike manner to insure completion of the work in accordance with the Contract Documents. The Contractor shall, upon request of the Engineer, furnish satisfactory evidence as to the kind and quality of materials.
- B. Where materials are to be furnished by the District, the type, size, quantity, and location at which they are available will be stated in the Contract Documents.
- C. Manufacturers' warranties, guarantees, instruction sheets and parts listed, which are furnished with certain articles or materials incorporated in the work, shall be delivered to the Engineer before acceptance of the Contract.

2.02 STORAGE OF MATERIALS

- A. 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.

2.03 EQUIPMENT AND PLANTS

- A. Only equipment and plants suitable to produce the quality of work and materials required will be permitted to operate on the Project.
- B. Plants will be designed and constructed in accordance with general practice for such equipment and shall be of sufficient capacity to insure the production of sufficient material to carry the work to completion within the time limit and met all Federal, State, County, & Local requirements.
- C. The Contractor shall provide adequate and suitable equipment and plants to meet the above requirements, and when ordered by the Engineer, shall

remove unsuitable equipment from the work and discontinue the operation of unsatisfactory plants.

- D. The Contractor shall identify each piece of its equipment, other than hand tools, by means of an identifying number plainly stenciled or stamped on the equipment at a conspicuous location, and shall furnish to the Engineer a list giving the description of each piece of equipment and its identifying number. In addition, the make, model number and empty gross weight of each unit of compacting equipment shall be plainly stamped or stenciled in a conspicuous place on the unit. The gross weight shall be either the manufacturer's rated weight or the scale weight.
- E. In the case of termination of this Contract before completion from any cause whatever, the Contractor, if notified to do so by the District, shall promptly remove any part or all of his equipment and supplies from the property of the District. If the Contractor fails to do so, the District shall have the right to remove such equipment and supplies at the expense of the Contractor.

2.04 TRADE NAMES AND ALTERNATIVES

- A. For convenience in designation in the Contract Documents, certain articles or materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and its catalog information. The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:
 - 1. The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor who shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality and suitability of alternative articles or materials and his decision shall be final.
 - 2. Whenever the Contract Documents permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material or article will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request by the Contractor must be made within thirty-five (35) days after award of Contract, unless otherwise noted in Section 01 33 00, Submittals Process, Part 2.02, Critical Equipment Submittals. Contractor must provide back-up materials to substantiate a request for substitution, including Contractor's affidavit stating that, and describing how, the substituted "or equal" material, process or article is equivalent to that specified in every way except as listed on the affidavit.
 - 3. The District's approval or denial of any substitution shall not entitle the Contractor to any adjustment to the Contract amount or schedule, even if the Contractor based its bid upon obtaining such substitution.
- B. As approved by the District's Board of Directors and as is allowed by the California Public Contract Code (PCC) §3400 and supported by case law, the District has made findings that certain products shall be used for this

project without alternative. Exceptions to the prohibition on sole-branding or sole-sourcing are as follows:

1. Field Test or Experiment: To make a field test or experiment to determine the product's suitability for future use.
2. Match Existing Products: To match other products already in use on a particular public improvement, either completed or in progress.
3. Only Available from One Source: To obtain a necessary item that is available only from one source.
4. Emergency Response:
 - a. To respond to a local agency emergency declared with a four-fifths vote of the governing board, or
 - b. To respond to a state or political subdivision emergency, if the emergency reasons are documented in the public records of the authority.

- C. Following is a list of sole-branded or sole-sourced products that has been approved in advance by the District, and the basis for the sole-source determination identified by reference to the findings listed in Part 2.04.B (above).

1. Not Used

END OF SECTION

THIS PAGE INTENTIONALLY BLANK

SECTION 01 73 00

PROJECT EXECUTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures and requirements for determining acceptable conditions for construction.
 - 2. Procedures and requirements for working in coordination with the existing system.
 - 3. Administrative and procedural requirements for executing the work.

PART 2 EXECUTION

2.01 COMMENCEMENT AND PROGRESS OF THE WORK AND TIME OF COMPLETION

- A. The Contractor shall begin work within ten (10) days after receiving the Notice to Proceed and shall diligently prosecute the work to completion as specified in the Contract Documents.

2.02 WORK INVOLVING EXISTING SYSTEM

- A. All work shall be executed while the existing system is in operation, unless otherwise indicated in the Contract Documents. Operation of the existing system shall not be jeopardized or materially reduced in efficiency as a result of the execution of Work.
 - 1. The CONTRACTOR shall provide thrust blocks/supports as required, to prevent movement of existing piping that is under operation while being exposed during construction.
 - 2. The CONTRACTOR's activities and actions shall in no way impact the quality of the potable water or jeopardize the District's operating permit. The District's operating permit will be made available to the CONTRACTOR for review at the District's headquarters
- B. The Contractor shall request shutdowns of any portion or all of the existing system by the District at least 48 hours (two working days) in advance of the scheduled shutdown. Likewise, the Contractor shall notify the District of pending demolition of any structure at least 48 hours (two working days) in advance of the scheduled demolition. No shutdown or demolition shall occur without obtaining prior District approval. Except as otherwise indicated in these Contract Documents, shutdowns of the existing system for transfers or connections of electrical, instrumentation or piping between new and existing facilities shall not exceed 8 hours in duration without written approval in advance by the Engineer.

- C. The Contractor shall be responsible for any fines, penalties, or other actions levied against the District during construction that are a direct result of the Contractor's acts or omissions. Contractor shall defend and indemnify the District against any such fines, penalties or other actions, as provided in Section 00 73 00, Part 2.02.
- D. To facilitate the District's compliance with the Lead and Copper Rule, to the best of the Contractor's abilities, the Contractor shall note the type of material of all water service lines exposed during the course of the work and provide the information to the District.

2.03 CONSTRUCTION STAKES, LINES, AND GRADES

- A. The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.
- B. The Engineer will provide the Contractor with drawings showing benchmarks and reference points as it deems necessary to establish lines and grades required for the completion of the site work specified in the Contract Documents. The Contractor shall make or furnish all surveys and set all construction stakes necessary for the completion of the work. In addition, Contractor shall collect survey data for the installation of all underground utilities, including all tie-in locations, bends, tees/wyes, and valves. All construction staking shall be performed by a California Registered Land Surveyor. Survey records will be provided to the District at the request of the Engineer in accordance with Section 01 33 00, and at the completion of the project in accordance with Section 01 77 00
- C. Stakes and marks set by the District or Engineer, if any, shall be carefully preserved by the Contractor. The Contractor shall be charged for the cost of replacing or restoring the stakes and marks which are destroyed or damaged by his operation. This charge will be deducted from any monies due or to become due to the Contractor under the Contract Change Order.

2.04 SITE WORK

- A. The Contractor shall establish such control and reference points as it may need and as will be required to properly lay out the Work. Monuments for principal control points shall be set by the Contractor and shall be protected by the Contractor from disturbance. If the monuments are disturbed, any work that is governed by these monuments shall be held in abeyance until the monuments are re-established by the Contractor. The accuracy of all the Contractor's stakes, alignments, and grades is the responsibility of the Contractor. However, the Engineer has the discretionary right to check the Contractor's stakes, alignments and grades at any time. Where such discretion is to be exercised by the Engineer, he will notify the Contractor of his intention, stating the time at which the checking will commence. Any part of the work in progress, the results of which are predicated directly upon the Contractor's stakes, alignments, or grades to be checked, shall be held in

abeyance until the Engineer has notified the Contractor that the checking has been completed.

2.05 LOCATING AND REPAIRING UNDERGROUND UTILITIES

- A. Except as provided by Government Code Section 4215, the Contractor shall be responsible for the removal, relocation and protection of all public and private utilities, including irrigation facilities in the nature of utilities, located on the site of the construction project if and to the extent that the same are identified in the Contract Documents, and the Contractor shall not be entitled to any extension of time or claim for damages for extra compensation in connection therewith.
- B. If and to the extent that such utilities or facilities are not identified in the Contract Documents, as between the Contractor and the District, the District will be responsible for the cost of their removal, relocation, or protection, to the extent required by law, but the Contractor shall immediately notify the District and the Utility in writing upon their discovery and shall perform any such work in conformance with applicable provisions of Section 00 72 00, General Conditions, if so directed by the Engineer and in such situation the Contractor shall not be responsible for liquidated damages for delay in completion of the project caused by the failure of the District or the owner of the utility to provide for such removal or relocation. If the Contractor, while performing the Contract, discovers utility or irrigation facilities not identified by the District in the Contract Documents, he shall immediately notify the Engineer and the utility in writing.
- C. In accordance with Government Code Section 4215, the Contractor shall be compensated for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating existing main or trunk line utility facilities not indicated in the Contract Documents with reasonable accuracy, and for the equipment on the project necessarily idled during such work; provided that the Contractor shall first notify the Engineer before commencing work on locating, repairing damage to, removing, or relocating such utilities.
- D. Locate both horizontally and vertically all underground utilities, including all tie-in locations, bends (horizontal and vertical), tees/wyes, and valves that are to remain in place. Locations shall be surveyed by a licensed surveyor registered by the State of California, or collected by the Contractor using surveying equipment a survey-grade geoglobal positioning system (GPS), with a horizontal accuracy of 0.03 m or better. If Contractor to perform measurements, a licensed surveyor shall establish control points for the Contractor's use.
 - 1. When an existing utility is uncovered or a new fitting or valve is installed, the CONTRACTOR shall provide the following information on the Record Drawings and in a tabular form acceptable to the District:
 - a. The minimum attributes (fields) to be reported with each point: PointID, Date Surveyed, Northing, Easting, Elevation, Horizontal Precision, Vertical Precision, Horizontal Est Error, Vertical Est Error, Feature Type including diameter and material, Location

- Description, Approximate Station along pipeline, Comments, Surveyor, Instrument used.
- b. All coordinates shall be grid coordinates (not ground) so that they cooperate with GIS and AutoCAD drawings.
- E. CONTRACTOR shall follow the sequence provided when a utility service, process piping, conduit and/or duct bank is located in the field that has not been previously identified on the Contract Documents:
- 1. Immediately notify District of item discovered in the field.
 - 2. Coordinate with District to determine what item in question is and whether or not item is in service or previously abandoned.
 - 3. If item has previously been abandoned, cut and cap/plug and continue with construction operations.
 - 4. If item is still in service, coordinate with District if item can be taken out of service or must be relocated.
 - 5. If item can be taken out of service, coordinate shut down with District and remove item from service providing caps and/or plugs to abandon item in question. Continue with construction operations once item is taken out of service. Capping and plugging shall be completed by CONTRACTOR.
 - 6. If item must remain in service, coordinate with District for shut down and relocation. Relocation shall be completed by the CONTRACTOR.
 - 7. After relocation of item is completed, continue with construction operations.
 - 8. Locate all ends of utility services, process piping, conduits, and/or duct banks that are to remain in place per Part 2.05.D of these specifications.

2.06 WORK SEQUENCE AND CONSTRAINTS

- A. The District envisions the work being completed in the following sequence. The Contractor may propose an alternate sequence for District review and acceptance when they submits their initial construction schedule.
- 1. Water Main Pipeline Layout and Potholing - Phase 1 -
 - a. Perform all construction staking and layout potholing activities and provide written confirmation of all conflicts as well as existing water main alignments.
 - b. Schedule and perform field review of proposed alignment with Engineer.
 - c. Perform potholing of all utility crossings and potential conflicts. Pothole to confirm size, material, and depth of all existing pipes and/or valves to be connected to.
 - d. Finalize proposed watermain alignment.
 - e. Following completion of required biological and botanical surveys by District consultant, complete above ground tree removal activities along Pioneer Trail, sheets P1, P2, P3, P4, and P5.
 - f. Install BMPs.

- g. Submit schedule for waterline installation, service and hydrant installations, tie-ins, testing and disinfection, service connections, and abandonments. Complete weed management plan.
 - h. Perform asphalt sawcutting.
- 2. Phase 2 (Sheets P9 and P8) – to be completed prior to August 24, 2026 (LTUSD Summer Break – No School).
 - a. Construct main and associated appurtenances (bends, tees, crosses, fire hydrants, blow offs, etc.) on Pioneer Trail between Marshall Trail and Golden Bear Trail. Approximately 1,600 LF. Pressure test and disinfect.
 - b. Install Tie-in #1, at Pioneer Trail and Marshall Trail, connecting new main on Pioneer Trail to Montgomery Estates Pressure Zone.
 - c. Pave trench patch for Phase 2.
- 3. Phase 3 (Sheets P6, P7, P8)
 - a. Construct main and associated appurtenances (bends, tees, crosses, fire hydrants, blow offs, etc.) on Pioneer Trail between Golden Bear Trail and STA 62+00, where main exits paved roadway. Approximately 2,000 LF. Pressure test and disinfect. Connect to Phase 2 piping.
 - b. Pave trench patch for Phase 3
- 4. Phase 4 (Sheets P4, P5, P6)
 - a. Construct main and associated appurtenances (bends, tees, crosses, fire hydrants, blow offs, etc.) on Pioneer Trail between STA 62+00 and STA. 40+00, where main enters paved roadway. Approximately 2,200 LF. Pressure test and disinfect. Connect to Phase 3 piping.
 - b. Pave trench patch for Phase 4.
- 5. Phase 5 (Sheets P2, P3)
 - a. Construct main, services, and associated appurtenances (bends, tees, crosses, fire hydrants, blow offs, etc.) on Pioneer Trail between STA 40+00 and STA. 24+50, including crossing to new Jicarilla PRV location and new 2" poly connection to existing services on for Pioneer Trail properties near STA 26+00 that remain on Pine Valley Pressure Zone. Approximately 1,800 LF. Pressure test and disinfect. Connect to Phase 4 piping.
 - b. Pave trench patch for Phase 5.
- 6. Phase 6 (Sheets P1, P2).
 - a. Construct main, services, and associated appurtenances (bends, tees, crosses, fire hydrants, blow offs, etc.) on Pioneer Trail between Jicarilla Drive and Susquehanna Drive, STA 24+50 to 10+00, Approximately 1,500 LF. Pressure test and disinfect. Connect to Phase 5 piping.
 - b. Pave trench patch for Phase 6.
- 7. Phase 7 (Sheet P1), Susquehanna PRV

- a. Concurrently or following Phases 3 thru 6, complete installation Susquehana PRV. Pressure test and disinfect.
 - b. Complete Tie-in #5, Susquehana at Pioneer Trail, with connections made to new piping from Phases 5 and 6.
 - c. Complete abandonment of mains, valves, and blowoffs associated with Tie-in #5.
 - d. Pave trench for Phase 7, Susquehana PRV
8. Phase 8 (Sheets P1, P2 and P8), Golden Bear and Jicarilla PRVs, Kokanee Tie-in.
- a. Install new Golden Bear PRV and Jicarilla PRV. Pressure test and disinfect piping to point of intertie.
 - b. Concurrent with or following with Tie-in #1, complete Tie-in #2, connecting existing Kokanee PRV to new Pioneer Trail main.
 - c. Complete Tie-in #3 at Golden Bear, allowing abandonment of existing Golden Bear PRV and existing mains on Pioneer Trail.
 - d. Complete Tie-in #4, Jicarilla at Pioneer Trail, with connections made to new piping from prior Phases.
 - e. Complete abandonment of mains, valves, and blowoffs associated with this Phase.
 - f. Pave trench for Phase 8, Golden Bear and Jicarilla PRVs, Kokanee Tie-in.
9. Phase 9 – Final Paving, Cleanup, and Demobilization
- a. Complete any remaining abandonments, trench patch, miscellaneous paving. Perform 3" mill and overlay.
 - b. Install concrete collars around valve boxes and manholes.
 - c. Install sign posts at fire hydrants. Replace all pavement striping and markings.
 - d. Cleanup disturbed soils, landscaping, and perform revegetation work. Restore staging areas.
 - e. Demobilize from all staging areas.
 - f. Energize and commission PRV Stations.
 - g. Submit redline asbuilts and waterline survey data to District.

B. The work shall be subject to the following scheduling constraints:

1. Work on sheets P9 and P8 must be completed during the summer vacation period of Sierra House Elementary School, June 18, 2026 – August 24, 2026 or June 17, 2027 – July 31, 2027 (anticipated last day of contract).
2. No planned shutdowns shall occur on Mondays or Fridays, State and/or Federal holidays, or weekends.
3. Work shall be restricted to the hours of 8am – 6:30pm per TRPA and EDC DOT standards.
4. No work shall be allowed to occur after 12 noon the weekday before an observed holiday.

5. Saturday work may be allowed provided there are no impacts to traffic with advanced notice from the Contractor and written approval by the District and EDC DOT.
6. No work will be allowed on Sundays.
7. Night work may be allowed upon written request by the contractor and written approval by the District Engineer or Project Manager in concurrence with El Dorado County and the TRPA.
8. Hot-taps shall be coordinated and completed in accordance with the general notes.
9. Contractor shall coordinate activities and shutdowns to prevent any customer from being out of water for more than 8 hours. Water shall be restored at the end of each work day to all customers.
10. Contractor shall pothole, 48 hours in advance of any installation of water pipe (mainline, hydrant laterals, and service laterals), all utility crossings at each proposed pipeline crossing. Any discrepancies found between the actual utilities and project plans shall be brought to the attention of the Engineer immediately. Potholing to be completed using vacuum excavation and hand digging only. Results of potholing will be provided to the District in the form of a redlined plan set 48 hours prior to the layout of the new pipeline to confirm horizontal/vertical alignment. Sawcutting will only be allowed after confirmation of the pipeline alignment, after potholing.
11. Temporary asphalt, as required by Section 01 50 00, shall be installed daily. Upon written approval by both the Engineer and EDC DOT, and satisfactory patching by the Contractor, hotmix patches may be considered to reduce the number of phases requiring mobilization for trench patching.
12. The installation of approximately 2,000 linear feet of water mainline pipe to the nearest valve cluster or intertie shall be considered a "Phase".
 - a. The Contractor shall begin all required testing of each Phase beginning within two working days of completion of installation.
 - b. Testing shall include pipeline disinfection, pressure testing and bacteriological testing, as required in the Contract Documents.
 - c. The installation of the next phase of additional pipeline will be allowed only up to 500 linear feet until the testing of the previous phase is successfully completed unless the Contractor receives prior written approval from the Engineer. No payment will be made for additional pipeline beyond 500 linear feet of each phase until the previous phase has passed all testing, unless the Contractor receives prior written approval from the Engineer to install beyond the 500 linear foot limit.
 - d. Main waterlines shall be tied into the existing system and services shall be transferred within two weeks of completion of all testing.
 - e. Within three weeks of any pipe installation Phase being completed, final paving of the trench patch must be completed for that phase. A completed pipeline phase means the new waterline has passed the pressure test, bacteria sampling, has been tied-in to the existing system and services have been transferred to the new line.

13. All paving and stabilization work shall be completed by October 1st of the year in which the disturbance or work occurred.

- C. The Contractor shall be aware that there may be change orders involved with this Work. The Engineer has made every reasonable attempt to determine the extent and location of all existing facilities within the project area. However, the inexact nature of existing knowledge and as-built plans may require change orders to reflect changed conditions. All change orders shall be handled using the procedures contained in the General Conditions of the Contract Documents.

2.07 CONTRACTOR'S MEANS AND METHODS

- A. Contractor is solely responsible for the means and methods utilized to perform the Work. In no case shall the Contractor's means and methods deviate from commonly used industry standards.

2.08 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 or from public access roads, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading. The Contractor shall assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish from the Work.
- B. The Contractor shall provide containers for collection and disposal of waste materials, debris, and rubbish.
- C. If applicable, remove concrete, concrete wash, stucco splatter, gunite overspray, and all other waste and debris prior to final grading and landscaping.

2.09 NOT USED

2.10 NOT USED

END OF SECTION

SECTION 01 77 00

CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for completion of the work.
 - 2. The requirements of this Section are in addition to the requirements for closeout procedures and closeout submittals for individual materials and equipment stated elsewhere in these Contract Documents.

PART 2 CLOSEOUT PROCEDURES

2.01 PROJECT CLOSEOUT

- A. It is the intent of these Contract Documents that the Contractor deliver a complete and operable facility capable of performing its intended functions and ready for use.

2.02 PARTIAL ACCEPTANCE OF WORK

- A. After completion of certain portions of the Work, including all testing and other preparation necessary for operation of such portions by the District as specified in these Special Conditions, but prior to final completion of the Work, provisions may be made for partial acceptance in writing by the District for such portions only. The portions of the Work to be included for partial acceptance prior to final project completion will be noted at the pre-construction conference in accordance with Contractor's schedule, or by written notice to the Contractor at the earliest possible time.
- B. The guarantee period for such portions of the Work shall commence with the date of their acceptance for use by the District. However, full payment for such portions will not be made until final acceptance of the entire Work.
- C. Acceptance of any portion of the Work prior to acceptance of the whole shall not be construed as absolving the Contractor of responsibility for any item of construction or incidental work included in the Contract.
- D. Prior to such occupancy or use, the District will enter into a written agreement with the Contractor delineating the portions of the Work released to the District for occupancy or use and indicating what, if any, work remains to be done within the occupied or released area. If such prior use increases the cost of or delays the Work, the Contractor shall be entitled to such extra compensation, or extension of time, or both, as may be determined by the District after consideration of recommendations by the Engineer.

- E. Should any portion of the Work in use be damaged by such use, the District shall bear the expense for repairing such damage. However, if the portion being so used should reveal deficiencies of materials or workmanship, it shall be the Contractor's responsibility to replace the defective construction.

2.03 FINAL SITE CLEAN-UP

- A. Upon completion of work and before the final estimate is submitted, the Contractor shall at its own cost and expense remove from the vicinity of the work all plant, buildings, equipment, rubbish, unused work materials, concrete forms, temporary bridging and other like materials, belonging to Contractor or used under its his direction during the construction, but not required as part of or appurtenant to the completed work.
- B. The Contractor shall clean, sweep, wash, and polish all work and installed equipment including finishes. The Contractor shall remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces. The Contractor shall broom clean paved surfaces and rake clean landscaped areas.
- C. Where the construction has crossed yards or driveways, they shall be restored by the Contractor to the complete satisfaction of the Engineer, at the Contractor's expense.
- D. In the event of failure to do so, the same may be removed by the District after ten (10) calendar days notice to the Contractor, such removal to be at the expense of the Contractor.

2.04 WASTE DISPOSAL

- A. The Contractor shall dispose of surplus materials, waste products and debris and shall make necessary arrangements for such disposal.

2.05 TOUCH-UP AND REPAIR

- A. The Contractor shall touch up or repair finished surfaces on structures, or installations, that have been damaged prior to final acceptance. Surfaces on which such touch up or repair cannot be successfully accomplished shall be completely refinished or, in the case of hardware and similar small items, shall be replaced.

2.06 PROJECT RECORD DOCUMENTS

- A. In accordance with Section 01 31 00, Project Management and Coordination, the Contractor shall maintain at the site, available to the District and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders and other modifications, in good order and marked to record all changes made during construction. These documents shall be delivered to the Engineer upon completion of the Work.

- B. In the case that portions of the Work are required by the Contract Documents to be designed by a licensed professional under agreement with the Contractor, as-built drawings for this portion of the Work shall be prepared by the licensed professional and included in the Project Record Documents.

2.07 FINAL ACCEPTANCE AND DATE OF COMPLETION

- A. Whenever the Contractor shall deem all work under this Contract to have been completed in accordance therewith, it shall so notify the Engineer in writing, and the Engineer shall promptly ascertain whether the work has been satisfactorily completed and, if not, shall advise the Contractor in detail and in writing of any incomplete or nonconforming work. When all the provisions of the Contract have been fully complied with to the satisfaction of the Engineer, the Engineer shall proceed with all reasonable diligence to determine accurately the total value of all work performed by the Contractor at the prices set forth in the Contract or fixed by Change Orders, and the total value of all extra work, all in accordance with the Contract. The Engineer will then certify to said final estimate and to the completion of the work, and will file copies thereof with the District and the Contractor. The date of completion shall be the date upon which the District makes its formal written acceptance of the work.

2.08 FINAL SUBMITTALS

- A. Prior to requesting final payment, the Contractor shall obtain and submit the following items to the Engineer for transmittal to the District: (1) written guarantees, where required; (2) operating manuals, training and instruction; (3) keying schedule; (4) maintenance stock items, spare parts and special tools; (5) completed project record documents; (6) releases from all parties who are entitled to claims against the Project, property or the Work in a form required by law; (7) complete underground utility and survey data.

2.09 FINAL PAYMENT

- A. Within ten (10) days after the date of completion, and including the receipt of Final Release, the District will file in the Office of the County Recorder, a Notice of Completion of the work herein agreed to be done by the Contractor. On the expiration of thirty-five (35) days after the recordation of such Notice of Completion, the difference between said final estimate and all payments theretofore made to the Contractor shall be due and payable to the Contractor, subject to any requirements concerning the furnishings of a maintenance bond, and excepting only such sum or sums as may be withheld or deducted in accordance with the provisions of the Contract Documents or as required by law. All prior certifications upon which partial payments may have been made, being merely estimates, shall be subject to correction in the final certificate.

2.10 FINAL RELEASE

- A. Final payment to the Contractor, in accordance with the final estimate, is contingent upon the Contractor furnishing the District with a signed written release of all claims against the District arising by virtue of the Contract. This will be accomplished by execution of the CLOSEOUT AGREEMENT AND RELEASE OF CLAIMS -attached. Disputed Contract claims in stated amounts may be specifically excluded by the Contractor from the CLOSEOUT AGREEMENT AND RELEASE OF CLAIMS.

2.11 RIGHT TO WITHHOLD PAYMENTS

- A. In addition to all other rights and remedies of the District hereunder and by virtue of the law, the District may withhold or nullify the whole or any part of final payment for reasons described in Section 00 72 00, General Conditions.

2.12 CONTRACTOR'S CONTINUING OBLIGATION

- A. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by Engineer, nor the issuance of a certificate of Substantial Completion, nor any payment by District to Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by District, nor any act of acceptance by District nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a Notice of Acceptability by Engineer, nor any correction of defective Work by District will constitute an acceptance of Work not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents.

2.13 WAIVER OF INTEREST

- A. The District shall have no obligation to pay and the Contractor hereby waives the right to recover interest with regard to monies which the District is required to withhold by reason of judgment, order, statute, or judicial process.

2.14 SATISFACTION OF CLAIMS AND LIENS

- A. Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the District, a complete release of all liens and claims arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and material for which a lien or claim could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Engineer, to indemnify the District against any lien or claim. If any lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the District all monies

that the latter may be compelled to pay in discharging such a lien, or claim, including all costs and reasonable attorney's fees.

- B. Prior to final payment by the District, the Contractor shall submit a final waiver of lien for the Contractor's work, in the forms prescribed by California Civil Code §8136, together with releases of lien from any subcontractor or supplier.

2.15 DISBURSEMENT OF RETENTION PROCEEDS

- A. In accordance with Section 7107 of the Public Contracts Code with respect to all contracts entered into on or after January 1, 1993 relating to the construction of any public work of improvement the following shall apply.
- B. The retention proceeds withheld from any payment by the District from the original Contractor, or by the original Contractor from any Subcontractor, shall be subject to this paragraph.
 - 1. Within sixty (60) days after the date of completion of the work, the retention withheld by the District shall be released.
 - 2. In the event of a dispute between the District and the original Contractor, the District may withhold from the final payment an amount not to exceed one hundred fifty percent (150%) of the disputed amount.
- C. Subject to subsection D, within seven (7) days from the time that all or any portion of the retention proceeds are received by the original Contractor, the original Contractor shall pay each of its subcontractors from whom retention has been withheld, each subcontractor's share of the retention received. However, if a retention payment received by the original Contractor is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor, if the payment is consistent with the terms of the subcontract.
- D. The original Contractor may withhold from a subcontractor its portion of the retention proceeds if a bona fide dispute exists between the subcontractor and the original Contractor. The amount withheld from the retention payment shall not exceed one hundred fifty percent (150%) of the estimated value of the disputed amount.
- E. In the event that retention payments are not made within the time periods required by this Part, the District or original Contractor withholding the unpaid amount shall be subject to a charge of two percent (2%) per month on the improperly withheld amount, in lieu of any interest otherwise due. Additionally, in any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to attorneys' fees and costs.
- F. Any attempted waiver of the provisions of Section 7107 of the California Public Contract Code shall be void as against the public policy of this state.

2.16 REUSE OF DOCUMENTS

- A. Neither Contractor nor any Subcontractor or Supplier or other person or entity performing or furnishing any of the Work under a direct or indirect contract with District shall have or acquire any title to or ownership rights in any of the Drawings, Plans and Specifications or other documents (or any copies of such documents) prepared by or bearing the seal of Engineer, and they shall not reuse any of such documents on extensions of the Project or any other project without written consent of District and Engineer and specific written verification or adaptation by Engineer.

2.17 RETENTION OF RECORDS

- A. In accordance with Government Code §8546.7, records of both the District and the Contractor shall be subject to examination and audit by the State Auditor General for a period of three (3) years after final payment. Contractor shall make available to the District any of the Contractor's other documents related to the Project immediately upon request of the District. In addition to the State Auditor rights above, the District shall have the right to examine and audit all the books, estimates, records, contracts, documents, bid documents, subcontracts, and other data of the Contractor (including computations and projections) related to negotiating, pricing, or performing the modification in order to evaluate the accuracy and completeness of the cost or pricing data at not additional cost to the District, for a period of four (4) years after final payment.

END OF SECTION

CLOSEOUT AGREEMENT AND RELEASE OF CLAIMS

THIS AGREEMENT AND RELEASE OF CLAIMS is made in South Lake Tahoe, California, this day of _____, _____, by and between South Tahoe Public Utility DISTRICT, hereinafter referred to as "DISTRICT", and _____, hereinafter referred to as "CONTRACTOR".

KNOW ALL PERSONS BY THESE PRESENTS:

1. That the undersigned, as the authorized representative of CONTRACTOR, for and in consideration of _____ (\$ _____), contract amount, and the sum of _____ (\$ _____) for said Contract Change Orders Nos. 1 through ____, receipt of which is hereby acknowledged, has submitted waivers from all subcontractors and suppliers in the form required by Civil Code §8132 - 8138, and does hereby and for each of its successors, assigns and partners, release acquit and forever discharge the SOUTH TAHOE PUBLIC UTILITY DISTRICT OF EL DORADO COUNTY, CALIFORNIA, and each of its successors, assigns, officers, agents, servants, and employees, from any and all rights, claims, demands, debts, obligations, liabilities, actions, damages, costs, expenses and other claims whatsoever, which might have been asserted against DISTRICT by reason of any matter or thing which was the subject matter of or basis for:
 - A. The performance of all terms and conditions of that certain agreement dated _____ for Purchase Order No. _____ DISTRICT project described as 2026 PIONEER TRAIL WATERLINE PROJECT(REBID).
 - B. Change Orders Nos. 1 through ____ as approved by the parties, pertaining to Purchase Order No. _____ and shown in Payment Request No. _____, dated _____.
2. That the undersigned, as the authorized representative of DISTRICT, for and in consideration of the CONTRACTOR's completion of Purchase Order No. _____ does hereby and for each of its successors, and assigns, releases, acquits and forever discharge _____ and each of its successors, assigns, officers, agents, servants, and employees, and sureties from any and all rights, claims, demands, debts, obligations, liability, actions, costs, expenses whatsoever which might have been asserted against CONTRACTOR, except for all rights accruing to the DISTRICT arising out of (1) patent and latent construction defects as codified by California Code of Civil Procedure Sections 337.10 and 337.15, (2) third party claims brought against the DISTRICT, and (3) warranty claims, which rights are specifically reserved and not released, provided by reason of any matter or thing which was the subject matter of or basis for:
 - A. The performance of all terms and conditions of that certain agreement dated _____ for Purchase Order No. _____ DISTRICT project described as 2026 PIONEER TRAIL WATERLINE PROJECT (REBID).
 - B. Change Orders Nos. 1 through _____ as approved by the parties, pertaining to Purchase Order No. _____ and shown in Payment Request No. dated _____.

3. Nothing contained herein shall waive or alter the rights, privileges, and powers of the DISTRICT or the duties, liabilities and obligations of the CONTRACTOR and its surety in respect to any portions of the Specifications for Purchase Order No. _____, including but not limited to indemnity and warranty obligations.
4. The DISTRICT has received no claims from the CONTRACTOR.
5. The DISTRICT filed and recorded a NOTICE OF COMPLETION with the El Dorado County Recorder on _____, 2021 as such the statutory lien period expired on _____, 2021.
6.

The presently retained amount is	\$
Original Contract amount	\$
Total Change Order Amount	\$
Other Encumbrances	\$
Less: Amount Previously Paid (Request Nos. 1 through ____)	\$
Retainage	\$
BALANCE:	\$

The retainage will be released to the CONTRACTOR within sixty (60) calendar days after date of recording a NOTICE OF COMPLETION by El Dorado County Recorder or when all stop notices and other encumbrances have been released, whichever last occurs. Release pursuant to this agreement shall not apply to CONTRACTOR's rights to the presently retained amount until such time as such amounts are received in full by CONTRACTOR.

7. CONTRACTOR and DISTRICT agree that the total adjusted contract price and time of performance for Purchase Order No. after the execution of change orders shall be as follows:

Original Contract Price	\$
Original Calendar Days	
Total Adjusted Price	\$
Total Adjusted Calendar Days	

8. It is understood and agreed by the undersigneds that the facts with respect to which the foregoing Release is given may hereafter turn out to be other than or different from the facts in that connection now known to be or believed by said undersigneds to be true, and the undersigneds hereto expressly assume the risk of the facts turning out to be different than they now so appear, and agree that the foregoing Release shall be, in all respects, effective and not subject to termination or recession by any such difference in facts and undersigneds hereby expressly waive any and all rights the undersigneds have or may have under California Civil Code Section 1542, which provides as follows:

"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the Release which if known by him must have materially affected his settlement with the debtor."

9. The releases made by the CONTRACTOR and the DISTRICT herein are not to be construed as an admission or admissions of liability on the part of either party and that the parties deny liability hereof. Unless arising out of a right expressly reserved herein, the undersigneds agree that they will forever refrain and forbear from commencing, instituting or prosecuting any lawsuit, action or other proceeding against the other party based on, arising out of, or in any way connected with the subject matter of this Release.
10. The CONTRACTOR hereby releases the DISTRICT from all claims, including those of its Subcontractors for all delay and impact costs, if any.
11. The CONTRACTOR represents and warrants to the DISTRICT that the CONTRACTOR has not heretofore assigned or transferred or purported to assign or transfer to any person, firm, corporation, association or entity any of the rights, claims, warranties, demands, debts, obligations, liabilities, actions, damages, costs, expenses and other claims whatsoever and the CONTRACTOR agrees to indemnify and hold harmless the DISTRICT against, without limitation, any and all rights, claims, warranties, demands, debts, obligations, liabilities, actions, damages, costs, expenses and other claims, including attorney's fees, arising out of or connected with any such assignment or transfer or purported assignment or transfer.
12. The undersigned acknowledge that they have been represented by counsel of their own choice in connection with the preparation and execution of this Closeout Agreement and Release of Claims. The undersigned acknowledge and represent that they understand and voluntarily consent and agree to each and every provision contained herein.
13. The undersigned further declare and represent that no promise, inducement or agreement, not herein expressed, have been made to the undersigned and that this Release contains the entire agreement among the parties hereto and that the terms of the Release are contractual and not a mere recital.
14. The persons executing this Closeout Agreement and Release of Claims represent and warrant to the other party that the execution and performance of the terms of this Release have been duly authorized by all requisite corporate, partnership, individual, or other entity requirements and that said persons have the right, power, legal capacity and authority to execute and enter in the Closeout Agreement and Release of Claims.

PAUL HUGHES, GENERAL MANAGER

DATED

ATTEST: MELONIE GUTTRY, CLERK OF BOARD

DATED

CONTRACTOR

DATED

THIS PAGE LEFT INTENTIONALLY BLANK

DIVISION 02

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 02 41 00

DEMOLITION, REMOVAL, ABANDONMENT AND SALVAGE OF MATERIALS

PART 1 GENERAL

1.01 SUMMARY

- A. Work of this Section includes demolition, removal, salvage, abandonment, and disposal of existing structures, utilities, materials, and site features as shown in the Contract Documents.
- B. Demolition includes, but is not limited to, pavements, buildings, structures, foundations, utilities, vaults, valves, pipelines, fencing, landscaping, and appurtenant structures not designated to remain.
- C. Salvage includes removal, protection, delivery, and reinstallation of materials designated on the Plans to be salvaged.
- D. Abandonment includes capping, plugging, or filling of existing utilities designated to be abandoned in place. E.
- E. Perform all Work in accordance with applicable local, state, and federal codes, regulations, and environmental requirements.
- F. Related Sections:
 - 1. 01 50 00 Temporary Facilities and Controls
 - 2. 31 23 19 Dewatering
 - 3. 31 20 00 Earthwork

1.02 DEFINITIONS

- A. Demolition: Complete removal and disposal of existing facilities or materials.
- B. Salvage: Removal and preservation of existing materials for reuse or delivery to the District.
- C. Abandonment: Permanent removal from service of existing utilities, either by removal or abandonment in place.

1.03 RELATED SECTIONS

- A. 01 50 00 Temporary Facilities and Controls
- B. 31 23 19 Dewatering

- C. 31 20 00 Earthwork

1.04 SUBMITTALS

- A. Demolition Plan: Submit a demolition and abandonment plan at least five (5) working days prior to commencing Work. Plan shall include sequencing, protection measures, utility coordination, and handling of hazardous materials.
- B. Utility Abandonment Records: Submit quantities and locations of abandoned piping and Controlled Low-Strength Material (CLSM) used.

1.05 REGULATORY REQUIREMENTS

- A. Handle asbestos-containing materials (ACM), lead-based materials, and other hazardous substances in accordance with all applicable regulations.
- B. Comply with TRPA BMP Handbook requirements for site protection and environmental controls.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Provide all necessary tools, machinery, and equipment for demolition, including cranes, excavators, bulldozers, trucks, and any other equipment required to safely and efficiently perform the work.
- B. Equipment must be maintained in proper working condition and used in compliance with safety regulations.
- C. Explosives shall not be used.

2.02 MATERIALS

- A. Provide all materials required to complete the work per the Plans and included herein.
- B. Material for abandonment of pipe in place shall conform to Section 19-3.02F Controlled Low-Strength Material of the Standard Specifications, State of California, Department of Transportation (Caltrans), latest edition.

PART 3 EXECUTION

3.01 LIMITS OF WORK

- A. Confine removal of existing improvements to the limits and items designated on the plans.
- B. Verify all items to be demolished, salvaged, or abandoned prior to starting Work.

3.02 SITE PREPARATION

- A. Notification: Notify the Owner at least two full working days prior to commencing the work of this section.
- B. Site Inspection
 - 1. Prior to all work of this section, carefully inspect the entire site and all objects designated to be removed and to be preserved.
 - 2. Locate all existing inactive utility lines to be encountered by the new work and determine all requirements for disconnecting and capping. Abandonment of piping requires capping at each end or plugging with concrete to the satisfaction of the Engineer in accordance with Part 3.13 of this Section.
 - 3. Locate all existing active utility lines traversing the site and determine the requirements for their protection in coordination with the Owner.
- C. Clarification
 - 1. The Drawings do not purport to show all objects existing on the site.
 - 2. Before commencing the work of this section, verify with the Owner all objects to be demolished, removed, or salvaged, and all objects to be preserved.
- D. Scheduling
 - 1. Schedule all work in a careful manner with all necessary consideration for neighbors, operation of the existing facilities, and the public.
 - 2. Avoid interference with the use of, and passage to and from, adjacent buildings, residences and facilities.

3.03 JOB CONDITIONS AND PROTECTION OF PROPERTY

- A. Dust Control: Use all means necessary to prevent the spread of dust during performance of the work; thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site. Wind in excess of 10 MPH causing dust to leave site will require Contractor to limit dust causing activities.
- B. Protect existing improvements, adjacent property, utilities, trees, plants, or any other existing items, which are not specifically intended to be removed.
- C. Repair all damage to existing improvements not scheduled for demolition, removal or salvage.

- D. Burning: On-site burning will not be permitted.

3.04 UTILITY DISCONNECTION AND PROTECTION

- A. Before starting site operations, disconnect or arrange for the disconnection of all utility services designated to be removed, performing all such work in accordance with the requirements of the utility company or Owner involved.
- B. Preserve in operating condition all active utilities traversing the site and designated to remain.

3.05 DEMOLITION OF STRUCTURES

- A. Structures shall be demolished to the lines and grades indicated.
- B. Structures shall be demolished beginning at the top of the structure and proceeding to the ground. Concrete and masonry shall be removed in small sections.
- C. Hoists, derricks, cranes, other suitable devices shall be used to carefully remove structural members.
- D. Temporary coverings shall be provided for openings in roofs or walls to prevent water damage to portions of structures that are to remain in place.
- E. Perform the following work where new construction must be installed against existing concrete or masonry.
 - 1. Make an initial cut using a concrete saw, but do not cut the underlying reinforcement steel.
 - 2. After removal of the concrete or masonry, cut the exposed reinforcing steel, leaving lengths of reinforcement for use as dowels or splices as required for connection to the new work.
 - 3. Where a portion of existing concrete or masonry will remain in place without connection to new work, cut the existing material completely through its section with a concrete saw, unless indicated otherwise.
 - 4. Demolish structures to a minimum of 3' below the adjacent finished grade, unless otherwise indicated. Remove all existing concrete footings and foundations. Backfill the remaining structure and demolition excavations to the level of the adjacent finished grade per Section 31 20 00.
- F. Materials identified for salvage and delivery to the STPUD maintenance yard shall be protected during demolition and removal activities. Remove materials identified for salvage prior to structure removal if allowed. Coordinate the salvage and delivery of materials with STPUD Maintenance and Operations staff.

3.06 DEMOLITION AND REMOVAL OF PIPELINES

- A. Piping shall be removed to the limits shown, or to a point where it will not interfere with the new facilities. Where limits are not shown, piping shall be removed to a point that is at least 5' outside of the limits of new construction.
- B. Normally, piping shall be removed to the first joint outside of the limits required. Where sections of pipe exceed 16' in length the piping may be cut using saws, cutting torches, or other approved methods to provide clean, unbroken, end points.
- C. Where underground piping is to be removed, plug the remaining piping that is to be abandoned. Abandoned underground piping may be left in place unless it interferes with new work or is shown to be removed. Piping shall be plugged and abandoned in place per Part 3.13 of this Section.
- D. Where existing piping is to be demolished, but a portion will remain in service, Contractor shall do the following.
 - 1. Capping and plugging materials and installation work shall be in accordance with the specifications. If the pipe materials are not in the specifications, the applicable building codes, standards, and specifications that govern the remaining piping shall be used for installation of capping and plugging materials.
 - 2. Remaining piping shall be pressure tested and disinfected before being returned to service in accordance with the applicable building codes, and as approved by STPUD Project Representative.
- E. Plugs for abandoned piping shall consist of solid concrete plugs installed for a length of at least 12 inches. As an alternative, Contractor may install approved plugs or caps that are of the same material as the pipe.

3.07 SALVAGE

- A. Materials identified for salvage:
 - 1. Golden Bear PRV
 - 2. Golden Bear PRV Vault Lid
 - 3. Existing Fire Hydrants identified for removal in the plans.
- B. Materials identified for salvage and delivery to the STPUD maintenance yard shall be protected during demolition and removal activities. Remove materials identified for salvage prior to pipeline or vault removal if allowed. Coordinate the salvage and delivery of materials with STPUD Maintenance and Operations staff.

3.08 ABANDONMENT OF PIPELINES

- A. There are existing waterlines that have been identified to be abandoned on the Plans. Unless otherwise indicated on the Plans, the Contractor has the option to

physically remove the identified pipes or abandon in-place and fill with Controlled Low-Strength Material.

- B. If the pipe is to be removed by excavation the Contractor shall backfill the trench per Section 31 20 00 of these Specifications. Subgrade preparation shall be per Section 31 20 00 of these Specifications. Surface restoration shall match surrounding conditions including any applicable permanent patch.
- C. In cases where the abandoned pipe is to be filled with Controlled Low-Strength Material, the downstream end of the pipe shall be plugged with concrete or by other suitable means and material shall be introduced into the upstream end and allowed to fill until refusal. The upstream end shall be sealed in a manner similar to the downstream end. Since the intent is to completely fill the abandoned pipe with Controlled Low-Strength Material, the Contractor is to ensure that the material flows sufficiently to reach the downstream end. This shall include installing end vents and intermediate vents and abandoning said vents upon verification of material fill.
- D. It is anticipated that pumping will be required to adequately fill the entire pipe. Material pumping does have its limits and it is anticipated that additional potholing may be required to provide multiple access points for grouting pipes greater than 200 linear feet. The Contractor shall ensure the pumping system has sufficient gauges, monitoring devices, and tests to ensure the effectiveness of the pumping operation. Mixes shall provide sufficient strength and durability to prevent collapses of the abandoned pipe, sufficient flow to effectively fill the pipe, and less than 1% shrinkage by volume. The Contractor is to calculate the approximate volume of Controlled Low-Strength Material based on pipe diameter and length and monitor the quantity actually used. Both quantities are to be provided to the Engineer at the time of abandonment. Material shall conform to Part 2.02.B of this Section.
- E. Submit actual CLSM quantities to the Engineer.

3.09 HAZARDOUS MATERIALS

- A. Identify and remove hazardous materials in accordance with regulations.
- B. Dispose of non-friable ACM at an approved facility.

3.10 DISPOSAL

- A. Facilities so designated on the plans shall be demolished, and all materials there from shall become the property of the Contractor and shall be removed and disposed of away from the site. Any equipment or pipework connected within a structure which is designated to be removed and salvaged or relocated shall be removed before demolition begins. Coordinate with the Owner for the salvaging or relocating of these items. All other equipment within the structure shall become the property of the Contractor.

- B. All concrete and rock shall be removed to firm undisturbed soil and scarified to a depth of 8 inches, unless otherwise noted, and shall be disposed of off-site. Concrete not removed shall be broken to prevent entrapment of water, as approved by the Engineer. Concrete includes all reinforcement and embedded items. Pipework and conduit as indicated on plans to be removed shall also be removed to firm undisturbed soil and scarified to a depth of 8 inches unless otherwise noted.
- C. The stripped materials shall be removed from the project site at no cost to the Owner.
- D. Backfill and Grading: After facilities have been demolished and all material removed, any remaining depression or hole shall be backfilled and the area finish graded as specified in Section 31 20 00. Rubble and broken concrete will not be allowed to be used as fill material.

3.11 SITE PROTECTION AND BARRICADES

- A. All barricades and site environmental protection shall conform to the latest edition of the TRPA BMP handbook and the contract drawings.

3.12 CLEARING AND GRUBBING

- A. Area to be Cleared & Grubbed
- B. The Contractor shall restrict clearing and grubbing to the areas designated for new construction or adjustment of grades on the plans. Surrounding trees outside of the limits of work shall be protected from damage. The Owner or Engineer will designate the limits of clearing and grubbing.
- C. Where limbs or roots of trees designated to remain extend into work areas, the limbs or roots shall be trimmed in accordance with the provisions of this section.
- D. Felling of Trees: The Owner or Engineer will mark all trees to be removed by the Contractor prior to start of work.
- E. Trimming of Trees
 - 1. In company with the Owner, ascertain the limbs and roots which are to be trimmed and clearly mark them to designate the approved point of cutting.
 - 2. Cut evenly, using proper tools and skilled workmen to achieve neat severance with the least possible damage to the tree.
 - 3. In the case of root cuts, apply wet burlap or other protection approved by the Owner, as required, to prevent drying out.
- F. Grubbing: Remove all surface rocks and all stumps, roots, and vegetation within the limits of construction. Roots shall be removed to at least 3 feet below proposed finish grade or as approved by the Engineer.

3.13 BACKFILL AND SURFACE RESTORATION

- A. Backfill excavations per Section 31 20 00.
- B. Restore existing surface improvements of all holes remaining after removal of existing improvements to their existing position and condition as approved by the Engineer.
- C. Remove all debris from the site and leave the site in a neat and orderly condition to the approval of the Engineer. Dispose debris off site at a location approved by the Engineer.
- D. Remove all barricades: All protective fencing including posts and fabric shall be removed from the site at the completion of the work at the Contractor's expense.

3.14 SITE CLEANUP

- A. Remove debris, temporary fencing, and barricades upon completion of Work.

END OF SECTION

DIVISION 03

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 03 01 30
CONCRETE REPAIR MORTAR

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Repair mortar for vertical, overhead or horizontal patch and repair of existing substrate.
- B. Related Sections:
 - 1. 03 20 00 Concrete Reinforcing

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation for each material and product used. Include manufacturer's Material Safety Data Sheets.

1.03 REFERENCES

- A. ASTM C 109: Compressive Strength of Hydraulic Mortars
- B. ASTM C 191: Setting Time of Hydraulic Cement
- C. ASTM C 882: Slant Shear Bond Strength
- D. ASTM C 928: Rapid Hardening Cementitious Materials for Concrete Repairs
- E. Utah D.O.T. Bond/Slant Shear Testing.

1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: The manufacturer shall be a company with at least fifteen years of experience in the manufacture and marketing of pre-packaged cementitious repair materials.
- B. Installer's Qualifications: The contractor shall be qualified to perform the work specified by reason of experience.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area. Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Polymer modified, shrinkage compensated, rapid setting high strength, hydraulic cement based repair mortar. Comply with the following:
 - 1. Manufacturer: Fastset™ Repair Mortar (#1241) as manufactured by the QUIKRETE® Companies, One Securities Centre, 3490 Piedmont Road, NE, Suite 1300, Atlanta, GA 30305; telephone (404) 634-9100. Or equal.
 - 2. Performance and Physical Properties at 73 degrees F (23°C) and 50 percent relative humidity:
 - a. Compliance: ASTM C 928 R-2 specifications
 - b. Setting time, ASTM C 191: 20-40 minutes
 - c. Compressive Strength, ASTM C 109 Modified: 2000 psi (13.8 MPa) @ 3 hours, 4000 psi (27.6 MPa) @ 24 hours, 5000 psi (34.5 MPa) @ 7 days and 6000 (41.4 MPa) @ 28 days
 - d. Slant Shear Bond Strength, ASTM C 882: 1000 psi (6.9 MPa) @ 24 hours, 1500 psi (10.3 MPa) @ 7 days and 2500 psi (17.2 MPa) @ 28 days
 - e. Consistency: Gel-like
 - f. Unit weight lb/cu ft: ~128 lbs (2051 kg/m³)

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas landscaping from contact due to mixing and handling of materials.

3.02 SURFACE PREPARATION

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Remove all spalled and unsound concrete from area to be repaired. If rusty reinforcing steel is present; it must be abrasive blasted to remove rust.
 - 2. Remove enough material to completely expose reinforcing steel.
 - 3. Large vertical or overhead patches deeper than 2" (50 mm) should contain reinforcing steel. Additional steel should be inserted using appropriate techniques, if none is present.
 - 4. Clean surface to be repaired of all materials including dust, oil, dirt and grease.
 - 5. Dampen with clean water before patching and remove standing water.

3.03 MIXING

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Material should be mechanically mixed for approximately 3 minutes using a five gallon (19L) bucket with a ½" (12 mm) drill and paddle mixer.

2. Add 1 gallon + 3 pints (5.2L) of clean water for each 60lb (27.2 Kg) bag. Add the powder to the water and mix to a stiff gel-like consistency. If mix is too firm, add water sparingly to reach the desired consistency. Do not mix more material than can be placed in 15 minutes.
3. For repair deeper than 2" (51 mm), up to 30 lbs (13.6 Kg) of clean, high quality ½" (12 mm) gravel may be added to the mix per 60-lb (27.2 Kg) bag.
4. Do not re-temper with additional water.

3.04 APPLICATION

- A. Comply with manufacturer's printed instructions and the following:
 1. Material should be trowel applied to a damp surface.
 2. Apply a thin layer with heavy trowel pressure and then build up to the desired thickness. Material obtains high bond strength without the use of bonding adhesives or acrylic additives.
 3. After initial set, the material may be trimmed and shaped to match the contours of existing patch area.
 4. Do not apply if temperatures are below 40°F (4°C) or are expected to go below 32°F(0°C) within a 24 hour period. Use cold water in hot weather or hot water in cold weather to achieve desired grout temperature.

3.05 CURING

- A. No special procedures are required. During the first 24 hours, keep the patch covered or damp to prevent excessive loss of water.

3.06 CLEANING

- A. Remove excess material before material cures. If material has cured, remove using mechanical methods that will not damage substrate.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Permanent and temporary forms for structural and architectural cast-in-place concrete.
- B. Related Sections:
 - 1. 03 20 00 Concrete Reinforcing
 - 2. 03 30 00 Cast-in-Place Concrete
 - 3. 31 23 19 Dewatering
 - 4. 31 20 00 Earthwork

1.02 DESIGN REQUIREMENTS

- A. The design of all concrete forms, falsework, and shoring shall be the responsibility of the Contractor and the design and installations of these items shall comply with all local, State, and Federal regulations.

1.03 QUALIFICATIONS

- A. Except as otherwise specified, or accepted in writing by the Engineer, only forming systems by manufacturers with a minimum of five years' experience shall be considered.

1.04 SUBMITTALS

- A. Information on the Contractor's proposed forming system shall be submitted in such detail as the Engineer may require to assure themselves that the intent of the Specifications can be complied with by the use of the proposed system.
- B. Shop Drawings: formwork showing Manufacturer's installation instructions and acknowledgement that products submitted meet requirements of standards referenced.
- C. Manufacturer and type of proposed form materials, form ties and form coating materials.

PART 2 PRODUCTS

2.01 FORMS

- A. Forms shall be wood or steel. Forms shall be tight to prevent leakage, free of rust and straight without dents or warps in order to attain uniform dimensions and dangles as shown on Project Drawings.
- B. Wales shall be formed of double 2" x 4" lumber as a minimum. Studding and wales shall contain no loose knots and shall be free of warps, cups, and bows.
- C. The number of reuses of forms will depend upon the durability of the surface coating or overlay used, and the Contractor's ability to maintain the forms in a condition, which will produce a flat, smooth, hard, dense finish on the concrete when stripped. Alternate combinations of plywood thickness and stud spacing may be submitted to the Engineer for review and acceptance.

2.02 FORM TIES

- A. Form ties for the forming system selected shall be the cone-snap tie or flat bar type as manufactured by a recognized manufacturer of concrete forming equipment. Forms shall be tied together at not less than 2' centers vertically and horizontally. Wire ties or wood spreaders of any form shall not be used. Ties shall be of a type that will accurately tie, lock, and spread the forms. Forms and ties shall be designed to withstand concrete pressures without bulging, spreading, or lifting of the forms. The form tie shall be of such design that when the forms are removed no metals shall be within 3/4" of any surface. Holes in the forms for ties shall not allow leakage during placement of concrete.

PART 3 EXECUTION

3.01 FORM INSTALLATION, BRACING AND ALIGNMENT

- A. Forms shall be so constructed that the finished concrete will conform to the shapes, lines, grades, and dimensions indicated on the Plans. It is intended that the surface of the concrete after stripping shall present a smooth, hard, and dense finish that will require a minimum amount of finishing. Sufficient number of forms shall be provided so that the work may be prosecuted rapidly and present a uniform appearance in form patterns and finish. Forms shall be clean and free from all dirt, debris, concrete, etc. and shall be coated with an acceptable form oil if required, prior to use or reuse.
- B. It shall be the Contractor's responsibility to limit deviations in line and grade to tolerances which will permit proper installation of all structurally embedded items or mechanical and electrical equipment and piping.
- C. All formwork shall be securely braced, supported, tied down, or otherwise held in place to prevent any movement of formwork. Adequate provisions shall be made for uplift pressure, lateral bulging of forms, and deflection of forms for slabs and beams.

- D. When a second lift is placed on hardened concrete, special precautions shall be taken in the form work at the top of the old lift and bottom of the new lift to prevent spreading, vertical or horizontal displacement of forms; and to prevent grout "bleeding" on finished concrete surfaces. Pipe stubs, anchor bolts, and other embedded items shall be set in the forms where required.
- E. Concrete beams or slabs shall not be placed directly on masonry walls so that any of the weight of the concrete either before or after the concrete has set is on the masonry wall, unless the masonry wall is identified on the Plans as "bearing wall."
- F. No concrete shall be placed until all forms have been thoroughly checked by the Contractor for alignment, level, strength, and to assure accurate location of all mechanical and electrical inserts or other embedded items. All cracks, openings, or offsets at joints in the formwork which are 1/16" or larger shall be closed by tightening the forms or by filling with an acceptable crack filler.

3.02 FORM REMOVAL

- A. Vertical forms shall remain in place a minimum of 24 hours after the concrete is placed. If, after 24 hours, the concrete is sufficiently hardened to resist surface or other damage, the vertical forms may be removed. Other forms supporting concrete and shoring shall remain in place as follows:
 - Sides of footings: 24 hours (minimum)
 - Slabs, beams, and girders: 10 days (minimum) and until concrete strength reaches 85 percent of the specified strength
 - Shoring for slabs, beams, and girders: 10 days (minimum) and until concrete strength reaches 85 percent of the specified strength
 - Wall bracing: until concrete strength of the slab laterally supporting the wall reaches 85 percent of the specified strength
- B. Forms shall not be removed from the concrete which has been placed with outside ambient air temperature below 50°F until the concrete has attained 85 percent of specified strength as determined by test cylinders stored in the field under equivalent conditions as the concrete structure. No heavy loading on green concrete (85 percent of specified strength) will be permitted. Immediately after forms are removed, the surface of the concrete shall be carefully examined, and any irregularities in the surface shall be repaired and finished as specified hereinafter.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 03 15 00

CONCRETE BONDING ADHESIVE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Repair mortar for vertical, overhead or horizontal patch and repair of existing substrate.
- B. Related Sections:
 - 1. 03 01 30 Concrete Repair Mortar
 - 2. 03 20 00 Concrete Reinforcing
 - 3. 03 30 00 Cast-in-Place Concrete
 - 4. 03 62 00 Non-Shrink Grout

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation for each material and product used. Include manufacturer's Material Safety Data Sheets.

1.03 REFERENCES

- A. ASTM C 882: Slant Shear Bond Strength

1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: The manufacturer shall be a company with at least fifteen years of experience in the manufacture and marketing of products specified herein.
- B. Installer's Qualifications: The contractor shall be qualified to perform the work specified by reason of experience.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area. Protect from freezing. Do not store in areas over 100°F (38°C).
- C. Handle products in accordance with manufacturer's printed recommendations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. ASTM C 1059 Type I and Type II Ethylene Polyvinyl Acetate Co - Polymer Bonding Agent for Portland Cement Repair Mortars. Comply with the following:
 - 1. Manufacturer: Concrete Bonding Adhesive (No. 9902) as manufactured by the QUIKRETE® Companies, One Securities Centre, 3490 Piedmont Road, NE, Suite 1300, Atlanta, GA 30305; telephone (404) 634-9100. Or Equal.
 - 2. Performance and Physical Properties at 73 degrees F (23 degrees C) and 50 percent relative humidity.
 - a. Application:
 - 1) Paint-on: Spray, brush roller or squeeze application
 - 2) Slurry coat: trowel, brush, roller or squeegee application
 - b. Bond Strength, ASTM C 1059
 - 1) Type I (paint-on): > 400 psi (2.8 Mpa)
 - 2) Type II (slurry coat): > 1250 psi (8.6 MPa) @ 20 days.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas landscaping from contact due to mixing and handling of materials.

3.02 SURFACE PREPARATION

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Remove all spalled and unsound materials from area to be repaired.
 - 2. Clean surfaces of bond-inhibiting materials including mildew, dust, dirt, oil, grease and standing water.

3.03 MIXING

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Paint on Application: Apply undiluted, shake well before using
 - 2. Slurry Coat Applications:
 - a. Blend approximately 2 parts Portland Cement and 1 part Concrete Bonding Adhesive.
 - b. Pour the powder into the adhesive and mix until a lump free consistency is achieved.
 - 3. Primer Applications: Dilute 1 part Concrete Bonding Adhesive with 2 parts of clean water, stir well before using.

3.04 APPLICATION

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Paint on Application
 - a. Apply to surface with a brush, roller or spray to the thickness of a coat of paint.
 - b. Place new concrete, topping mixes, Portland cement, plaster mixes or patches as soon as adhesive is dry. Gypsum plasters and finish plasters should be applied while the adhesive is still tacky.
 - c. Base coat plasters must be dry before applying adhesive.
 - d. Tools, brushes and other application accessories should be immediately cleaned with warm soapy water. Use hot water to clean-up any drippings.
 - 2. Slurry Coat application
 - a. Apply a thin layer of slurry onto the properly prepared substrate using a trowel, brush or squeegee. Rub the slurry thoroughly into the surface.
 - b. Apply the topping or repair material before the slurry dries.
 - 3. Primer Application
 - a. Apply with broom, roller or garden sprayer to saturate the surface. Clean tools and equipment immediately with warm soapy water.
 - b. Low porosity concrete in good condition requires one coat. Porous concrete requires 2 coats.
 - c. Allow Concrete Bonding Adhesive to become dry to the touch. If there is not visible sheen to the concrete apply a second coat and allow to dry. A drying time of 2-3 hours is typical.
 - d. Toppings may be applied up to 48 hrs after Concrete Bonding Adhesive has been applied. Keep the coated area clean and dry

3.05 CLEANING

- A. Remove excess material before material cures. If material has cured, remove using mechanical methods that will not damage substrate.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Reinforcement of all types to increase the structural capabilities of concrete.
- B. Related Sections:
 - 1. 03 10 00 Concrete Forming and Accessories
 - 2. 03 30 00 Cast-in-Place Concrete
 - 3. 31 23 19 Dewatering
 - 4. 31 20 00 Earthwork

1.02 REFERENCES

- A. ASTM International
 - 1. A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- B. American Concrete Institute
 - 1. 318: Building Code Requirements for Structural Concrete and Commentary
 - 2. SP66: ACI Detailing Manual
- C. American Welding Society
 - 1. D1.4: Structural Welding Code - Reinforcing Steel

PART 2 PRODUCTS

2.01 REINFORCEMENT

- A. All reinforcing steel shall be new material, of the quality specified, free from excessive rust or scale or any defects affecting its usefulness.

2.02 REINFORCING BARS

- A. Reinforcing bars to be embedded in concrete or masonry shall be Grade 60 deformed bars conforming to ASTM A615 and shall include the supplementary requirements. No field bending of bars will be allowed. All reinforcement bars lacking grade identification marks shall on delivery be accompanied by a manufacturer's guarantee of grade which will identify variations.
- B. All bars shall be new stock free from rust scale, loose mill scale, excessive rust, dirt, oil, and other coatings which adversely affect bonding capacity when placed in the work. A thin coating of red rust resulting from short exposure will not be considered

objectionable, but any bars having rust scale, loose mill scale, or a thick rust coat shall be thoroughly cleaned, or shall be rejected and removed from the premises upon order of the Engineer.

- C. Bars shall be delivered bundled and tagged with identifying tags.
- D. Bars shall be cut and bent in accordance with the provisions of ACI SP66 and ACI 318. All bars shall be bent cold. Bars shall be free from defects and kinks and from bends not indicated on the Plans.
- E. Reinforcing bars shall be welded where indicated on the Plans or acceptable to the Engineer. Welding shall be performed in accordance with AWS D1.4 "Structural Welding Code Reinforcing Steel."
- F. Shop drawings on reinforcing steel detailed by the Contractor in accordance with the Contract Documents will not be reviewed and returned. The Contractor shall supply the Engineer with a copy of all reinforcing steel detail drawings. Changes to the Contract Documents made by the Contractor in reinforcing steel shop drawings shall be called out in the letter of submittal. Such changes will not be acceptable unless the Engineer has expressed consent to such changes in writing.

PART 3 EXECUTION

3.01 PLACING BAR REINFORCEMENT

- A. Reinforcing bars shall be accurately placed and adequately secured in position. Bars at splices shall overlap as specified or indicated on the Plans. If the lap splice length is not specified or indicated on the Plans, bars shall be lap spliced in accordance with ACI 318. Lap splices for masonry, if not specified or indicated on the Plans or specifications, shall be in accordance with the Uniform Building Code. Bar supports shall be galvanized steel, shall conform to ACI 315, and shall be furnished in sufficient number to prevent sagging and to support loads during construction, but in no case shall the quantities and locations of the supports be less than indicated in ACI SP66. Bar supports, where used in slabs which will be exposed to view, shall be equipped with plastic tips. Reinforcing for concrete placed on the ground shall be supported by standard manufactured chairs, with steel plates for resting on the ground. No use shall be made of brick, broken concrete masonry units, spalls, rocks, or similar material for supporting reinforcing steel.
- B. Unless otherwise indicated on the Plans, reinforcement shall be placed to provide the thickness of protective concrete covering as indicated on the Typical Details. If not indicated on the Plans or Typical Details protective covering shall be in accordance with ACI 318.
- C. The Contractor shall submit to the Engineer for review and acceptance samples of all chairs he proposes to use along with a letter stating where each type chair will be used. No concrete shall be placed until this prior acceptance has been obtained.

3.02 TYING BAR REINFORCEMENT

- A. Bars shall be fastened securely in place with annealed steel wire ties. Bars shall be tied sufficiently often to prevent shifting. There shall be at least three ties in each bar length (does not apply to dowel laps or to bars shorter than 4', unless necessary for rigidity). Slab bars shall be tied at every intersection around the periphery of the slab. Wall bars and slab bar intersections other than around the periphery shall be tied at not less than every fourth intersection, but at not greater than the following maximum spacings:

	Slab Bars, <u>inches</u>	Wall Bars, <u>inches</u>
Bars No. 5 and smaller	60	48
Bars No. 6 through No. 9	96	60
Bars No. 10 and No. 11	120	96

- B. The above tying requirements do not apply to reinforcement for masonry. For masonry, vertical bars shall be held in position at top and bottom and at intervals not exceeding 192-bar diameter.
- C. Where bars are to be lapped spliced at joints in the concrete, all bars shall project from the concrete first placed, a length equal to the lap splice length indicated on the Plans. Where the lap splice length is not indicated on the Plans, then the lap splice length shall be as specified in ACI-318 and this Division. All concrete or other deleterious coating shall be removed from dowels and other projecting bars by wire brushing or sandblasting before the bars are embedded in a subsequent concrete placement.
- D. The Plans and Typical Details contain general notes concerning amount of reinforcement and placing, details of reinforcement at wall corners and intersections, and details of extra reinforcement around openings in concrete.

3.03 PROTECTION OF EXPOSED REBAR

- A. Any rebar which is exposed due to cutting of concrete shall be removed to a depth of 1-2" into face of concrete and the resulting hole shall be grouted flush with concrete face.

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Cast-in-place concrete composed of Portland cement, fine aggregate, coarse aggregate, and water.
- B. Related Sections:
 - 1. 03 10 00 Concrete Forming and Accessories
 - 2. 03 20 00 Concrete Reinforcing
 - 3. 31 23 19 Dewatering
 - 4. 31 20 00 Earthwork

1.02 REFERENCES

- A. ASTM International
 - 1. C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field;
 - 2. C33: Standard Specification for Concrete Aggregates;
 - 3. C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens;
 - 4. C40: Standard Test Method for Organic Impurities in Fine Aggregates for Concrete;
 - 5. C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete;
 - 6. C88: Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate;
 - 7. C94: Standard Specification for Ready-Mixed Concrete;
 - 8. C114: Standard Test Methods for Chemical Analysis of Hydraulic Cement;
 - 9. C117: Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing;
 - 10. C123: Standard Test Method for Lightweight Particles in Aggregate;
 - 11. C125: Standard Terminology Relating to Concrete and Concrete Aggregates;
 - 12. C131: Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine;
 - 13. C142: Standard Test Method for Clay Lumps and Friable Particles in Aggregates;
 - 14. C143: Standard Test Method for Slump of Hydraulic-Cement Concrete;
 - 15. C150: Standard Specification for Portland Cement;
 - 16. C172: Standard Practice for Sampling Freshly Mixed Concrete
 - 17. C173: Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method;
 - 18. C260: Standard Specification for Air-Entraining Admixtures for Concrete
 - 19. C295: Standard Guide for Petrographic Examination of Aggregates for Concrete;

20. C289: Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
 21. C309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete;
- B. American Concrete Institute (ACI)
1. 318: Building Code Requirements for Structural Concrete and Commentary
 2. 117: Specifications for Tolerances for Concrete Construction and Materials and Commentary

1.03 WORKMANSHIP AND METHODS

- A. Concrete work, including detailing of reinforcing, shall be in accordance with the best standard practices and as set forth in the ACI Building Code, Manuals, and Recommended Practices.
- B. All concrete materials shall be delivered, stored, and handled as to prevent damage to the materials and the inclusion of foreign substances. Packaged materials shall be delivered and stored in original containers until ready for use. Material containers or materials showing evidence of water or other damage shall be rejected.

1.04 MEASUREMENTS OF MATERIALS

- A. Materials shall be measured by weighing, except as otherwise specified or where other methods are specifically authorized in writing by the Engineer. The apparatus provided for weighing the aggregates and cement shall be suitably designed and constructed for this purpose. Cement shall be weighed separately. The accuracy of all weighing devices shall be such that successive quantities of the individual item can be measured to within 1 percent of the desired amount of that item. Cement in unbroken standard packages (sack) need not be weighed, but bulk cement and fractional packages shall be weighed. The mixing water shall be measured by volume or by weight. The water measuring device shall be capable of control of water quantities to an accuracy of 1 percent of the desired amount. All measuring or weighing devices shall be subject to review and acceptance by the Engineer, and shall bear a valid seal of the Sealer of Weights and Measures having jurisdiction.

1.05 SUBMITTALS

- A. Concrete Mix:
1. Prior to placement of concrete the Contractor shall submit to the Engineer for review and acceptance full details, including mix design calculations for the concrete mix he proposes to use for each class of concrete.
 2. The Contractor shall submit laboratory compression test data performed within the past six months provided by the concrete supplier to verify concrete strength and mix requirements. Each past-test shall provide data regarding concrete mix, admixtures, and 7-day and 28-day results.
 3. In the submittal, the Contractor must clearly identify which past mix will be used for each class of concrete to be used on this project.
 4. After acceptance, the mixes shall not at any time be changed without reacceptance by the Engineer, except that at all times the batching of water

shall be adjusted to compensate for the free moisture content of the fine aggregate. The total water content of each of the type concretes shall not exceed those listed in Table A of this Division. Satisfactory means shall be provided at the batching plant for checking the moisture content of the fine aggregate. The details of concrete mixes submitted for review shall include information on the correction of the batching for varying moisture contents of the fine aggregate.

5. If there is a change in the aggregate source, or if there is a change in aggregate quality from the same source, the Contractor shall submit to the Engineer for review and acceptance a new set of design mixes covering each class of concrete, and a new trial batch and test program shall be undertaken as hereinbefore specified. Each new trial batch and test program shall be at the expense of the Contractor.

B. Mill Tests:

1. Certified copies in triplicate of mill tests representative of each shipment of cement shall be furnished to the Engineer for verification of compliance with these Specifications. Mill tests on cement shall include a report on alkali content.

C. Delivery Tickets

1. Provide delivery tickets for ready-mix concrete or weighmasters certificate per ASTM C94, including weights of cement and each size aggregate and amount of water added at the plant and record of pours. Record the amount of water added on the job on the delivery ticket. Water added at the plant shall account for moisture in both coarse and fine aggregate.

PART 2 PRODUCTS

2.01 GENERAL

- A. Except as otherwise specified, concrete shall be composed of Portland cement, fine aggregate, coarse aggregate, and water so proportioned and mixed as to produce a plastic, workable mixture in accordance with all requirements of these Specifications and suitable to the specific conditions of placement. The proportions of materials shall be such as to secure the lowest water-cement ratio which is consistent with good workability, a plastic, cohesive mixture, and one which is within the specified slump range. The proportion of fine and coarse aggregate shall be such as not to product harshness in placing nor honeycombing in the structures.
- B. Concrete Proportions and Consistency
1. The concrete shall be of such consistency and composition that it can be worked readily into the corners and angles of the forms and around the reinforcement without excessive vibration and without permitting the materials to segregate or free water to collect on the surface.
 2. The ratio of coarse aggregate to fine aggregate shall not be less than 1.0 nor more than 2.0 for all concrete.
 3. To avoid unnecessary or haphazard changes in consistency, the aggregate shall be obtained from a source which will insure uniform quality, moisture content, and grading during any single day's operation. Aggregate shall be

delivered to the Work and handled in such a manner that variations in moisture content will not interfere with the steady production of concrete of the specified degree of uniformity and slump.

4. See Table A of this Specification for the strength requirements, concrete mix water to cement ratio, minimum cement content, and slump range for Class A and C concrete. For the gradation requirements for Class B concrete see Table B.
5. It is the Contractor's responsibility to control and adjust the concrete batch weights so as to secure the maximum yield, yet at all times the Contractor shall maintain the proportions of the concrete mix within the specified limits.
6. If it is required, in the opinion of the Engineer, the mixture shall be modified within the limits set forth in these Specifications.

C. Classes of Concrete

1. Concrete used shall be of three classes, herein referred to as Classes A, B, and C, which shall be as specified herein and which shall be used in the respective places called for in these Specifications. These classes of concrete shall have a minimum weight of 140 pounds per cubic foot. Class C concrete may be used for fill for unauthorized excavation, for thrust blocks and ground anchors for piping, for bedding of pipe, when noted on the Plans. Class B concrete will be used for sidewalk, curb and gutter, valley gutters and driveway aprons. All other concrete, unless specified or noted otherwise, shall be Class A concrete.

TABLE "A"

CONCRETE WITH AIR ENTRAINMENT				
Class	Compressive Strength at 28 days (psi)	Max. Net Water to Cement Ratio by Weight*	Min. Cement Per Yard of Concrete (lbs)	Consistency Range in Slump (inches)
A	4,000	0.48	658	2 to 4**
C	2,500	0.62	423	3 to 6
* See Part 2.01.D - Admixtures				
** Slump for Slabs, decks, walks, and beams shall not be more than 3½".				

TABLE "B"

CLASS B 7-SACK BATCH WITH LAMPBLACK	PORTLAND CEMENT CONCRETE	
Sieve Size	Percent Passing Operating Range	Percent Passing Contract Compliance
3/8"	100	100
No. 4	95-100	93-100
No. 8	65-95	61-99
No. 16	52-72	49-75
No. 30	26-44	23-47
No. 50	6-18	3-21
No. 100	2-10	1-12
No. 200	0-5	0-7

Add 1lb lampblack per cubic yard.
6.0% $\pm$ 1% air entrainment.
Slump shall not exceed 4".

2. Any concrete that is pumped shall meet all the requirements of these Specifications. In no case shall concrete be placed which shows a slump outside the limits indicated in the table.
3. Classes B and C concrete shall be made with Type II low alkali cement. Class A concrete shall be made with Type III low alkali cement. See Admixtures for allowable admixtures.

D. ADMIXTURES

1. Admixtures of any type, except as otherwise specified, shall not be used unless written authorization has been obtained from the Engineer. Admixtures used shall be compatible with the concrete and other admixtures. Admixtures containing chlorides calculated as chloride ion in excess of 0.5 percent by weight shall not be used. Admixtures shall be used in accordance with the manufacturer's recommendations and shall be added separately to the concrete mix.

E. Custom Colors

1. Unless otherwise indicated on plans and specs no coloration shall be added.
2. Concrete used for conduit encasement shall contain three (3) pounds of Red Oxide per sack of cement.

2.02 AGGREGATE

A. General

1. All concrete aggregate shall be sound, uniformly graded, and free of deleterious material in excess of the allowable amounts specified.
2. The Contractor shall furnish the Engineer certified copies in triplicate of commercial laboratory tests of all samples of concrete aggregates submitted. Tests on concrete aggregates shall indicate as a minimum all specified tests. All concrete aggregate tests shall be at the Contractor's expense.
3. Aggregate shall be sampled and graded in accordance with ASTM D 75 and C 136.
4. Sieves for testing grading of aggregates shall have square openings.
5. Sieve analyses of the fine and coarse aggregates being used shall be furnished the Engineer in triplicate at any time there is a significant change in the grading of the materials, and in any event, shall be furnished at least every three weeks. If such sieve analyses indicate a significant change in the materials, the Engineer may require that a new mix design be submitted for review and acceptance before further placing of concrete.
6. If either fine or coarse aggregate is to be batched from more than one bin, analyses shall be furnished for each bin, and a composite analysis made up from these, using the proportions of materials to be used in the mix.
7. The unit weight of fine and coarse aggregate shall be of a unit weight which will produce in place concrete with a weight of not less than 140 pounds per cubic foot.

B. FINE AGGREGATE

1. Fine aggregate for concrete or mortar shall consist of clean, natural sand or of sand prepared from crushed stone or crushed gravel. Deleterious substances shall not be present in excess of the following percentages by weight of contaminating substances. In no case shall the total exceed 3 percent.

	Test Method	Percent
Removed by decantation (dirt, silt, etc.)	ASTM C117	3
Shale or Chert	ASTM C295	1
Clay Lumps	ASTM C142	1

2. Fine aggregate shall not contain strong alkali nor organic matter which gives a color darker than the standard color when tested in accordance with ASTM C 40. Fine aggregate shall have a fineness modulus not less than 2.50 nor greater than 3.00 when tested in accordance with ASTM C 125. Except as otherwise specified, fine aggregate shall be graded from coarse to fine in accordance with the requirements of ASTM C 33. Aggregate soundness shall comply with the requirements of ASTM C 33 when tested in accordance with ASTM C 88. Aggregate shall comply with the reactivity requirements contained in ASTM C-33 when tested in accordance with ASTM C-289.

C. COARSE AGGREGATE

1. Coarse aggregate shall consist of gravel or crushed stone made up of clean, hard, durable particles free from calcareous coatings, organic matter, or other foreign substances. Thin or elongated pieces having a length greater than five times the average thickness shall not exceed 15 percent by weight. Deleterious substances shall not be present in excess of the following percentages by weight, and in no case shall the total of all deleterious substances exceed 2 percent.

	Test Method	Percent
Shale or Chert	ASTM C295	1
Coal and lignite	ASTM C 123	1/4
Clay Lumps and Friable Particles	ASTM C142	1/4
Materials finer than #200 Sieve	ASTM C117	2*

* Except that when material finer than No. 200 sieve consists of crusher dust, the maximum amounts shall be 1 percent.

2. Aggregate when tested in accordance with ASTM C 88 for soundness shall have a loss not greater than 10 percent when tested with sodium sulfate.
3. Abrasion loss of coarse aggregate shall not exceed 45 percent after 500 revolutions when tested in accordance with ASTM C 131. Coarse aggregate reactivity shall not exceed the limits specified in the appendix of ASTM C 33 when tested with accordance with ASTM C 289.

4. Except as otherwise specified or authorized in writing by the Engineer, coarse aggregate shall be graded as specified in ASTM C 33, Size No. 57. Coarse aggregate for Class CE concrete for encasement of electrical conduits shall be graded as specified in ASTM C 33, Size NO. 8; concrete utilizing this aggregate will be equal to Class C concrete in all other respects, and will be designated as Class CE.

2.03 WATER

- A. Water for concrete, washing aggregate, and curing concrete shall be clean and free from oil and deleterious amounts of alkali, acid, organic matter, or other substances. Water shall not contain more than 1,000 milligrams per liter of chlorides calculated as chloride ion, nor more than 1,000 milligrams per liter of sulfates calculated as sulfate ion for conventional reinforced concrete. Water for pre-stressed or post-tensioned concrete shall not contain more than 650 milligrams per liter of chlorides calculated as chloride ion, nor more than 800 milligrams per liter of sulfates calculated as sulfate ion.

2.04 PORTLAND CEMENT

- A. Except as otherwise specified all Portland cement shall conform to the specifications and test for Portland cement ASTM C 150, Types II or III, low alkali. Low alkali Portland cement shall contain not more than 0.6 percent total alkali. The word "alkali" shall be taken to mean the sum of sodium oxide and potassium oxide calculated as sodium oxide. The determination for total alkali shall be made by the method set forth in ASTM C 114. Only one brand of Portland cement shall be used for exposed concrete in any individual structure.

2.05 AIR ENTRAINING ADMIXTURE

- A. All concrete shall contain 5 percent, plus or minus 1 percent, (unless the mix specified in Section 2.01 calls for more), entrained air of evenly dispersed air bubbles at the time of placement. The air-entraining agent shall contain no chlorides and shall conform to ASTM C 260. The air-entraining agent shall be added to the batch in a portion of the mixing water. The solution shall be batched by means of a mechanical batcher capable of accurate measurement.
- B. Concrete that does not meet the Specification requirements as to air entrainment shall not be used, and shall be removed from the job. The Engineer may at any time test the percent of entrained air in the concrete received on the job. Air entrainment in the concrete shall be tested in accordance with ASTM C 173.

PART 3 EXECUTION

3.01 GENERAL

- A. It is the intent of this Specification to secure for every part of the Work concrete and grout of homogeneous structure, which when hardened will have the required strength, watertightness, and resistance to weathering.

- B. It is recognized that some surface hairline cracks and crazing will develop in the concrete surfaces. Construction, contraction, and expansion joints have been positioned in structures, and curing methods specified, for the purpose of reducing the number and size of these expected cracks, due to the normal expansion and contraction expected from the specified concrete mixes. Class A and Class B concrete shall be watertight. Cracks which develop in walls or slabs shall be repaired. Cracks which show any signs of leakage shall be repaired until all leakage is stopped.
- C. Pipes, anchor bolts, steps, reglets, castings, and other inserts, as indicated on the Plans or as required, shall be encased in the concrete. Dovetail anchors or ties shall be used in conjunction with the slots or inserts for the various materials as specified under their respective sections and as may be necessary for the required work.

3.02 JOINTS AND BONDING

- A. As far as practicable the concrete work shall be constructed as a monolith. The locations of contraction, construction, and other joints are indicated on the Plans or specified herein. Where not specified or indicated otherwise, all slabs and walls shall have construction joints at intervals not greater than 30'. In order to preserve the strength and watertightness of the structures, no other joints shall be made except as the Engineer may authorize. At construction joints, the concrete in place shall be thoroughly cleaned of laitance, grease, oil, mud, dirt, curing compounds, mortar droppings, or other objectionable matter by means of a bush hammer or heavy sandblasting, after which the surfaces shall be washed just prior to the succeeding concrete placement. Immediately prior to resuming concrete placing operations, a bed of grout not less than 2" in thickness nor more than 1" in thickness shall be thoroughly spread over the horizontal joint surfaces. Keyways in joints shall be provided as indicated on the Plans. Material for keyways shall be steel, plastic or lumber treated with form release coating, applied in accordance with the manufacturer's published instructions.
- B. Construction joints shall be washed free of sawdust, chips, and other debris after forms are built and immediately before the concrete placement. Should formwork confine sawdust, chips, or other loose matter in such a manner that it is impossible to remove them by flushing with water, a vacuum cleaner shall be used for their removal, after which the cleaned surfaces shall be flushed with water. A cleanout hole shall be provided at the base of each wall and column for inspection and cleaning.
- C. In any case where it is necessary to repair concrete by bonding mortar or new concrete to concrete which has reached its initial set, the surface of the set concrete shall first be coated with epoxy bonding agent Concessive No. 1001 LPL as manufactured by Adhesive Engineering; Sikadur Hi-Mod as manufactured by Sika Chemical Corporation; or equal. This material shall be applied in accordance with the manufacturer's published instructions. Bonding agent will not be required for filling form tie holes or for normal finishing and patching of similar sized small defects.

- D. Expansion, contraction, and construction joints shall be constructed where and as indicated on the Plans. Waterstops, expansion joint material, synthetic rubber sealing compound, and other similar materials, shall be as specified elsewhere herein.
- E. The Contractor shall schedule the placing of concrete in such a manner as to complete any single placing operation to a construction, contraction, or expansion joint. Special care shall be taken to insure that concrete is well consolidated around and against waterstops and that waterstops are secured in the proper position.

3.03 MIXING CONCRETE

A. General

- 1. Mixing equipment shall be subject to review and acceptance by the Engineer. Mixers may be of the stationary plant, paver, or truck mixer type. Adequate equipment and facilities shall be provided for accurate measurement and control of all materials and for readily changing the proportions of the material.
- 2. The mixing equipment shall be capable of combining the aggregates, cement, and water within the specified time into a thoroughly mixed and uniform mass and of discharging the mixture without segregation.
- 3. Concrete mixing plant and equipment shall be maintained in good working order and shall be operated at the loads, speeds, and timing recommended by the manufacturer or as specified.
- 4. The cement and aggregate shall be proportioned by weight.

B. Machine Mixing

- 1. The batch plant shall be capable of controlling the delivery of all material to within 1 percent by weight of the individual material. If bulk cement is used, it shall be weighed on a separate visible scale which will accurately register the scale load at any stage of the weighing operation from zero to full capacity.
- 2. Cement shall not come in contact with aggregate or with water until the materials are in the mixer ready for complete mixing with all mixing water. The procedure of mixing cement with sand or with sand and coarse aggregate for delivery to the jobsite for final mixing and addition of mixing water will not be permitted. Retempering of concrete will not be permitted. The entire batch shall be discharge before recharging. The volume of the mixed material per batch shall not exceed the manufacturer's rated capacity of the mixer.
- 3. Mixing shall be done in batch mixers of acceptable type. Each mixer shall be equipped with a device for accurately measuring and indicating the quantity of water entering the concrete, and the operating mechanism shall be such that leakage will not occur when the valves are closed. Each mixer shall be equipped with a device for automatically measuring, indicating, and controlling the time required for mixing. This device shall be interlocked to prevent the discharge of concrete from the mixer before the expiration of the mixing period.
- 4. Transit-mixed concrete shall be mixed and delivered in accordance with ASTM C 94. The total elapsed time between the addition of water at the batch plant and discharging the completed mix shall not exceed 90 minutes nor shall the elapsed time at the jobsite exceed 30 minutes. Under conditions contributing to quick setting, the total elapsed time permitted may be reduced by the Engineer. Each truck mixer shall be equipped with a device for counting the

number of revolutions of the drum which device shall be interlocked so as to prevent the discharge of concrete from the drum before the required number of turns. After the drum is once started, it shall be revolved continuously until it has completely discharged its batch. Water shall not be admitted to the mix until the drum has started revolving. The right is reserved to increase the required minimum number of revolutions or to decrease the designated maximum number of revolutions allowed, if necessary, to obtain satisfactory mixing, and the Contractor will not be entitled to additional compensation because of such increase or decrease.

5. In the case of other types of mixers, mixing shall be as follows: The concrete shall be mixed until there is uniform distribution of the materials, and the mixer shall be discharged completely before being recharged. Neither speed nor volume loading of the mixer shall exceed the manufacturer's recommendations. Mixing shall be continued for a minimum of 1-1/2 minutes after all materials are in the drum, and for batches larger than 1 cubic yard the minimum mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof.

3.04 CONVEYING AND PLACING CONCRETE

- A. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of the materials.

3.05 PLACING AND CONSOLIDATION

- A. General
 1. No concrete shall be placed without the prior authorization of the Engineer.
 2. Concrete shall not be placed until all reinforcement is securely and properly fastened in its correct position and loose form ties at construction joints have been retightened, nor until all dowels, bucks, sleeves, hangers, pipes, conduits, bolts, and any other fixtures required to be embedded therein have been placed and adequately anchored, nor until the forms have been cleaned and oiled as specified.
 3. Placement of concrete in which initial set has occurred or of re-tempered concrete will not be permitted.
 4. No concrete shall be placed during rainstorms or high velocity winds. Concrete placed immediately before rain shall be protected to prevent the water from coming in contact with it or winds causing excessive drying. Sufficient protective covering shall be kept on hand at all times for protection purposes.
- B. Placing Concrete
 1. The Contractor shall prepare and submit to the Engineer for review, a proposed sequence of placing concrete showing proposed beginning and ending of individual placements. After acceptance, this sequence shall be adhered to except when specific changes are requested by the Contractor and accepted by the Engineer. The Contractor shall notify the Engineer by written memorandum of his readiness (not just his intention) to place concrete in any portion of the Work. This notification shall be such time in advance of the operation as the Engineer deems necessary for him to make final inspection of the preparations at the location of the proposed concrete placing. All forms,

steel, screeds, anchors, ties, and inserts shall be in place before the Contractor's notification of readiness is given to the Engineer.

2. Concrete shall be deposited at or near its final position to avoid segregation caused by rehandling or flowing. Concrete shall not be deposited in large quantities in one place and worked along the forms with the vibrator or otherwise. No concrete shall be dropped freely into place from a greater height than 5'. Tremies shall be used for placing concrete where the drop is over 5'. Placement of concrete on slopes shall commence at the bottom of the slope.
3. Concrete shall be placed in approximately horizontal layers not to exceed 24" in depth and shall be brought up evenly in all parts of the forms. Concrete placement shall continue without avoidable interruption, in a continuous operation, until the end of the placement is reached. The placement of concrete in wall forms shall not proceed at a faster rate of rise than 6 feet per hour when the temperature is 70°F or over, and at a lesser rate for lower temperatures.
4. If it takes more than 20 minutes lapse prior to placement of new concrete over concrete previously placed, the depth of the layers being placed at one time shall be reduced, and/or placing equipment increased, until it is possible to return with the placing operation to previously placed concrete within 20 minutes. If concrete is to be placed over previously placed concrete and more than 20 minutes have elapsed, then a layer of grout not less than 2" thick nor more than 1" in thickness shall be spread over the surface before placing the additional concrete.
5. The placement of concrete for slabs, beams, or walkways cast monolithically with walls or columns shall not commence until the concrete in the walls or columns has been allowed to set and shrink. The time allowed for shrinkage shall be not less than one hour.

C. Consolidating Concrete

1. Concrete shall be placed with the aid of acceptable mechanical vibrators. Vibration shall be supplemented by manual forking or spading adjacent to the forms on exposed faces in order to secure smooth dense surfaces. The concrete shall be thoroughly consolidated around reinforcement, pipes, or other shapes built into the work. The vibration shall be sufficiently intense to cause the concrete to flow and settle readily into place and to visibly affect the concrete over a radius of at least 18".
2. Sufficient vibrators shall be on hand at all times to vibrate the concrete as placed. In addition to the vibrators in actual use while concrete is being placed, the Contractor shall have on hand one spare vibrator in serviceable condition. No concrete shall be placed until it has been ascertained that all vibrating equipment, including spares, is in serviceable condition.
3. Special care shall be taken to place the concrete solidly against the forms to leave no voids. Every precaution shall be taken to make all concrete solid, compact, and smooth, and if for any reason the surfaces or interiors have voids or are in any way defective, such concrete shall be repaired in a manner acceptable to the Engineer.

D. Requirements For Extreme Weather Conditions

1. For concrete placed when the ambient air temperature is above 90°F, the forms and reinforcing steel shall be cooled to below 90°F by water spraying.

- The temperature of the concrete mix at time of placement shall be kept below 90°F by means possible which do not impair the quality of the concrete.
2. The Contractor shall secure the Engineer's acceptance for type of equipment to be used for heating materials and/or new concrete in the process of curing during excessively cold weather. For concrete placed below an ambient air temperature of 40°F, or 45°F and falling, provision shall be made for heating the water. If materials have been exposed to freezing temperatures to the degree that any material is below 35°F, the material shall be heated. Water, cement, or aggregate materials shall not be heated in excess of 160°F. Concrete in the forms shall be protected by means of covering with tarpaulins, or other acceptable covering, and a means shall be provided for circulating warm moist air around the forms to maintain a temperature of 50°F for at least five days.
 3. For conditions which promote rapid drying of freshly placed concrete such as low humidity, high temperature, and wind, the Contractor shall take corrective measures to minimize the rapid water loss from the concrete. The Contractor shall submit the corrective measures he plans to use for review and acceptance by the Engineer prior to placing concrete.
 4. The Contractor shall provide and use a sufficient number of maximum and minimum self-recording thermometers to adequately indicate the temperature around the concrete.

3.06 FOOTINGS AND SLABS ON GRADE

- A. Concrete to be placed on ground or compacted fill shall not be placed until the subgrade is in a moist condition acceptable to the Engineer. If necessary, the subgrade shall be well sprinkled with water not less than 6 nor more than 20 hours in advance of placing concrete. If it becomes dry prior to the actual placing of concrete, it shall be sprinkled again, without forming pools of water. No concrete shall be placed if the subgrade is muddy or soft.

3.07 CURING CONCRETE

A. GENERAL

1. All concrete shall be cured by the methods specified herein.
2. All concrete shall be cured a minimum of seven days.
3. All concrete that is to be painted shall be water or plastic membrane cured. No curing compound shall be used on any concrete surface that is to receive paint or upon which any material is to be bonded. All other concrete shall be cured by water curing or sprayed curing membrane at the Contractor's option, except floors and slabs which are specified to be sealed with a concrete sealer. Floor slabs may be cured using a plastic film membrane curing.

B. WATER CURING

1. All surfaces of concrete being water cured shall be kept constantly and visibly moist day and night for a period of not less than seven days and nights. Each day the forms remain in place may count as one day of water curing. No further curing credit will be allowed for forms in place after contact has once been broken between the concrete surface and the forms. Ties shall not be loosened during the period when concrete is being cured by leaving the forms in place. The top of walls shall be flooded with water at least three times per

day, and the concrete surface shall be kept moist at all times during the seven day curing period.

C. SPRAYED MEMBRANE CURING

1. Membrane curing compound shall be a clear type with fugitive dye conforming to ASTM C 309, Type 1D.
2. The curing compound shall be applied to the concrete surface after repairing and patching, and within one hour after the forms are removed. If more than one hour elapses after the removal of the forms, membrane compound shall not be used and water curing shall be applied for the full curing period. If the surface requires repairing or painting, the concrete shall be water cured.
3. Curing compound shall not be removed from the concrete in less than seven days. Curing compound may be removed by the Contractor only upon written request by the Contractor and acceptance by the Engineer, stating what measures the Contractor shall take to adequately cure the structure.
4. Care shall be taken to apply curing compound in the area of construction joints to see that curing compound is placed within the construction joint silhouette. The curing compound placed within the construction joint silhouette shall be removed by sandblasting prior to placing any new concrete. The Contractor has the option of water curing the construction joint. Any curing compound shall be removed through heavy sandblasting of the joint.
5. Curing compound shall be applied by a mechanical, power-operated sprayer and mechanical agitator that will uniformly mix all pigment and compound. The compound shall be applied in at least two coats. Each coat shall be applied in a direction opposite to the preceding coat. The compound shall be applied in sufficient quantity so that the surface will have a uniform appearance and will effectively and completely conceal all natural color of the concrete at the time of the spraying. The Contractor shall continue to coat and recoat the surface until the specified coverage is achieved and until a coating film remains on the surface of the concrete. The thickness and coverage of the compound shall be such that the film can be scraped from the surface at any and all points after drying for at least 24 hours.
6. The Contractor is cautioned that the method of applying curing compound specified herein may require more compound than normally suggested by the manufacturer of the compound and also more than is customary in the trade. The amounts specified herein shall be applied, regardless of manufacturer's recommendations or customary practice, if the Contractor elects to use curing compound in place of water curing.
7. If the Contractor desires to use a curing compound other than the specified compound, the Contractor shall coat sample areas of concrete wall with the proposed compound and also a similar adjacent area with the specified compound in the specified manner for comparison. Complete data on the proposed compound shall also be submitted for review. If the proposed sample is not equal or better, in the opinion of the Engineer, in all features, the proposed substitution will not be allowed.
8. Prior to final acceptance of the work, the Contractor shall remove, by sandblasting or other acceptable method, any curing compound on surfaces that will be exposed to view, so that only the natural color of the finished concrete will be visible uniformly over the entire surface.

3.08 CONCRETE FINISHING

- A. Concrete surfaces shall be finished as indicated on the Plans and Typical Details. Where not specified or indicated on the Plans, the surfaces shall be finished as follows:

Concrete surfaces which are specified or indicated to be painted, and all concrete surfaces, interior or exterior, exposed to view shall have fins removed and joints ground smooth, and shall be "sacked" with cement mortar so that all pits and holes are filled. Surfaces in open channels, basins, and similar structures, which are normally below the water surface shall have fins removed, but need not have joints ground. However, surfaces in such locations which are above the normal water surface and exposed to view shall have fins removed and joints ground smooth, and shall be "sacked" with cement mortar so that all pits and holes are filled. Concrete surfaces in closed boxes or channels where there is normally no access or passageway shall have the fins removed. All form ties shall be removed from all surfaces, and holes shall be filled after roughening with a rotohammer.

- B. The following surfaces shall receive a smooth steel trowel finish: floors and slabs.
- C. The final steel trowel finish shall be uniformly smooth and free of all irregularities. Building and machine room floors which are not to be covered with surfacing material shall be free from trowel marks. Trowel marks will be permitted in other locations. Concrete floor surfaces to which a surfacing material is to be applied shall be finished level and smooth with a tolerance of not over 1/8" in 10' in any direction.
- D. Edges of all control joints shall be as indicated on the Plans and Typical Details. Edges shall include any line where placement is stopped. All wall and slab surfaces at edges shall be protected against concrete spatter and shall be thoroughly cleaned upon completion of each placement.
- E. Where not shown otherwise on the Plans and Typical Details, all external angles of walkways, slabs, walls, beams, columns, and openings shall have a 3/4" bevel formed by utilizing a true dimensioned wood or solid plastic chamfer strip and external angles of walkways, walls, and slabs as expansion, contraction, and construction joints shall be a 2" bevel formed by utilizing a true dimensioned wood or solid plastic chamfer strip. Reentrant angles may be left square. Level strips shall be installed at the top of all wall concrete placements to maintain a true line at all horizontal construction joints.

3.09 QUALITY ASSURANCE

A. TESTING OF CONCRETE

1. During the progress of construction, at the option of the Engineer, the Owner shall have tests made to determine whether the concrete, as being produced, complies with the standards of quality specified herein. These tests shall be made in accordance with ASTM C 31, ASTM C 39, and ASTM C 172. Test

cylinders will be made and delivered to the laboratory by the Engineer and the testing expense will be borne by the Owner.

2. Not less than three cylinder specimens, 6" x 12", will be tested for each 20 cubic yards of each grade of concrete with a minimum of three specimens for each grade placed. One cylinder will be broken at 7 days and two at 28 days.
3. The Contractor shall test the slump of concrete using a slump cone in accordance with the requirements of ASTM C 143. The Contractor shall provide the test equipment. Concrete that does not meet the Specification requirements as to slump shall not be used but shall be removed from the job. The Contractor shall test the slump at the beginning of each placement, as often as necessary to keep the slump within the specified range, and when requested to do so by the Engineer.
4. The Contractor shall make provisions for and furnish all concrete for the test specimens, and provide manual assistance to the Engineer in preparing said specimens. The Contractor shall be responsible for the care of and providing curing conditions for the test specimens in accordance with ASTM C 31.

B. ENFORCEMENT OF STRENGTH REQUIREMENT

1. Concrete is expected to reach a higher compressive strength than that which is indicated in Table A as compressive strength. The strength level of the concrete will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the required strength by more than 500 psi. Where an individual strength test falls below the required strength by more than 500 psi, the Engineer shall have the right to ask for additional curing of the affected portion followed by cores taken in accordance with ASTM C 42 and ACI 318, all at the Contractor's expense. If the additional curing does not bring the average of three cores taken in the affected area to at least the strength specified, the Engineer may require strengthening of the affected portions of the structures by means of additional concrete or steel or he may require replacement of these affected portions, all at the Contractor's expense.

C. TOLERANCES

1. It is the intent that the finished concrete conforms to the shapes, lines, grades, and dimensions indicated on the Plans. It shall be the responsibility of the Contractor to comply with the intent of these Specifications, but it is also recognized that there will be occasions when some deviation will occur or be required. It shall therefore be agreed that the maximum deviation from true line and grade shall not exceed the tolerances listed below at the time of acceptance of the project:
 - a. In general all tolerances shall comply with ACI 117-81, paragraphs 2.0 through 2.2 and paragraphs 4.0 through 4.5, except as modified in the following. All slabs shall be uniformly sloped to drain when a slope is indicated. Slabs which are indicated to be level shall have a maximum deviation of 1/8" in 10' without any apparent changes in grade.
 - b. On circular tank walls, the Contractor may deviate from the finish line indicated on the Plans by the use of chord lengths not to exceed 2'.
 - c. All inserts shall be set to the tolerances required for the proper installation and operation of the equipment or systems to which the insert pertains. The following shall be considered maximum tolerances.

Maximum Tolerance	
<u>Item</u>	<u>inches</u>
Sleeves and inserts	plus 1/8 minus 1/8
Projected ends of anchor bolts	plus 1/4 minus 0.0
Anchor bolt setting	plus 1/16 minus 1/16

3.10 REPAIR OF DEFECTIVE CONCRETE

- A. All defective work shall be removed and replaced or repaired. Any work which has not been constructed in accordance with the Plans and Specifications shall be considered defective.
- B. Correction of defective work shall be as specified herein. No defective work shall be patched, repaired, or covered without inspection by the Engineer. Repair shall have a strength equal or greater than the specified concrete for the area. The Contractor shall provide a mix design for the grout which is proposed for use to the Engineer for review and acceptance. All imperfections in the work shall be chipped out and keyed ready for repair. The dry pack method shall be used for holes having a depth nearly equal to or greater than the least surface dimension of the hole, for cone-bolt, and narrow slots cut for repair. Smooth holes shall be roughened with a rotohammer before repair. The mortar method of replacement shall be used for holes too wide to dry pack and too shallow for concrete replacement and shall be used for comparatively shallow depressions, large or small, which extend no deeper than the reinforcement nearest the surface. Concrete replacement shall be used when holes extend entirely through the concrete section or when holes are more than 1 square foot in area and extend halfway through the section. All surfaces of the set concrete to be repaired shall first be coated with epoxy bonding agent, Adhesive Engineering Concessive No. 1001 LPL; Sika Chemical Corporation, Sikadur Hi-Mod; or equal. No repair shall be made until the Engineer has accepted the method of preparing the surface and proposed method of repair.
- C. The color of the repair concrete dry pack and grout shall match that of the adjoining concrete. The use of white cement may be required to match color. The Contractor shall prepare test panels for proposed repairs at the beginning of the project for review and approval by the Engineer. This panel will serve as a standard for repairs during the project.
- D. Curing of all repaired concrete shall be the same as specified for concrete.

END OF SECTION

SECTION 03 62 00
NON-SHRINK GROUTING

PART 1 GENERAL

1.01 SUMMARY

- A. Provide high strength, non-metallic, Portland cement based non shrink grout.
- B. Related Sections:
 - 1. 03 15 00 Concrete Bonding Adhesive
 - 2. 03 30 00 Cast-in-Place Concrete
 - 3. 03 62 00 Non-Shrink Grout

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation for each material and product used. Include manufacturer's Material Safety Data Sheets.

1.03 REFERENCES

- A. ASTM C 109: Compressive Strength of Hydraulic Mortars.
- B. ASTM C 191: Setting Time of Hydraulic Cement.
- C. ASTM C 827: Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.
- D. ASTM C 939: Flow of Grout for Preplaced – Aggregate Concrete (Flow Cone Method)
- E. ASTM C 1107: Packaged Dry, Hydraulic Cement Grout (Non-Shrink)
- F. ASTM C 488: Pull-Out Strength
- G. Army Corps of Engineers CRD – 621: Non-Shrink Grout

1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: The manufacturer shall be a company with at least fifteen years of experience in the manufacture and marketing of products specified herein.
- B. Installer's Qualifications: The contractor shall be qualified to perform the work specified by reason of experience.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area. Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. High Strength, Non – Metallic, Portland Cement Based Non-Shrink Grout. Comply with the following:
 - 1. Manufacturer: Precision Non-Shrink Grout (No. 1585-00), General Purpose Grout (No. 1585-01), as manufactured by the QUIKRETE® Companies, One Securities Centre, 3490 Piedmont Road, NE, Suite 1300, Atlanta, GA 30305; telephone (404) 634-9100. Or Equal.
 - 2. Performance and Physical Properties at 73 degrees F (23 degrees C) and 50 percent relative humidity.
 - a. Non-Shrink Grout: Precision Non-Shrink Grout
 - 1) Compliance: ASTM C 1107; CRD 621
 - 2) Working Time, ASTM C: 25 minutes @ 50°F (10°C), 25 minutes @ 73°F (23°C), 15 minutes @ 90°F (32°C).
 - 3) Compressive Strength, ASTM C: 109 Modified
 - a) Plastic: 3 ksi (24hr); 9.5 ksi (3 day); 10 ksi (7 day); 14 ksi (28 day)
 - b) Flowable: 3 ksi (24hr); 9 ksi (3 day); 9.5 ksi (7 day); 12.5 ksi (28 day)
 - c) Fluid: 2.5 ksi (24hr); 5 ksi (3 day); 6 ksi (7 day); 8 ksi (28 day)
 - 4) Height Change, ASTM C 1090: 0 – 0.2% at 1, 3, 7 and 28 days
 - 5) Pull out Strength, ASTM C 488: 35,000 psi (1 1/4" (31 mm) bolts embedded 9" deep in 3" hole in 2000 psi concrete
 - b. Non-Shrink Grout: General Purpose Non-Shrink Grout
 - 1) Compliance at 73°F (23°C): ASTM C 1107, Working time at 73°F: > 10 min
 - 2) Compressive Strength, ASTM C: 109 Modified
 - a) Plastic: 3 ksi (24hr); 9 ksi (7 day); 10 ksi (28 day)
 - b) Flowable: 3 ksi (24hr); 8 ksi (7 day); 9 ksi (28 day)
 - c) Fluid: 2 ksi (24hr); 6 ksi (7 day); 8 ksi (28 day)
 - 3) Height Change, ASTM C 1090: 0 – 0.2% at 1, 3, 7 and 28 days

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas landscaping from contact due to mixing and handling of materials.

3.02 SURFACE PREPARATION

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Clean surface to receive grout of all materials including dust, oil, dirt, and grease or Efflorescence.
 - 2. Dampen with clean water before patching and remove standing water.

3.03 FORMS

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Forms must be water tight, strong, properly braced, and properly coated.
 - 2. Allow a minimum clearance of 2 inches (50 mm) between forms and baseplate for grout entry.
 - 3. Allow a minimum grout head of 6 inches (150 mm).
 - 4. Slope form on placing side to assist in grout movement and to prevent trapping air.
 - 5. Allow 1 inch (25mm) horizontal clearance and 1 inch (25 mm) vertical clearance for height above bottom of baseplate.
 - 6. Provide venting of forms to avoid entrapment of air.

3.04 MIXING

- A. Comply with manufacturer's printed instructions and the following:
 - 1. Material should be mechanically mixed for a minimum of 5 minutes using a five gallon (19L) bucket with a ½" (12mm) drill and paddle mixer. For large grouting applications a standard mortar mixer should be used.
 - 2. Add approximately 1 gallon + 3 pints (5.2L) of clean water for each 50lb (22.7 kg) bag to achieve a fluid consistency. For a Flowable consistency add about 1 Gallon + 1 Pint (4.3L). For a plastic approximately 1 Gallon (3.8L) is needed. Add the powder to the water and mix to a stiff gel-like consistency. Add water sparingly to reach the desired consistency. Do not exceed a flow of 20 seconds per ASTM C 939. Do not mix more material that can be placed in 15 minutes.
 - 3. Do not re-temper with additional water.

3.05 APPLICATION

- A. Comply with manufacturer's printed instructions and the following:
 - 1. The area to be grouted should be thoroughly flushed and soaked with clean water prior to grouting. Leave no standing water.
 - 2. Place the grout quickly and continuously use light rodding or strapping to eliminate air bubbles.
 - 3. Grout temperature should be maintained from 50°F to 90°F (10°C - 32°C) to achieve specified results. Use cold water in hot weather or hot water in cold weather to achieve desired grout temperature. Do not use if temperature is expected to go below 32°F (0°C) within a 12 hour period.

3.06 CURING

- A. A damp cure of at least 3 days is necessary to control the Non-Shrink characteristics and maintain strength levels.

3.07 CLEANING

- A. Remove excess material before material cures. If material has cured, remove using mechanical methods that will not damage substrate.

END OF SECTION

DIVISION 26

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 26 05 00
GENERAL ELECTRICAL WORK

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical work, complete and operable, in accordance with the Contract Documents.
- B. Related Sections: All Specification Sections that include Electrical and Instrumentation work shall be considered as part of Division 26 work. This applies to minor or major items required for a complete and working system. The following are examples of subsections that may be related.
 - 1. Division 01 – General Requirements
 - 2. Division 26 – Electrical
- C. The Work of this Section is required for operation of electrically-driven equipment provided under specifications in other Divisions. The Contractor's attention is directed to the requirement for proper coordination of the Work of this Section with the Work of equipment specifications, and the Work of instrumentation sections.
- D. Project Scope of Work
 - 1. Furnish all necessary or required skilled labor, materials, instruments, equipment, incidental and services required to safely provide a complete and operational electrical and instrumentation system in accordance with the Contract Documents, whether they fully itemized or listed.
 - 2. The general work items and tasks to be furnished under Contract Documents include:
 - a. Field Testing services.
 - b. Trenching, raceway systems (conduits and fittings) and supports, enclosures, junction boxes, and other items.
 - c. Power, control, signal, and data wiring for all equipment specified in this and other sections of the contract documents.
 - d. Backfilling, compaction, grouting and resurfacing for all raceway systems, equipment mounting and supports or related work.
 - e. Grounding systems, wiring, and bonding as required by NFPA 70 and the Contract Documents.

- f. Mechanical to electrical or instrumentation interfaces including taps, piping and valves.
 - g. Removal and disposal to an approved facility all unused or unwanted materials in a safe and legal manner.
 - h. Coordination with the Owner, Engineer and other trades and suppliers.
- 3. The specific major elements of this Project include:
 - a. Installation of electrical and controls equipment for PRV vaults as outlined within contract drawings and specifications.
 - b. Upgrading of electrical distribution equipment at booster pump station as outlined within contract drawings and specifications.
 - c. Temporary power for temporary pumping required for booster pump station as outlined within contract drawings and specifications.
 - d. Installation of ATS and standby generator at Paloma Well as outlined within contract drawings and specifications.
- 4. Other Items
 - a. OR EQUAL - If the Contractor uses an 'or equal' item that requires additional electrical or instrumentation installation labor, resources, or equipment, this shall be an internal issue for the Contractor's team to work out without involving the Engineer or Owner for any additional costs, engineering, or other services under this Project.
 - b. Intelligent equipment - Meters, devices, radios, relays, and such shall be configured, programmed, addressed and/or setup by the Supplier as part of the base bid. If no control sequence or requirements are found or alluded to in the Contract Documents, the Supplier shall provide a basic operable system for the equipment supplied to allow for full operations in manual and automatic (as applicable). The Owner or Engineer may then direct or change setpoints with or without direct support to fine tune the system operation during or after startup.
 - c. Additional devices and minor changes – The following are examples of items which may need to be supplied or changed due to differences in manufacturers, voltages, current ratings, options, or other reasons that shall be corrected as required without any cost adjustment to the Contract:
 - 1) Isolation relays – Solid state or electromechanical as required
 - 2) Contacts – Change from Normally Open (NO) to Normally Closed (NC) and vice versa
 - 3) Signal or process fluid isolators

- 4) Flexible conduits, cord whips and other final connection appurtenances

1.02 REFERENCE STANDARDS

- A. The Work of this Section and all sections in Division 26 shall comply with the following, as applicable:
- B. NEC (NFPA 70) – National Electrical Code
- C. NETA International Electrical Testing Association
- D. NEMA 250 – Enclosure for Electrical Equipment (1000 Volts Maximum)
- E. Local Electrical Code amendments to the NEC.
- F. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL).
- G. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards, state building standards, and applicable local codes and regulations.
- H. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.03 SIGNAGE

- A. Local Disconnect Switches: Each local disconnect switch for motors and equipment shall be legibly marked to indicate its purpose unless the purpose is indicated by the location and arrangement.
- B. Warning Signs: 600 volts nominal, or less. – Entrances to rooms and other guarded locations that contain live parts shall be marked with conspicuous signs prohibiting entry by unqualified persons.
- C. Isolating Switches: Isolating switches not interlocked with an approved circuit interrupting device shall be provided with a sign warning against opening them under load.

1.04 PUBLIC UTILITIES REQUIREMENTS

- A. The Contractor shall contact the serving utility and verify compliance with requirements before construction. The Contractor shall coordinate schedules and payments for work by all utilities.
- B. Electrical service shall be as indicated and be as required by the serving utility.
- C. The Contractor shall verify and provide all service conduits, fittings, grounding devices, and all service wires not provided by the serving utility.
- D. The Contractor shall verify with the utility the exact location of each service point and type of service and shall pay all charges levied by the serving utilities as part of the Work.

1.05 PERMITS AND INSPECTION

- A. All electrical permits shall be obtained by the Contractor. The Owner will pay for the inspection fees.
- B. The Contractor shall pay all connection and turn-on service charges required by the utility company.

1.06 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 00 – Submittal Procedures.
- B. Shop Drawings: Include the following:
 - 1. Complete material lists stating manufacturer and brand name of each item or class of material.
 - 2. Shop Drawings for all grounding WORK not specifically indicated.
 - 3. Front, side, rear elevations, and top views with dimensional data.
 - 4. Location of conduit entrances and access plates.
 - 5. Component data.
 - 6. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.
 - 7. Types of materials and finish.
 - 8. Nameplates.
 - 9. Temperature limitations, as applicable.
 - 10. Voltage requirement, phase, and current, as applicable.
 - 11. Catalog cuts of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material. Catalog data sheets shall be stamped to indicate the project name, applicable Section and paragraph, model number, and options. This information shall be marked in spaces designated for such data in the Engineer's stamp.
 - 12. Specification Copy with Compliance Marks
 - a. The person(s) responsible for the project from the supplier, sub-contractor or contractor shall review all applicable specification sections in their entirety prior to submitting the required submittals.
 - b. A copy of the submittal specification sections shall be attached to the submittal with a hand-written check mark (✓) on the right side of the margins shall be used to indicate the paragraph / section was reviewed by the responsible person and no exceptions, issues, questions, or concerns are taken or noted.

- c. If there are exceptions, issues, questions, or concerns a sequential number from the first to the last page of the submittal shall be annotated in place of the check mark at the right-hand margin of the paragraph. These numbers shall be collected into a letter format with each one denoted with the number, type of item (exception, clarification....) and remarks explaining the persons understanding of the exceptions, issues, questions, or concern.
 - d. The reviewing Engineer and Owner will review these items and will accept, reject, or modify the exception, answer or clarify questions and issues or address any concerns with remarks or contract changes.
 - e. If a submittal is transmitted without the required Specification Copy with Compliance Marks copy in all submittal copies, the Owner, CM or Engineer shall be justified in returning the submittal without review. In this case, the submittal will be marked REJECTED with no further comment. The contractor shall bear full responsibility for any and all delays and associated claims that their inaction causes.
- C. Shop Drawings shall be custom prepared. Drawings or data indicating "optional" or "as required" equipment are not acceptable. Options not proposed shall be crossed out or deleted from Shop Drawings.
- D. Owner's Manuals: Complete information in accordance with Section 01 33 00 – Submittal Procedures.
- E. Record Drawings: The Contractor shall show invert and top elevations and routing of all duct banks and concealed below-grade electrical installations. Record Drawings shall be prepared, be available to the Engineer, and be submitted according to Section 01 33 00 – Submittal Procedures.

1.07 AREA DESIGNATIONS

- A. General:
- 1. Raceway system enclosures shall comply with Section 26 05 33 – Raceways and Boxes.
 - 2. Electrical Work specifically indicated in sections within any of the Specifications shall comply with those requirements.
 - 3. Electrical Work in below ground non-hazardous facilities and outdoor locations shall be NEMA 4.
- B. Material Requirements:
- 1. NEMA 4 enclosures shall be stainless steel, unless specifically noted.
 - 2. NEMA 12 enclosures shall be steel, coated with ANSI 61 grey paint.

1.08 TESTS

- A. The Contractor shall be responsible for factory and field tests required by specifications in Division 16 and by the Engineer or other authorities having jurisdiction. The Contractor shall furnish necessary testing equipment and pay costs of tests, including all replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.
- B. Where test reports are indicated, proof of design test reports for mass-produced equipment shall be submitted with the Shop Drawings, and factory performance test reports for custom-manufactured equipment shall be submitted and be approved prior to shipment. Field test reports shall be submitted for review prior to Substantial Completion.
- C. Equipment or material which fails a test shall be removed and replaced.
- D. The Contractor shall hire a third party, NETA certified, testing agency to provide electrical acceptance testing.
- E. Installation of New Equipment:
 - 1. The Contractor will install and terminate the new wireways and cables. The Contractor shall only connect to equipment that is new or is out of service.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. Equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the WORK shall be products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.
- B. Where a NEMA enclosure type is indicated in a non-hazardous location, the Contractor shall utilize that type of enclosure, despite the fact that certain modifications, such as cutouts for control devices, may negate the NEMA rating.
- C. On devices indicated to display dates, the year shall be displayed as 4 digits.

2.02 MOUNTING HARDWARE

- A. Miscellaneous Hardware:
 - 1. Nuts, bolts, and washers shall be stainless steel.
 - 2. Strut for mounting of conduits and equipment shall be galvanized or stainless steel as required by the area classification. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion. Strut shall be as manufactured by Unistrut, B-Line, or equal.

3. Anchors for attaching equipment to concrete walls, floors and ceilings shall be stainless steel expansion anchors, such as "Rawl-Bolt," "Rawl-Stud" or "Lok-Bolt" as manufactured by Rawl; similar by Star, or equal. Wood plugs shall not be permitted.

2.03 ELECTRICAL IDENTIFICATION

- A. Nameplates: Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium-plated steel, or stainless steel, screwed into inserts or tapped holes, as required. Engraved characters shall be block style, with no characters smaller than 1/8-inch in height.
- B. Conductor and Equipment Identification: Conductor and equipment identification devices shall be heat-shrink plastic tubing with machine printing. Lettering shall read from left to right and shall face toward the front of the panel.

PART 3 – EXECUTION

3.01 GENERAL

- A. Incidentals: The Contractor shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the Specifications or the Drawings. Typical incidentals are 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.
- B. Field Control of Location and Arrangement: The Drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items. 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. Locations on the Drawings, however, shall be followed as closely as possible.
 1. The Contractor shall route the conduits in accordance with the indicated installation requirements.
 2. Conduit and equipment shall be installed in such a manner as to avoid all obstructions and to preserve headroom and keep openings and passageways clear. Lighting fixtures, switches, convenience outlets, and similar items shall be located within finished rooms as indicated. Where the Drawings do not indicate exact locations, the Engineer shall determine such locations. If equipment is installed without instruction and must be moved, it shall be moved without additional cost to the Owner. Lighting fixture locations shall be adjusted slightly to avoid obstructions and to minimize shadows.
 3. Wherever conduits and wiring for lighting and receptacles are not indicated, it shall be the Contractor's responsibility to provide all lighting and receptacle-related conduits and wiring as required, based on the actual installed fixture layout and the circuit designations as indicated. Power wiring shall be #12 AWG minimum, and conduits shall be 3/4-inch minimum. Where circuits are combined in the same

raceway, the Contractor shall derate conductor ampacities in accordance with NEC requirements.

- C. AHJ NEC Local Amendments: The Contractor shall comply with all requirements of the AHJ NEC local amendments.
 - 1. The Contractor shall pay particular attention to the additional grounding requirements. In general, grounding conductors are not specifically called out on the drawings but are required for every raceway.
- D. Workmanship: Materials and equipment shall be installed in strict accordance with printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.
- E. Protection of Equipment and Materials: The Contractor shall fully protect materials and equipment against damage from any cause. Materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. Moving parts shall be kept clean and dry. The Contractor shall replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections, as part of the Work.

3.02 CLEANING

- A. Before final acceptance, the electrical Work shall be thoroughly cleaned. Exposed parts shall be thoroughly clean of cement, plaster, and other materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. Such surfaces shall be carefully wiped and all cracks and corners scraped out. Touch-up paint shall be applied to scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum-cleaned.
- B. Contractor shall group, coil, and tie wrap all spare cables at the bottom of the Local Control Panels. The wires shall be grouped according to the device, control panel, or MCC section they originate from. Cable groups shall be tagged according to their point of origin.
- C. All debris shall be removed from the void below the panels.

END OF SECTION

SECTION 26 05 19
WIRES AND CABLES

PART 1 – GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall provide wires and cable, complete and operable, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit Shop Drawings in accordance with Section 01 33 00 – Submittal Procedures and 26 05 00 – General Electrical Work.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Conductors, including grounding conductors, shall be copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear the label of Underwriters' Laboratories, Inc. (UL), the manufacturer's trademark, and identify the type, voltage, and conductor size. All 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 WIRE AND CABLE

- A. Power and Lighting Wire
 - 1. Power and lighting wire shall be stranded copper with minimum size of No. 12 AWG.
 - 2. Wire rated for 600 volts in conduit or ducts for all power shall be THHN/THWN for sizes No. 12 through No. 3 AWG and XHHW for sizes No. 2 AWG and larger.
 - 3. MC and BX cabling shall not be used under this project.
 - 4. All wiring must be in conduit, unless specifically allowed on the drawings or details.
 - 5. 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.
 - 6. Conductors for branch circuits as defined in Article 100 of the NEC, shall be sized to prevent a voltage drop exceeding 3 percent at the farthest connected load 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.

7. Wiring for 600-volt class power and lighting shall be as manufactured by General Cable, Okonite, or Rome Cable.

B. Control Wire

1. Control wire in duct or conduit shall be MTW type.
2. Control wiring shall be No. 14 stranded copper AWG unless otherwise indicated.

C. Instrumentation Cable

1. Instrumentation cable shall be rated at 600 volts.
2. Individual conductors shall be No. 18 AWG stranded, tinned copper. Insulation shall be color-coded polyethylene: black-red for two-conductor cable, and black-red-white for three-conductor cable.
3. Instrumentation cables shall be composed of the individual conductors, an aluminum polyester foil shield, a No. 18 AWG stranded, tinned copper drain wire, and a PVC outer jacket with a thickness of 0.048-inches.
4. Single pair, No. 18 AWG, twisted, shielded cable shall be Belden Part No. 9341, or equal.
5. Single triad, No. 16 AWG, twisted, shielded cable shall be Belden Part No. 1119A, or equal.

- D. Cat 5 Cable: Cat 5 patch cable shall be 4-pair 24-gauge twisted pair rated to TIA/EIA 568-B Cat. SE and UL-listed. The CONTRACTOR shall install RJ-45 connectors as required.

- E. ControlNet RG-6 Coax Cable: The ControlNet coax cable shall be type RG-6 with 75 Ohms impedance. The cable shall have 18-gauge copper conductor, a bonded aluminum foil-polyester tape to braided aluminum shield, quad shield, FEP foam insulation, a PVC jacket and a diameter of 0.25 inches. The cable shall have no more than 3db loss per 100 feet at 200 MHz. The cable shall be Belden 1189AP, or equal.

- F. Radio Cable: Feedline cable for radios shall be a 50 ohm low loss 1/2" Helix cable (less than 2.7 dB per 100 feet) type suited for 900 MHz and rated for outdoor use with foam core. Provide type N connector on surge arrestor end of cable and type N connector or DIN connector on antenna end as required. Adapters are not acceptable. Cable shall be Andrew LDF4-50A, or equal.

1. Coaxial radio jumper cable inside the SCADA panel shall be Times Microwave LMR-240, or equal. Provide type N connector on surge arrestor end and type TNC connector on radio end. Adapters are not acceptable.

- G. Submersible Pump Power Cable: Submersible pumps shall be wired with submersible multi-conductor cable as required by the Drawings. The cable shall be Type W Portable

Power Cable rated at 600V and 70C temperature with two (2) No. 14 control cables. The insulation shall be EPR, and conduction shall be rope-lay-stranded copper per UL-62. The cabling shall be round with round or flat fillers as needed, with an extra-hard usage, oil resistant, thermoset, CPE jacket, per UL-1581. Cable shall be Flygt SubCab, or equal.

2.03 CABLE TERMINATIONS

- A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon," or equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors 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 heat-shrink plastic tubing type with machine print. Lettering shall read from left to right and face the front of the panel. Field wires terminating at a Control Panel shall be labeled with the wire number shown on the LCP Panel wiring diagrams. The CONTRACTOR shall mark all as-built drawings with wire labels.

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall provide and terminate all power, control, and instrumentation conductors, except where indicated.

3.02 INSTALLATION

- A. Conductors shall not be pulled into raceway until raceway has been cleared of moisture and debris.
- B. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL-approved.
- C. The following wiring shall be run in separate raceways:
 - 1. 24 VDC discrete signal and instrument power supply.
 - 2. 4-20 mA analog signal.
 - 3. All AC circuits.
- D. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps and shall be fanned out to terminals.

3.03 SPLICES AND TERMINATIONS

- A. General

1. Wire taps and splices are not to be used unless the Contractor can convince the Engineer that they are essential, and the Engineer gives written permission.
2. There shall be no cable splices in underground manholes or pullboxes.
3. Stranded conductors shall be terminated directly on equipment box lugs, making sure that all conductor strands are confined within the lug. Use forked-tongue lugs where equipment box lugs have not been provided.
4. Excess control and instrumentation wire shall be properly taped and terminated as spares.

B. Control Wire and Cable

1. Control conductors shall be spliced or terminated only on terminal strips in panels or vendor-furnished equipment.
2. In terminal cabinets, junction boxes, motor control centers, and control panels, control wire and spare wire shall be terminated to terminal strips.

C. Instrumentation Wire and Cable

1. Shielded instrumentation cables shall be grounded at one end only, the receiving end (i.e., in the SCADA panel) on a 4-20 mA system.

D. Power Wire and Cable

1. 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may not be spliced unless the Contractor can convince the Engineer that they are essential, and the Engineer gives written permission.
2. 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.

3.04 CABLE IDENTIFICATION

- A. General:** Wires and cables shall be identified for proper control of circuits and equipment and to reduce maintenance effort.
- B. Identification Numbers:** The Contractor shall assign to each control and instrumentation wire and cable a unique identification number. Numbers shall be assigned to all conductors having common terminals and shall be shown on "as built" drawings. Identification numbers shall appear within 3 inches of conductor terminals. "Control Conductor" shall be defined as any conductor used for alarm, annunciator, or signal purposes.
1. Multiconductor cable shall be assigned a number that shall be attached to the cable at intermediate pull boxes and at stub-up locations beneath freestanding 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. Feeder cables and branch circuit conductors shall be color-coded as follows:

Voltage	Color Code
120/208 or 120/240VAC	Phase A – Black Phase B - Red Phase C – Blue Neutral - White.
480/277 VAC	Phase A – Brown Phase B – Orange Phase C – Yellow Neutral - Gray.
24VDC	Positive(+) – Blue Negative(-) – White w/ Blue Stripe or Blue w/ White Stripe
12VDC	Positive(+) – Red Negative(-) – Black
AC control cables	Inside Panels – Red Field– Red or Violet
DC control cables	Blue

2. Color-coding tape shall be used where colored insulation is not available. Branch circuit switch shall be Yellow. 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.
3. Spare cable shall be terminated on terminal screws and shall be identified with a unique number as well as with destination.
4. Terminal strips shall be identified by computer-printed, self-sticking marker strips attached under the terminal strip.

3.05 TESTING

- A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements of ICEA Publication No. S-68-516 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. Factory test results shall be submitted in accordance with Section 01 33 00 – Submittal Procedures prior to shipment of cable. The following field tests shall be the minimum requirements:
 1. Power cable rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a 1000 V megohmmeter.
 2. Field testing shall be done after cables are installed in the raceways.

3. 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.
- B. Continuity Test: Control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing all wires and cables in service.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 26 05 00 – General Electrical Work apply to this Section.
- C. 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 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 26 05 00, Paragraph 1.06 – Contractor Submittals.
- B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this Section.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Components of the grounding electrode system shall be manufactured in accordance with ANSI/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.

2.02 GROUNDING SYSTEM

- A. Grounding loop conductors shall be bare annealed stranded copper conductors suitable for direct burial. Ground loop conductors shall be sized per Contract Drawings or NEC, whichever is larger.
- B. Ground Rods
 - 1. Unless indicated otherwise, the ground rod shall be a minimum of 3/4-inch in diameter, 10 feet long, and have a uniform covering of electrolytic copper metallicity bonded to a rigid steel core. The copper to steel bond shall be corrosion resistant.
 - 2. Conform to ANSI/UL 467.
 - 3. Sectional type joined by threaded copper alloy couplings.

4. The grounding electrode to ground rod shall be sized no smaller than No. 4 AWG CU.
- C. Buried cable-to-cable and cable-to-ground rod connections shall be made using exothermic welds by Cadweld, Enrico Products, or equal.
- D. Exposed grounding connectors shall be of the compression type (connector to cable), made of high copper alloy, and be manufactured specifically for the grounding application. The connectors shall be Burndy, O.Z. Gedney, or equal.
- E. Grounding clamps shall be used to bond each separately derived system to the grounding electrode conductors.
- F. Equipment Grounding Circuit Conductors
 1. These conductors shall be the same type and insulation as the load circuit conductors. The minimum size shall be as outlined in the National Electrical Code, unless indicated otherwise.
 2. Metallic conduit systems shall have equipment grounding wires as well as being equipment grounding conductors themselves.
- G. Ground clamps in concrete shall be rated for use with rebar and embedded in concrete.
- H. Manufacturers of grounding materials shall be Copperweld, Blackburn, Burndy, or equal.

PART 3 – EXECUTION

3.01 GROUNDING

- A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.
- B. Size in accordance with the NEC and local amendments.
- C. Route conductors inside raceway.
- D. Provide a grounding type bushing for secondary feeder conduits which originate from the secondary section of switchboard, or panelboard.
- E. Individually bond these raceways to the ground bus in the secondary section.
- F. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw and, for grounding type devices, to equipment grounding conductor.
- G. Provide a separate grounding conductor in each individual raceway for parallel feeders.
- H. Interconnect the secondary switchgear neutral bus to the ground bus in the secondary switchgear compartment only at service entrance point or after a transformer.

- I. Measure ground impedance in accordance with IEEE STD 81 after installation but before connecting the electrode to the remaining grounding system.
- J. Low Voltage Grounded System (600-volt or less): A low voltage grounded system is a system where the local power supply is a transformer with the transformer secondary grounded.
 - 1. Grounding system connections for a premise wired system supplied by a grounded AC service shall have a grounding electrode connector connected to the grounded service conductor at each service, in accordance with the NEC.
 - 2. 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.
- K. Embedded Ground Connections
 - 1. Underground and grounding connections embedded in concrete shall be UL listed compression type ground grid connectors.
 - 2. The connection shall be made in accordance with the manufacturer's instructions.
 - 3. The Contractor shall not conceal or cover any ground connections until the ENGINEER or authorized representative has established that every grounding connection conforms to the Contract Documents and has given the Contractor written confirmation.
- L. Ground Rods
 - 1. Locations shall be as determined in the field.
 - 2. Rods forming an individual ground array shall be equal in length.
 - 3. Rod spacing shall be a minimum of the rod length.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 26 05 33
RACEWAYS AND BOXES

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.
- B. Local amendments to NEC require:
 - 1. The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:
 - a. A copper, aluminum, or copper-clad aluminum conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and in the form of a wire or a busbar of any shape.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures which are dedicated to the raceway system, shall comply with the requirements of this Section.

2.02 PVC SCHEDULE 40 CONDUIT (PVC-40)

- A. Manufacturers:
 - 1. Cantex
 - 2. Carlon
 - 3. JM Eagle
 - 4. Or Equivalent
- B. PVC schedule 40 conduit (PVC-40) that meets the requirements of UL 651 Electrical Rigid Nonmetallic Conduit and ANSI/NFPA 70 National Electrical Code, Article 352.
- C. Conduits shall be rated for 90 degree C wiring and Sunlight resistant.
- D. Associated fittings shall meet the requirements of UL and ANSI C80 standards for the applicable raceway system.
- E. Furnish fittings and conduit bodies that meet the requirements of UL 651.

2.03 RIGID METAL CONDUIT AND TUBING (RMC)

- A. Manufacturers:
 - 1. Wheatland Tube Company
 - 2. Western Tube and Conduit
 - 3. Republic Tubing
 - 4. Or Equivalent
- B. Rigid Metal (Steel) Conduit (RMC) shall meet the requirements of UL 6 Electrical Rigid Metal Conduit - Steel, ANSI C80.1 - Electrical Rigid Steel Conduit (ERSC), and ANSI/NFPA 70 National Electrical Code, Article 344.
- C. Associated fittings shall meet the requirements of UL and ANSI C80 standards for the applicable raceway system.
- D. For Rigid Metal Conduit, furnish zinc-plated, threaded, malleable iron fittings and conduit bodies that meet the requirements of UL 514B Conduit, Tubing, and Cable Fittings, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable.

2.04 PVC COATED RIGID STEEL CONDUIT (RMC-PVC)

- A. Manufacturers:
 - 1. Plasti-Bond (Rob-Roy)
 - 2. Thomas and Betts (Ocal)
 - 3. Or Equivalent
- B. The PVC coated rigid metal (steel) conduit (RMC-PVC) shall be hot dip galvanized inside and out with hot dipped galvanized threads. The interior galvanizing shall be listed per UL 6. The exterior galvanizing shall be listed per UL 6 as primary corrosion protection. Thread protectors shall be used on the exposed threads of the PVC coated conduit. PVC coated RMC steel conduit shall comply with UL 6, ANSI C80.1, and NEMA RN-1 standards without exception.
- C. The PVC coating, in compliance with NEMA RN-1, shall be nominal 40 mils (1 mm) in thickness continuous over the entire length of the conduit except at the threads, and be free of blisters, bubbles or pinholes. PVC shall be UL listed as a primary corrosion protection.
- D. A urethane coating shall be uniformly and consistently applied to the interior of conduit. This internal coating shall be a nominal 2 mils (.05 mm) thickness. All male threads on elbows and nipples shall be protected by this same application of urethane coating.

- E. Coated couplings shall be used with coated conduit. The thickness of the coating on couplings shall be at least equal to the thickness of the coating on the conduit. Each coated coupling shall have a flexible PVC sleeve which extends from each end of the coupling and which will overlap the PVC coating on the conduit when the coupling has been installed on the conduit. The length of the sleeve extension(s) shall be at least equivalent to the nominal conduit size for sizes up through 2 inches (51 mm). For sizes 2 inches through 6 inches (51 through 152 mm), the length of the sleeve extension(s) shall be at least 2 inches (51 mm). The PVC sleeve shall be a nominal thickness of 40 mils (1 mm) in thickness. The inside diameter of the overlapping sleeve shall be less than the outside diameter of the PVC-coated conduit.
- F. PVC Coated Ordinary Location Fittings
 - 1. PVC coated ferrous and aluminum fittings for general service and corrosive locations must be UL listed. The PVC coating shall be minimum 40 mils (1 mm) in thickness, and be free of blisters, bubbles or pinholes. Female threads on fittings shall be protected by application of urethane coating.
 - 2. Female ends of PVC coated conduit fittings shall have a flexible PVC sleeve which extends from the female ends of the fitting and which will overlap the PVC coating on the conduit when the fitting has been installed on the conduit. The length of the sleeve extension(s) shall be at least equivalent to the nominal conduit size for sizes up through 2 inches (51 mm). For sizes 2 inches through 6 inches 951 through 152 mm), the length of the sleeve extension(s) shall be at least 2 inches (51 mm). The PVC sleeve shall be a nominal thickness of 40 mils (1 mm) in thickness. The inside diameter of the overlapping sleeve shall be less than the outside diameter of the PVC-coated conduit.
 - a. The PVC coating on all form 8 covers shall form a gasket-like flange of at least 5/16 inch (8 mm) wide and minimum 40 mils (1 mm) covering the top of the fitting around the opening and the bottom of the cover/matting with the flange of the fitting.
 - 3. A urethane coating shall be uniformly and consistently applied to the interior, exterior and threads of all conduit bodies, including but not limited to, form 8 and form 7 conduit bodies. This coating shall be a nominal 2 mil (.05 mm) thickness.
 - 4. Stainless steel encapsulated screws shall be supplied with all form 7 and form 8 fittings.
 - a. Rigid Hubs shall have a nominal 40 mils (1 mm) PVC coating thickness with a nominal 2 mils (.05 mm) of urethane on interior and threads. The male threads and locknut of the hub shall remain uncoated.
 - b. Liquid-Tight fittings shall have an exterior PVC coating of a minimum thickness of nominal 40 mils (1 mm).

2.05 ELECTRICAL METALLIC TUBING AND FITTINGS

- A. Manufacturers:

1. Republic Conduit
 2. Western Tube and Conduit
 3. Wheatland Tube Company
 4. Or Equivalent
- B. Electrical Metallic Tubing (EMT) that meets the requirements of UL 797 Electrical Metallic Tubing - Steel, ANSI C80.3 - Steel Electrical Metallic Tubing (EMT), and ANSI/NFPA 70 National Electrical Code, Article 358.
- C. For Electrical Metallic Tubing, furnish zinc-plated steel or zinc-plated malleable iron fittings bodies that meet the requirements of UL 514B Conduit, Tubing, and Cable Fittings, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable. Connectors should have insulated throat.
- D. Associated fittings shall meet the requirements of UL and ANSI C80 standards for the applicable raceway
- E. EMT shall not be used in lieu of other specified or stated conduit systems even if allowed by local or national codes.

2.06 LIQUIDTIGHT FLEXIBLE STEEL CONDUIT (LFMC)

- A. Manufacturers:
1. Kaf-Tech
 2. Delikon
 3. Allied
 4. Or Equivalent
- B. Liquidtight Flexible Steel conduit (LFMC) that meets the requirements of UL 360 Standard for Liquidtight Flexible Steel Conduit and ANSI/NFPA 70 National Electrical Code, Article 350.
- C. Conduits shall be rated for 70 degree C wiring, oil, moisture and sunlight resistant.
- D. Associated fittings shall meet the requirements of UL and ANSI standards for the applicable raceway system.
- E. Furnish fittings and conduit bodies that meet the requirements of UL 360.
- F. Maximum Installed Lengths
1. LFMC sizes between ½ inches and 2 ½ inches: 36 inches without Engineers written permission
 2. LFMC sizes 3 inches and above: 60 inches without Engineers written permission.

2.07 FITTINGS AND BOXES

A. General:

1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with 5 full threads.
2. Fittings and boxes shall have neoprene gaskets and non-magnetic stainless steel screws. All covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be acceptable.
3. Non-explosion-proof boxes larger than standard cast or malleable types shall be 304 stainless steel, NEMA 4X.
4. In outdoor areas, conduit shall be terminated in raintight hubs as manufactured by Crouse Hinds, Myers, O.Z. Gedney, or equal. In other than outdoor areas, sealed locknuts and bushings shall be used.
5. Conduit, fittings, and boxes in hazardous locations shall be suitable for the Class and Division indicated.

B. Cast Aluminum Fittings and Boxes

1. Cast aluminum boxes and fittings shall have less than 0.40 percent copper content.
2. Manufacturers, or Equal
 - a. O.Z. Gedney;
 - b. Appleton;
 - c. Crouse-Hinds.

C. Malleable Iron Fittings and Boxes

1. Fittings and boxes for use with galvanized steel conduit shall be of malleable iron or gray-iron alloy with zinc plating.
2. Manufacturers, or Equal
 - a. O.Z. Gedney;
 - b. Crouse-Hinds;
 - c. Appleton.

D. PVC-Coated Fittings and Boxes

1. Fittings and boxes for use with PVC-coated RMC shall be PVC-coated and shall be products of the same manufacturer as the conduit.

E. Stainless Steel Boxes

1. Stainless steel boxes shall be used with PVC-coated RMC conduit and where indicated on the Drawings.
2. Stainless steel boxes shall be NEMA 4X, Type 304.
3. Stainless steel shall be a minimum 14-gauge thickness, with a brushed finish.
4. Doors shall have full-length stainless steel piano hinges. Non-hinged boxes are not acceptable.
5. Manufacturers, or Equal
 - a. Hoffman;
 - b. Rohn;
 - c. Hammond.

2.08 WIREWAYS

- A. All wireways shall be painted ANSI 61 gray, galvanized 14-gauge steel with screw covers and a steel divider to separate the discrete signals from the analog signals. Wireways shall be Hoffman, or equal.

2.09 IDENTIFICATION

- A. Conduit Tags: Conduit Tags shall be fabricated from white-letter, red-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using stainless steel wire. Engraved characters shall be block style, with no characters smaller than 1/8-inch in height. Tag shall be 2" circle with matching lettering on both sides. Conduit tags shall be affixed at each end and any midpoints where the conduit enters or leaves a junction box, enclosure, MCC, walls, floor or device.

PART 3 – EXECUTION

3.01 GENERAL

- A. All wiring shall be run in raceway unless indicated otherwise.
- B. Raceways shall be installed between equipment as indicated. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible. All fittings and connections shall be made tight.
- C. Separate raceway systems shall be provided for:
 1. 24 VDC discrete signal and instrument power supply.

2. 4-20 mA analog signal and data cables.
 3. All AC circuits.
- D. Where raceways are indicated but routing is not shown, such as home runs or on conduit developments and schedules, raceway routings shall be the Contractor's choice and in strict accordance with the NEC and customary installation practice.
 - E. Routings shall be adjusted to avoid obstructions. Coordinate between trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be by the Contractor as part of the Work.
 - F. Support rod attachment for ceiling-hung trapeze installations shall meet the seismic requirements.
 - G. Exposed raceways shall be installed parallel or perpendicular to structural beams.
 - H. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.
 - I. Exposed raceways shall be installed at least 1/2-inch from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, exposed raceways shall be installed 1/4-inch minimum from the face of walls or ceilings by the use of clamp backs or struts.
 - J. In underground facilities or NEMA 4X areas, all conduit penetrations in panels shall be bottom entry.
 - K. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means shall be provided to prevent such corrosion.
 - L. To facilitate future expansion, boxes and fittings are to be installed when indicated on the drawings. Unused hubs are to be plugged with proprietary devices. Raceways that include future expansion provision are to be sized to accommodate any such specified wiring without exceeding the requirements of this specification.
 - M. Unless otherwise noted, conduit sizes shall be per Plans. The maximum allowable conduit fill for instrumentation and control wiring is given by the following table:

Table 26 05 33-1: Maximum Allowable Conduit Fill for Instrumentation and Control Wiring

Conduit Diameter	No. of 14-Gauge Wires	No. of 18-Gauge TSPR, TPR
3/4"	8	2
1"	16	4
1-1/4"	32	7
1-1/2"	48	10
2"	72	17

Note: No instrumentation or control wiring conduit is to be larger than 2 inches in diameter.

3.02 CONDUIT

- A. Exposed conduit shall be RMC unless indicated otherwise on drawings.
- B. Conduit concealed, buried, or encased in concrete, shall be PVC-coated RMC. Where conduit emerges from concrete encasement, a PVC-coated RMC elbow shall be utilized for transition from the concrete. Conduit shall emerge from the concrete perpendicular to the surface whenever possible.
- C. Exposed conduit shall be 1/2-inch minimum trade size, unless indicated on Plans otherwise. Supports shall be installed at distances required by the NEC.
- D. Conduit shall not be encased in the bottom floor slab below grade.
- E. 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.
- F. Conduits passing through a slab, wall, or beam shall not significantly impair the strength of the construction.
- G. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall satisfy the following:
 - 1. Conduits with their fittings embedded within a column shall not displace more than 4 percent of the gross area of cross section.
 - 2. Conduits shall not be larger in outside dimension than one third the overall thickness of slab, wall, or beam in which embedded.
 - 3. Conduits shall not be spaced closer than 3 outside diameters on centers.
- H. Conduit shall be placed so that cutting, bending, or displacing reinforcement from its proper location will not be required.
- I. Threads shall be coated with a conductive lubricant before assembly.
- J. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. Conduit shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduit to prevent wrench marks on conduit. Conduit with wrench marks shall be replaced.
- K. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.

- L. Connections to lay-in type grid lighting fixtures shall be made using flexible metal conduit not exceeding 4-feet in length. Connections to motors and other equipment subject to vibration shall be made with LFMC not exceeding 3-feet in length. Equipment subject to vibration that is normally provided with wiring leads shall be provided with a cast junction box for the make-up of connections. The junction box is to be independently supported and not left free to hang from the equipment.
- M. Conduit passing through walls or floors shall have plastic sleeves. The Contractor shall perform core drilling required for installation of raceways through concrete walls, floors, and wet wells. Locations of penetrations, as may be required, shall be based on field conditions. Verify all exact core drilling locations based on equipment actually furnished, as well as exact field placement. 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. Damage to any encased conduits, wiring, and piping shall be repaired as part of the Work.
- N. All penetrations required to extend conduit or wireway through concrete walls, roofs, and floors or masonry walls shall be core drilled.
- O. Provide conduit seal fittings at the following locations:
 - 1. In hazardous classified locations, in strict accordance with the NEC.
 - 2. Where shown on the drawings.
- P. Conduit, fittings, and boxes required in hazardous classified areas shall be suitably rated for the area and shall be provided in strict accordance with NEC requirements.
- Q. Empty conduits shall be tagged at both ends to indicate the final destination. Where it is not possible to tag the conduit, destination shall be identified by a durable marking on an adjacent surface. A pull-cord shall also be installed in each empty conduit. This shall apply to conduits in floors, panels, manholes, equipment, etc. The pull-cord shall have a minimum breaking strength of 400 pounds and shall have sequential footage markings.
- R. Where an underground conduit enters a structure through a concrete roof or a membrane waterproofed wall or floor, core-drill the entrance and provide a Link-Seal, or equal, sealing device. The sealing device shall be utilized with rigid steel conduit.
- S. Final connections to heaters, instruments, motors, limit switches, and any equipment subject to vibration shall be made with LFMC and approved fittings. Maximum length of LFMC shall be 3 feet.
- T. Connections to solenoid valves, pilot actuators, and flood sensors shall be made with LFMC and approved fittings to a cast box with screw cover (GUA type), independently and securely supported. In no case is the device to support the cast box.

END OF SECTION

SECTION 26 23 00
MINI POWER CENTER

PART 1 – GENERAL

1.01 SCOPE

- A. The Contractor shall furnish and install single-phase general purpose mounted mini-power center of the two-winding type, self-cooled, as specified herein and as shown on the contract drawings.

1.02 REFERENCES

- A. The mini-power center and all components shall be designed, manufactured, and tested in accordance with the latest applicable standards of UL, ANSI and NEMA.

1.03 SUBMITTALS – FOR REVIEW/APPROVAL

- A. The following information shall be submitted to the Engineer:
 - 1. Dimension drawing weights
 - 2. Transformer ratings including:
 - a. kVA
 - b. Primary and secondary voltage
 - c. Taps
 - d. Primary and secondary continuous current
 - e. Insulation class and temperature rise
 - f. Sound level
 - 3. Component ratings including:
 - a. Voltage
 - b. Continuous current
 - c. Interrupting ratings
 - 4. Cable terminal sizes
 - 5. Product data sheets.

1.04 SUBMITTALS – FOR CONSTRUCTION

- A. The following information shall be submitted for record purposes:
 - 1. Final (as-built) drawings and information for items listed in Paragraph 1.04, and shall incorporate all changes made during the manufacturing process
 - 2. Connection diagrams
 - 3. Installation information

1.05 QUALIFICATIONS

- A. The manufacturer of the assembly shall be the manufacturer of the secondary distribution equipment.
- B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years.

1.06 REGULATORY REQUIREMENTS

- A. The assembly and all components shall be U.L. listed.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions. One (1) copy of these instructions shall be included with the equipment at time of shipment.

1.08 OPERATION AND MAINTENANCE MANUALS

- A. Equipment operation and maintenance manuals shall be provided with each assembly shipped and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Eaton
- B. Square D
- C. Approved Equal
- D. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features, and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance

with the specification and manufactured by others not named will be considered only if pre-approved by the Engineer ten (10) days prior to bid date.

2.02 RATINGS

- A. kVA and voltage ratings shall be as shown on the drawings.
- B. Units 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.
- C. Transformer sound levels shall not exceed the following ANSI and NEMA levels for self-cooled ratings:
 - 1. Up to 9 kVA 40 dB
 - 2. 10 to 30 kVA 45 dB

2.03 CONSTRUCTION

- A. Each mini-power center shall include a primary main breaker, an encapsulated dry-type transformer, and a panelboard with secondary main breaker.
- B. Primary main, secondary main and feeder breakers shall be enclosed with a padlockable hinged door.
- C. Insulation Systems
 - 1. Transformers shall be insulated with a 180 degree C insulation system and rated at 115 degrees C temperature rise
 - 2. Required performance shall be obtained without exceeding the above-indicated temperature rise in a 40 degree C maximum ambient, with a 30 degree C average over 24 hours
 - 3. All insulation materials shall be flame-retardant and shall not support combustion as defined in ASTM Standard Test Method D635
- D. Core and Coil Assemblies
 - 1. Transformer core shall be constructed with high-grade, non-aging, silicon steel with high magnetic permeability, and low hysteresis and eddy current losses. Maximum magnetic flux densities shall be substantially below the saturation point. The transformer core volume shall allow efficient transformer operation at 10% above the nominal tap voltage. The core laminations shall be tightly clamped and compressed. Coils shall be wound of electrical grade aluminum [copper optional] with continuous wound construction.
 - 2. The core and coil assembly shall be completely encapsulated in a proportioned mixture of resin and aggregate to provide a moisture proof, shock-resistant seal. The core and coil encapsulation system shall minimize the sound level.
 - 3. The core of the transformer shall be grounded to the enclosure

4. Provide two (2) 5% FCBN taps

2.04 BUS

- A. Secondary bus shall be copper.

2.05 WIRING/TERMINATIONS

- A. All interconnecting wiring between the primary breaker and transformer, secondary main breaker and transformer and distribution section shall be factory installed.
- B. All transformers shall be equipped with a wiring compartment suitable for conduit entry and large enough to allow convenient wiring.

2.06 MAIN DEVICES

- A. Each mini-power center shall include a primary main breaker with an interrupting rating of 14 kA at 277/480 volts; and a secondary main breaker with an interrupting rating of 10kA at 120/240 volts, and a panelboard.

2.07 FEEDER DEVICES

- A. The secondary distribution section shall accommodate one-inch bolt-on breakers with 10 kA interrupting capacity.

2.08 ENCLOSURE

- A. The enclosure shall be made of heavy-gauge steel and the maximum temperature of the enclosure shall not exceed 90 degrees C.
- B. The enclosure shall be totally enclosed, nonventilated, NEMA 3R, with lifting provisions.

PART 3 – EXECUTION

3.01 FACTORY TESTING

- A. The following standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of ANSI and NEMA.
 1. Ratio tests at the rated voltage connection and at all tap connections
 2. Polarity and phase-relation tests on the rated voltage connection
 3. Applied potential tests
 4. Induced potential test
 5. No-load and excitation current at rated voltage on the rated voltage connection

3.02 INSTALLATION

- A. The Contractors shall install all equipment per the manufacturer's recommendations and the contract drawings.

3.03 FIELD ADJUSTMENTS

- A. Adjust taps to deliver appropriate secondary voltage.

3.04 FIELD TESTING

- A. Measure primary and secondary voltages for proper tap settings.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 26 24 16
PANELBOARDS

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide panelboards 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 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be in accordance with instructions defined within this Section and Section 01 33 00 – Submittal Procedures and Section 26 05 00 – General Electrical Work.
- B. Shop Drawings
 - 1. Panelboard
 - a. Breaker layout drawings with dimensions and nameplate designations
 - b. Component list
 - c. Drawings of conduit entry/exit locations
 - d. Assembly ratings including:
 - 1) Short circuit rating
 - 2) Voltage
 - 3) Continuous current
 - e. Cable terminal sizes
 - f. Descriptive bulletins
 - g. Product sheets
 - h. Installation information
 - i. Seismic certification and equipment anchorage details

PART 2 – PRODUCTS

2.01 GENERAL

A. Power and Lighting 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 120/240-volt for single phase operation. Power panelboards shall be rated for 480 volts, 3-phase, 3-wire operation.
2. The manufacturer of the panelboard shall be Eaton, Square D, or approved equal.

2.02 PANELBOARDS

A. Ratings

1. Branch circuit panelboards rated 240 VAC or less shall have short circuit ratings not less than 10,000 amps RMS symmetrical or as indicated by a Short Circuit Study, whichever is greater.
2. Panelboards rated 480-VAC shall have short circuit ratings not less than 25,000 amps RMS symmetrical or as indicated by the Short Circuit Study, whichever is greater.
3. Panelboards shall be labeled with a UL short circuit rating. Series ratings are not acceptable.

B. Construction

1. All lighting and power distribution panels shall have copper busbars.
2. Breakers shall be one, two, or three-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. All panelboards shall be rated for the intended voltage.
5. All 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. Panels shall have the necessary barriers, supports, and liberal wiring gutters. Trim screws shall be stainless steel. All panelboard parts of metal other than copper, aluminum, or stainless steel shall be cadmium plated. Panelboards shall be as manufactured by Eaton, IEM, or Square D.
 7. Panelboards shall be UL-listed and NEMA 1 gasketed unless otherwise indicated within contract documents and drawings, except for special enclosures which are not available with UL listing.
- C. Panelboards shall be suitable for use as service entrance as indicated or as otherwise required by the N.E.C.

PART 3 – EXECUTION

3.01 GENERAL

- A. All Work of this Section shall be installed as indicated in Section 26 05 00 – General Electrical Work.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 26 27 26
WIRING DEVICES

PART 1 – GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall provide all wiring devices, plates, and nameplates in accordance with the Contract Documents.
- B. The requirements of Section 26 05 00 – General Electrical Work apply to this Section.
- C. 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 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01 33 00 – Submittal Procedures.
- B. Shop Drawings
 - 1. Complete catalog cuts of switches, receptacles, enclosures, covers, and appurtenances, marked to clearly identify proposed materials.
 - 2. Documentation showing that proposed materials comply with the requirements of NEC and UL.
 - 3. Documentation of the manufacturer's qualifications.

PART 2 – PRODUCTS

2.01 GENERAL

- A. All devices shall carry the UL label.
- B. General purpose duplex receptacles and toggle switch handles shall be brown everywhere except in finished rooms where they shall be ivory. Special purpose receptacles shall have a body color as indicated. Receptacles and switches shall conform to Federal Specifications W-C-596E and W-S-896E, respectively.

2.02 LIGHTING SWITCHES

- A. Local branch switches shall be toggle type, rated at 20 amps, 120-277 VAC, and shall be General Electric Cat. No. GE-5951-1 for single pole, GE-5953-1 for 3-way and GE-5954-1 for 4-way, or similar types as manufactured by Hubbell, or equal.

2.03 GENERAL PURPOSE RECEPTACLES

- A. Duplex receptacles rated 120-volt, 20 amps shall be polarized 3-wire type for use with 3-wire cord with grounded lead and 1 designated stud shall be permanently grounded to the conduit system (NEMA 5-20R).

2.04 ENCLOSURES AND COVERS

- A. Surface mounted switches and receptacles shall be in FS or FD type cast device boxes.
- B. Receptacles in exterior locations shall be with s-hinged cover/enclosure marked "Suitable for Wet Locations when in use" and "UL Listed." There shall be a gasket between the enclosure and the mounting surface and between the hinged cover and mounting plate/base. The cover shall be TayMac Specification Grade, or equal.

2.05 NAMEPLATES

- A. Provide nameplates or equivalent markings on switch enclosures to indicate ON and OFF positions of each switch. ON and OFF for 3-way or 4-way switches is not acceptable. Provide receptacles for special purposes with nameplates indicating their use. Conform to requirements of Section 26 05 00 – General Electrical.

PART 3 – EXECUTION

3.01 CONNECTION

- A. Securely fasten nameplates using screws, bolts, or rivets centered under or on the device, unless otherwise indicated.

3.02 GROUNDING

- A. Ground all devices, including switches and receptacles, in accordance with NEC, ART 250, and Section 26 05 26 – Grounding and Bonding.
- B. Ground switches and associated metal plates through switch mounting yoke, outlet box, and raceway system.
- C. Ground flush receptacles and their metal plates through positive ground connections to outlet box and grounding system. Maintain ground to each receptacle by spring-loaded grounding contact to mounting screw or by grounding jumper, each making positive connection to outlet box and grounding system always.

3.03 FIELD TESTING

- A. Provide checkout, field, and functional testing of wiring devices in accordance with Section 26 05 00 – General Electric Work.
- B. Test each receptacle for polarity and ground integrity with a standard receptacle tester.

END OF SECTION

SECTION 26 29 00
LOW-VOLTAGE CONTROLLERS

PART 1 – GENERAL

1.01 SCOPE

- A. The work under this section includes Low-Voltage Controllers (starters) for motors: magnetic motor starters, Reduced Voltage type.

1.02 RELATED SECTIONS

- A. Division 01 – General Requirements
- B. Division 26 – Electrical.

1.03 REFERENCES

- A. ANSI/NEMA ICS 6 – Industrial Control and Systems: Enclosures.
- B. ANSI/UL 248-8 – Low-Voltage Fuses – Part 8: Class J Fuses.
- C. NEMA AB 1 – Molded-case Circuit Breakers, Molded Case Switches, and Circuit-breaker Enclosures.
- D. NEMA ICS 2 – Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 Volts.
- E. NEMA KS 1 – Enclosed and Miscellaneous Distribution Equipment Switches.
- F. NEMA PB 1 – Panelboards.
- G. NEMA PB 1.1 – General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.

1.04 SUBMITTALS – FOR REVIEW/APPROVAL

- A. The Contractor shall submit Shop Drawings in accordance with Section 01 33 00 – Submittal Procedures, and 26 00 00 – General Electrical.
- B. The following information shall be submitted to the Engineer:
 - 1. Master drawing index
 - 2. Front view elevation
 - 3. Floor plan
 - 4. Top view

5. Unit wiring diagrams
6. Nameplate schedule
7. Starter and component schedule
8. Conduit entry/exit locations
9. Assembly ratings including:
 - a. Short-circuit rating
 - b. Voltage
 - c. Continuous current
10. Major component ratings including:
 - a. Voltage
 - b. Continuous current
 - c. Interrupting ratings
11. Cable terminal sizes
12. Product data sheets

1.05 SUBMITTALS – FOR CONSTRUCTION

- A. The following information shall be submitted for record purposes:
 1. Final as-built drawings and information for items listed in Paragraph 1.04, and shall incorporate all changes made during the manufacturing process
 2. Unit wiring diagrams
 3. Certified production test reports
 4. Installation information
 5. Seismic certification and equipment anchorage details as specified

1.06 QUALIFICATIONS

- A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.
- B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list

of installations with similar equipment shall be provided demonstrating compliance with this requirement.

D. Seismic Requirements:

1. The following minimum mounting and installation guidelines shall be met, unless specifically modified by the above referenced standards.
 - a. The Contractor shall provide equipment anchorage details, coordinated with the equipment mounting provision, prepared and stamped by a licensed civil engineer in the state. Mounting recommendations shall be provided by the manufacturer based upon the above criteria to verify the seismic design of the equipment.
 - b. The equipment manufacturer shall certify that the equipment can withstand, that is, function following the seismic event, including both vertical and lateral required response spectra as specified in above codes.
 - c. The equipment manufacturer shall document the requirements necessary for proper seismic mounting of the equipment. Seismic qualification shall be considered achieved when the capability of the equipment, meets or exceeds the specified response spectra.

1.07 EQUIPMENT:

- A. Furnish branch circuits for all motors to the starting equipment and then to the motors, complete with all control wiring for automatic and remote control where required or noted. Conduits to motors shall terminate in the conduit fittings on the motors, the final connection being made with flexible, PVC-coated metal conduit.
- B. Provide all necessary labor and material to completely connect all electrical motors and controls (where required) in connection with the building utility equipment, including fans, pumps, overhead door operators, etc.
- C. All conduits and wiring required for control work from the holding coil circuit of the starter, including the furnishing and installation of control devices such as auxiliary contacts, control relays, time delay relays, pilot lights, selector switches, alternators, etc., shall be provided and installed by other trades unless otherwise indicated.
- D. Wire sizes for branch circuits not specifically called for on drawings or in specifications shall be based on 125 percent of the full load current of the motor unless the voltage drop of motor branch circuits exceeds 1-1/2 percent from the distribution panel to the motor; in which case, voltage drop shall govern wire sizes. A power factor of 80 percent shall be used for motors in such calculations.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions. One (1) copy of these instructions shall be included with the equipment at time of shipment.

1.09 OPERATION AND MAINTENANCE MANUALS

- A. Equipment operation and maintenance manuals shall be provided with each assembly shipped and shall include instruction leaflets, instruction bulletins and renewal parts lists where applicable, for the complete assembly and each major component.

1.10 SPARE PARTS

- A. Keys: Furnish two (2) each to Owner.
- B. Provide three (3) spares of each size and type fuse used. Provide enclosure for spare fuses.
- C. Fuse Pullers: Furnish one fuse puller to Owner.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Eaton products
- B. Square D
- C. Or Equal

NOTE: The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the engineer ten (10) days prior to bid date.

2.02 RATINGS

- A. The Motor Control Center(s) shall be 600-volt class suitable for operation on a three-phase, 60 Hz system. The system operating voltage and number of wires shall be as indicated on the drawings.
- B. Exact sizes for starters, busses, OCPD, VFDs and other items shall be as denoted on the contract drawings.

2.03 MAGNETIC MOTOR STARTERS

- A. Magnetic Motor Starters: NEMA ICS 2; AC general-purpose Class A magnetic controller for induction motors rated in horsepower; size 0 minimum.
- B. All motor starters shall be sized at a minimum, to provide motor nameplate full load amps (FLA) adjusted for motor nameplate service factor (SF) after de-rating for elevation.
- C. Reduced Voltage Soft-Starting:
 - 1. Solid-state type.

2. Ramp times and trip current rating shall be adjustable.
 3. For pump motors, provide starter with pump control option with sophisticated pump algorithms on both starting and stopping that minimize the pressure surges that cause water hammer.
 4. Provide Soft-Start controller(s) for motors as required for temporary pumping skid.
- D. Overload Protection: The overload shall be solid-state, self-powered, provide phase loss and phase unbalance protection, have a permanent tamper guard, and be ambient insensitive. The overload shall have a mechanical test function.
 - E. Enclosure: NEMA Type 1 for dry environments. NEMA type 3R for wet environments.
 - F. Provide manufacturer's equipment ground kit in all starter enclosures.
 - G. Auxiliary Contacts: NEMA ICS 2, two (2) field convertible contacts in addition to seal-in contact.
 - H. Selector Switches: NEMA ICS 2, HAND-OFF-AUTO in front cover.
 - I. Indicating Lights: NEMA ICS 2; red "RUN" LED Push-to-test type in front cover.
 - J. Control Power Transformers: Each magnetic starter shall have a fused primary and a fused 120Vsecondary control transformer, sized for the load, 50 VA minimum. Additionally, the X2 terminal of the control transformer shall be grounded.
 - K. Fusible Switch Assemblies: NEMA KS 1; quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle. Provide interlock to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse Clips: Designed to accommodate Class J fuses.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Contractor shall fully inspect shipments for damage and report damage to manufacturer and file claim upon shipper, if necessary.
- B. Contractor shall supply overload relay heater ratings that are properly sized and coordinated for each motor starter unit.
- C. Contractor shall verify NEC clearances as dictated on the contract drawings prior to installation. Verify UL labeling of the assembly prior to installation.

3.02 INSTALLATION

- A. Install motor control equipment in accordance with manufacturer's instructions.
- B. Wire up to the Remote Telemetry Unit (RTU) for reporting/recieving:

1. Run signal to RTU
2. Fault signal to RTU
3. Start signal from RTU

NOTE: Contractor to label, route, and land all conductor. Integration done by others.

- C. Set overload protection in motor starters to match installed motor characteristics.
- D. Motor Data: Provide neatly typed label inside each motor starter enclosure door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

3.03 FIELD ADJUSTMENTS

- A. The Contractor shall perform field adjustments of the short circuit and overload devices as required to place the equipment in final operating condition. The settings shall be in accordance with the approved short-circuit study, protective device evaluation study, protective device coordination study, manufacturer's instruction leaflets, and the contract documents.

3.04 FIELD TESTING

- A. Contractor is responsible for generation of a field report on tests performed, test values experienced, etc., and make the report available to owner upon request.

END OF SECTION

DIVISION 31

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 31 20 00

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies requirements for earthwork, which consists of excavation, filling, grading, and disposal of excess material.
- B. Related Sections:
 - 1. 31 23 19 Dewatering
 - 2. 31 23 16.26 Rock Excavation
 - 3. 31 25 13 Erosion Control
 - 4. 33 11 13 Water Distribution Piping
 - 5. 33 12 16 Water Distribution Valves
 - 6. 33 12 13 Water Service Connections
 - 7. 33 12 19 Water Fire Hydrants

1.02 REFERENCES

- A. American Society of Testing and Materials (ASTM)
 - 1. C33 Standard Specification for Concrete Aggregates
 - 2. C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - 3. D422 Method for Particle-Size Analysis of Soils.
 - 4. D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in (457-mm) Drop.
 - 5. D2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
 - 6. D2487 Classification of Soils for Engineering Purposes.
 - 7. D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 8. D3017 Test Method for Moisture Content of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 9. D4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
 - 10. D4254 Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.
 - 11. D4318 Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
 - 12. D6938 Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.03 DEFINITIONS

- A. Pipe Zone Backfill: The pipe zone is defined as that portion of the vertical trench cross-section lying between a plane 6" below the bottom surface of the pipe, i.e., the trench subgrade, and a plane 12" above the top surface of the pipe.
- B. Pipe Bedding: The bedding for flexible pipe is defined as that portion of pipe. Zone backfill material between the trench subgrade and the bottom of the pipe.
- C. Trench Zone Backfill: The trench zone is defined as that portion of the vertical trench cross-section lying between a plane 12" above the top surface of the pipe and a plane at a point 12" below the finished surface grade, or if the trench is under pavement, 9" below the roadway subgrade.
- D. Final Backfill: Final backfill is all backfill in the trench cross-sectional area within 12" of finished grade, or if the trench is under pavement, all backfill within 9" of the pavement.

1.04 SUBMITTALS

- A. The Contractor's attention is directed to the provisions for "Shoring and Bracing Drawings" in Section 6705 of the California Labor Code. The Contractor shall submit a detailed plan and obtain the Owner's written acceptance prior to beginning any excavation 5 feet deep or deeper. This plan shall include the design of all shoring, bracing, sloping of the sides of excavation, or other provisions for worker protection against the hazard of caving ground during the excavation. If such plan varies from the shoring system standards established in the Construction Safety Orders of the State of California, such alternative systems plans shall be prepared by a civil or structural engineer licensed in the State of California.
- B. The Contractor shall submit samples of materials in accordance with the Contract Documents.

1.05 QUALITY ASSURANCE

- A. General: All soils testing will be done by a testing laboratory of the Owner's choice at the Owner's expense except as specified in Paragraph 1.04C, below. Additional testing may be performed by City of South Lake Tahoe staff for backfill within the City right-of-way.
- B. Where soil material is required to be compacted to a percentage of maximum density, the maximum density at optimum moisture content will be determined in accordance with ASTM D 1557. Where cohesionless, free draining soil material is required to be compacted to a percentage of relative density, the calculation of relative density will be determined in accordance with ASTM D 4253 and D 4254. Field density in-place tests will be performed in accordance with ASTM D 2922, or by such other means acceptable to the Engineer. No correlating sand cone tests (ASTM D 1556) are planned.
- C. In case the tests of the fill or backfill show non-compliance with the required density, the Contractor shall accomplish such remedy as may be required to insure

compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the Owner and shall be at the Contractor's expense.

- D. Tests will be made by the Engineer in accordance with the following methods:

Test	Standard Procedure
Moisture content	ASTM D3017
Gradation	ASTM D422
Density in-place	ASTM D6938
Moisture-density relationships	ASTM D1557
Plasticity Index	ASTM D4318

- E. Unified Soil Classification System: The Contractor shall be bound by all applicable provisions of ASTM D 2487 in the interpretation of soil classifications.

PART 2 PRODUCTS

2.01 GENERAL

- A. Backfill materials shall be suitable selected or processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation.
- B. Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 3 inches.

2.02 FILL MATERIALS

- A. Soils not classified as unsuitable as defined in Paragraph entitled "Unsuitable Material" herein, are defined as suitable materials and may be used in fills, backfilling, and embankment construction subject to the specified limitations. In addition, when acceptable to the Engineer, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a stable composite.
- B. Suitable materials may be obtained from on-site excavations, may be processed, on-site materials, or may be imported. If imported materials are required to meet the requirements of this Section or to meet the quantity requirements of the project, the Contractor shall provide the imported materials at no additional expense to the Owner, unless a unit price item is included for imported materials in the bidding schedule.
- C. Aggregate Base/Recycled Aggregate Base:
 - 1. Material shall conform to CALTRANS Class 2 aggregate base with 3/4-inch maximum size conforming to the following gradation:

U.S. standard sieve size	Percent by weight passing
1 inch	100
3/4 inch	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-9

Liquid limit: ≤ 35

Plasticity index: ≤ 5

2. Pipe Zone Material shall meet the requirements of Section 2.02.C.1. However, no recycled material can be used within the pipe zone of the pipe being installed.

D. Engineered Fill (Structural and Non-Structural Applications):

1. Material shall be native soils or import, as required, and should consist of relatively non-plastic material containing no organic material or debris. The soils shall conform to the following gradation:

U.S. standard sieve size	Percent Passing by weight
4 inch	100
3/4 - inch	70 - 100
No. 40	15 - 50
No. 200	5 - 25

Liquid limit: ≤ 35

Plasticity index: ≤ 10

E. Open Graded Gravel / Drain Rock:

1. Material shall be imported, clean, crushed, uniformly graded gravel containing no organic material or debris. The soils shall conform to the following gradation:

U.S. standard sieve size	Percent by weight passing
2 inch	100
1-1/2 inch	90-100
No. 4	0-10
No. 200	0-3

F. Sand

1. Material shall conform to requirements of ASTM C33 for "Fine Aggregate" except that all material shall pass #4 sieve, and no more than 5% shall pass a #100 sieve.
- G. Slurry (Dry)
1. Dry slurry may also be referred to as 2-Sack Sand Slurry
 2. Submittals and testing as per Section 03 30 00.
 3. Performance requirements:
 - a. Total calculated air content: 6-12%
 - b. Diggable after fully cured
 - c. Slump: Zero to 9 inches.
 4. Materials:
 - a. Portland cement: Type IP Low Alkali or Type II Low Alkali at a rate of 188 lb per batch.
 - b. Fly ash: Class F fly ash in accordance with ASTM C 618.
 - c. Water: as per Section 03 30 00.
 - d. Admixture: Air entrainment admixture as per Section 03 30 00.
 - e. Fine aggregate: As per Section 03 30 00, and non-plastic with no more than 12 % passing No. 200 sieve.
 - f. Coarse aggregate: none.
- H. Slurry (Wet)
1. Wet slurry may also be referred to as Flowable Slurry or Controlled Low Strength Material.
 2. Submittals and testing as per Section 03 30 00.
 3. Performance requirements:
 - a. Total calculated air content: 8-12%.
 - b. Unconfined compressive strength at 28 days: 50 psi-150 psi; diggable after fully cured.
 - c. Wet density: <133 pcf.
 - d. Slump: at least 9 inches; free flowing during placement.
 4. Materials
 - a. Portland cement: Type II low alkali as per Section 03 30 00.
 - b. Fly ash: Class F fly ash in accordance with ASTM C 618.
 - c. Water: as per Section 03 30 00.
 - d. Admixture: Air entrainment admixture as per Section 03 30 00.
 - e. Fine aggregate: As per Section 03 30 00, and non-plastic with no more than 12 % passing No. 200 sieve.
 - f. Coarse aggregate: pea gravel no larger than 3/8-inch.

PART 3 EXECUTION

3.01 GENERAL

- A. Clearing and Stripping: The Contractor shall remove all paving, subpaving, curbing, gutters, brick, paving block, granite curbing or flagging or shall grub and clear the entire surface over the areas to be excavated and shall remove and dispose of said material as required by the Specifications. In all cases, the Contractor shall machine cut in an approved width and manner all bituminous,

asphaltic, and portland cement concrete pavements before stripping or excavating is begun.

- B. Dewatering: In accordance with Section 31 23 19 Dewatering.
- C. Maintaining Rights-of-Way:
 - 1. Work shall be conducted as to cause a minimum of inconvenience to pedestrian and vehicular traffic and to private and public properties along the line of work. When specifically directed by the District, the Contractor shall complete the work in private and public rights-of-way up to a designated point before continuing with further work in order to give required access to local facilities and property. It shall be the duty of the Contractor during the progress of the work to maintain crossings, walks, sidewalks and other roadways open to traffic in a satisfactory condition and to keep all fire hydrants, water valves, fire alarm boxes and mail boxes accessible for use. Whenever it is necessary to maintain pedestrian traffic over open trenches, safe timber bridges at least three (3) feet in width and equipped with side railings shall be provided. Where the trench is so close to the curb line that the excavated material would encroach upon the sidewalk or private property, the District may order the Contractor at the Contractor's expense to erect a plank fence together with other necessary lumber so placed to keep the sidewalk and property clear.
 - 2. In important thoroughfares, highways or in narrow streets, the material excavated from the trench shall, if the District so directs, be removed from the site of the work at the Contractor's expense as soon as excavated in order to provide suitable space for traffic. When it is necessary to haul excavated material over the streets near the job location, the Contractor shall provide suitable type vehicles and shall promptly and thoroughly clean up all material dropped on streets and highways outside of the immediate trenching area.
 - 3. Guard rails and other highway and street structures disturbed or altered in any way by the construction activities shall be promptly restored to a condition equal to or better than original and shall be replaced in proper alignment. Facilities discolored in anyway by the construction activities shall be refinished by the Contractor by washing and repainting as necessary.

3.02 SITE PREPARATION FOR STRUCTURAL FILLS

- A. All topsoil, soils with significant organics, and organic materials including vegetation shall be removed from the area receiving structural fill.
- B. All foundation soil which will receive structural fill shall be densified to 8 inches minimum depth, to at least 90 percent relative compaction in accordance with ASTM D1557. Immediately before this densification, soils shall have optimum moisture content, within plus or minus 2 percent, unless otherwise approved by the Engineer.
- C. Scarification and moisture conditioning of foundation soils may be required.
- D. If native foundation soils are too coarse to allow density testing (i.e., greater than 30% by weight is retained on a $\frac{3}{4}$ " sieve), then foundation soil shall be proof-rolled:

1. For mass grading, at least 5 passes with a minimum 10-ton roller.
 2. For trenches, at least 5 passes with a hand compactor.
- E. Where boulders are encountered protruding from an excavation, they shall be removed, and the depression shall be backfilled and compacted with structural fill to meet the moisture-density requirements listed above. The terms of Part 3.04.I shall also apply to boulder removal activities for excavations.
- F. Where the undisturbed condition of natural soils is inadequate for support of the planned construction, the Engineer will direct the Contractor to overexcavate to adequate supporting soils. The excavated space shall be filled to the specified elevation with Engineered (Structural) fill in accordance with Table A - Fill Placement. The overexcavated space under footings may be filled with concrete. The quantity and placement of such material will be compensated as extra work.

3.03 FILL PLACEMENT

- A. Backfill shall not be dropped directly upon any structure or pipe so as to cause damage. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed. Backfill around water retaining structures shall not be placed until the structures have been tested.
- B. Except for drain rock materials being placed in over-excavated areas or trenches, backfill shall be placed after all water is removed from the excavation.
- C. Fill material shall be placed in even horizontal layers and thoroughly mixed as necessary to promote uniformity of material in each layer. Pipe zone backfill materials shall be manually spread around the pipe so that when compacted the pipe zone backfill will provide uniform bearing and side support.
- D. Where the backfill material moisture content is below the optimum moisture content water shall be added before or during spreading until the proper moisture content is achieved.
- E. Where the backfill material moisture content is too high to permit the specified degree of compaction the material shall be dried until the moisture content is satisfactory.
- F. Material type, maximum layer depth, relative compaction, and general application are specified in Table A.
- G. Fill material shall be compacted with power-operated tampers, rollers, idlers, or vibratory equipment, as appropriate for the soil type and application.
1. Open-graded gravel/drain rock materials shall be compacted by means of at least two passes from a flat plate vibratory compactor.
 2. Additionally, when native soil is free draining and above groundwater, pipe zone backfill materials that are granular will be compacted by mechanical means and by jetting, unless directed otherwise by the Engineer.
 - a. Jetting:

- 1) The purpose of jetting is to consolidate backfill beneath the haunches of the pipe.
 - 2) Jetting will only be performed in the portion of the trench zone from the bottom of the pipe to the top of the pipe.
 - 3) Water is injected into backfill through a jet pipe. The next injection site will be such that each backfill layer is saturated and consolidated to its full depth before the next layer is placed. The amount of jetted water, duration of jetting at each site, and frequency of jetting will be adjusted based on field conditions and equipment used.
 - 4) Jet pipes shall be kept at least 6 inches away from the pipe where the backfill is being consolidated and 2 feet away from other pipes or utilities. Care must be taken to ensure that the install pipe is not floated or moved during this operation.
 - 5) If jetting is used, the pipe shall be filled with water to prevent flotation, if required by the Engineer.
 - 6) Each layer shall not exceed 6" in thickness after compaction
3. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content.
 4. Equipment weighing more than 10,000 pounds shall not be used closer to walls than a horizontal distance equal to depth of the fill at that time.
 5. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.

H. Unless otherwise specified, fill placement classes shall be used where specified in Table A under general application, in accordance with ASTM D1557.

Table A, Fill Placement

Fill Type	Maximum uncompressed layer thickness, inches	Minimum relative compaction, percent	Moisture content, percent	General application
Aggregate Base	8	95	± 2 of optimum	Pipe Zone Backfill (No Recycled Material), Tank Floor Base; Final Backfill under pavement
Engineered Fill (Structural)	8	95	± 2 of optimum	Structural Fill for Foundations, Trench Zone Backfill Beneath Pavement And Under Structures
Engineered Fill (Non-Structural)	12	90	± 2 of optimum	Trench Zone Backfill in Unpaved Areas. Site Fill and Nonstructural Fill Outside Perimeter of Structure or Other Nonstructural Areas
Open-Graded Gravel / Drain Rock	12	NA	NA	Infiltration Trenches, Surface Stabilization
				Trench Zone Backfill in

Fill Type	Maximum uncompressed layer thickness, inches	Minimum relative compaction, percent	Moisture content, percent	General application
Recycled Aggregate Base	8	95	± 2 of optimum	Paved Areas (DO NOT USE IN PIPE ZONE); Final Backfill under pavement
Slurry (Dry)	36 (or less if required to protect adjacent structures)	NA	NA	Trench Zone Backfill, Structural Fill, Nonstructural Fill, and Final Backfill under pavement, where site conditions do not allow for compaction.
Slurry (Wet)	36 (or less if required to protect adjacent structures)	NA	NA	As per Plans

3.04 SITE FILL AND NONSTRUCTURAL FILL

- A. Unless otherwise specified, site fill and nonstructural fill shall be Engineered (Non-Structural) fill. If the existing slope in an area to be filled is greater than 5:1, the Contractor shall bench and key the slope prior to filling, as shown in the Drawings.

3.05 PIPELINE AND UTILITY TRENCHES

- A. General:
1. The Contractor shall do all excavating of whatever substance encountered to a depth as indicated on the approved plans or as specified herein. Excavated materials not required or unsuitable for backfill shall be removed from the site and disposed of by the Contractor at a site approved by TRPA. Pipe trenches shall be sufficiently straight between the designated angle points to permit the pipe to be laid true to line in the approximate center of the trench.
 2. Unless otherwise shown or ordered, excavation for pipelines and utilities shall be open-cut trenches. Trench widths shall be kept as narrow as is practical for the method of pipe zone densification selected by the Contractor, but shall have a minimum width at the bottom of the trench of 24 inches for pipe 10 inches or less in diameter. For pipe greater than 10 inches but less than 18 inches, minimum trench width shall be 30 inches. The maximum width below the top of the pipe, when laid to the required grade, shall in no event exceed the outside diameter of the pipe plus twenty four inches (24"). Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting or shoring as placed. Overall width of the excavation equipment used shall in no case exceed the maximum allowable trench width. Whenever, for any reason, the maximum allowable trench width is exceeded at the top of the pipe, the

Contractor shall employ one or more of the following procedures as approved by the District:

- a. The pipe shall be bedded in a monolithic cradle of plain or reinforced concrete having a minimum thickness of one fourth ($1/4$) the inside pipe diameter or a minimum of four inches (4") under the barrel and extending up the sides for a height equal to one half ($1/2$) the outside diameter. The cradle shall have a width at least equal to the outside diameter of the pipe barrel plus eight inches (8"). Backfill above the crown of the pipe shall be compacted carefully.
 - b. Provide a higher strength pipe required to withstand the increased loading on the pipe caused by the excessive trench width.
 - c. Install temporary sheeting and shoring while the pipe is being installed with the backfill placed and compacted to a height at least one (1) foot above the top of the pipe.
- B. Trench Bottom: Except when pipe bedding is required, the bottom of the trench shall be excavated uniformly to the grade of the bottom of the pipe. The trench bottom shall be given a final trim, using a string line for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe. For bell and spigot pipe, the Contractor shall round out a cradle for the bell so that the bottom of the pipe is in continual contact with the bedding. Rounding out the trench to form a cradle for the pipe will not be required, except as in 3.02.A.2.a described above.
- C. Open Trench: The maximum amount of open trench permitted in any one location shall be 500 feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in roadways or smooth, continuous plywood covers suitable for carrying foot or bicycle traffic safety in unpaved areas where it is impractical to backfill at the end of each day. The above requirements for backfilling or use of steel plate or plywood covers will not be waived at any time. In addition, barricades and warning lights meeting OSHA requirements shall be provided and maintained.
- D. Trench Over-Excavation: Where the Drawings indicate that trenches shall be over-excavated, they shall be excavated to the depth shown, and then backfilled to the grade of the bottom of the pipe.
- E. Over-Excavation: When ordered by the Engineer, whether indicated on the Drawings or not, trenches shall be over-excavated beyond the depth shown. Such over-excavation shall be to the depth ordered. The trench shall then be backfilled to the grade of the bottom of the pipe. All work specified in this Section shall be performed by the Contractor when the over-excavation ordered by the Engineer is less than 6" below the limits shown. When the over-excavation ordered by the Engineer is 6" or greater below the limits shown, additional payment will be made to the Contractor for that portion of the work which is located below said 6" distance. Said additional payment will be made under separate unit price bid items for over-

excavation and bedding if such bid items have been established; otherwise payment will be made in accordance with a negotiated price.

- F. Completion of Excavation: The Contractor shall notify the District when excavations for pipelines or utilities are completed, and no concrete shall be deposited, nor pipes installed, until the excavations have been approved by the District.
- G. OVER-EXCAVATION NOT ORDERED, SPECIFIED, OR SHOWN
 1. Any over-excavation carried below the grade ordered, specified, or shown, shall be backfilled to the required grade with the specified material and compaction. Such Work shall be performed by the Contractor at his/her own expense.
- H. TRENCH BACKFILL AND COMPACTION
 1. Bedding shall be provided for all pipelines.
 2. After compacting the bedding, the Contractor shall perform a final trim using a stringline for establishing grade, such that each pipe section when first laid will be continually in contact with the bedding along the extreme bottom of the pipe.
 3. The pipe zone shall be backfilled with the specified backfill material. The Contractor shall exercise care to prevent damage to the pipe itself during the installation and backfill operations.
 4. After the pipe zone backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the trench zone may proceed.
- I. EXCAVATION IN LAWN AREAS
 1. Where excavation occurs in lawn areas, the sod shall be carefully removed and stockpiled to preserve it for replacement. Excavated material may not, under any circumstances, be placed on the lawn. Immediately after completion of backfilling and testing of the pipeline, the sod shall be replaced in a manner so as to restore the lawn to its original condition. Contractor shall provide new sod if stockpiled sod has remained so for more than 72 hours within the scope of the Contract. Sod compressed or otherwise damaged by the Contractor's operations shall be replaced.
- J. EXCAVATION AND COMPACTION IN VICINITY OF TREES
 1. Except where trees are shown to be removed, trees shall be protected from injury during construction operations. No tree roots over 1-½" in diameter shall be cut without express permission of the Engineer. Trees shall be supported during excavation by any means previously reviewed by the Engineer.
 2. Where delineated on the plans, or where required for preservation of the roots, the Contractor shall provide hand excavation. Hand excavation shall be to the depth required for pipe installation, up to a depth of 5'.
 3. In areas which require hand excavation, the backfill must be compacted such that tree roots 1.5" and larger are preserved.

3.06 ROCK EXCAVATION

1. Rock excavation shall include removal and disposal of the following:
 - a. all boulders that cannot be moved using the largest piece of equipment onsite;
 - b. all rock material in ledges, bedding deposits, and unstratified masses which cannot be removed without systematic drilling and splitting or blasting;
 - c. concrete or masonry structures which have been abandoned; and,
 - d. conglomerate deposits which are so firmly cemented that they possess the characteristics of solid rock and which cannot be removed without systematic drilling and splitting or blasting.
2. No rock splitting or blasting shall commence without the approval of the Engineer.
3. Said rock excavation shall be performed by the Contractor. Should the quantity of rock excavation be affected by any change in the scope of the work, an appropriate adjustment of the contract price will be made under a separate bid item if such bid item has been established; otherwise, payment will be made in accordance with a negotiated price.
4. Explosives and Blasting:
 - a. Blasting will not be permitted, except by express permission of the Engineer on a case-by-case basis. The use of explosives will be subject to the approval and regulations of all agencies having jurisdiction. If blasting is utilized at the site of the Work, the Contractor shall take all precautions and provide all protective measures necessary to prevent damage to property and structures or injury to person. Prior to blasting, the Contractor shall secure all permits required by law for blasting operations and shall provide any additional hazard insurance required by the Owner. The Contractor shall have a fully qualified, licensed and experienced blasting foreman in charge of all blasting operations.
 - b. The Contractor will be held responsible for all explosives and blasting and shall repair any damage caused by blasting or resulting from its possession or use of explosives on the Work.
 - c. All operations involving the handling, storage, and use of explosives shall be conducted in accordance with the requirements of the OSHA Standards for Construction, and in accordance with all local laws and regulations.

3.07 DISPOSAL OF EXCESS EXCAVATED MATERIAL

1. The Contractor shall remove and dispose of all excess excavated material at a site selected by the Contractor and reviewed by the Engineer.
2. Unless otherwise specified, surplus excavated material shall be disposed of off site in accordance with applicable ordinances and environmental requirements.
3. If the quantity of surplus material is specified, the quantity specified is approximate. The Contractor shall satisfy himself that there is sufficient material available for the completion of the embankments before disposing of any material inside or outside the site. Shortage of material, caused by premature disposal of any material by the Contractor, shall be replaced by the Contractor.

4. Material shall not be stockpiled to a depth greater than 5 feet above finished grade within 25 feet of any excavation or structure except for those areas designated to be preconsolidated. For these areas, the depth of stockpiled material shall be as specified. The Contractor shall maintain stability of the soil adjacent to any excavation.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 31 23 16.26

ROCK EXCAVATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Rock Excavation submittals, requirements and execution.
- B. Related Sections:
 - 1. 31 20 00 Earthwork
- C. Summary of Work:
 - 1. In the event that excavation cannot proceed in accordance with Section 31 20 00 using standard excavation equipment as defined by this section, the Contractor shall employ rock excavation techniques in accordance with this Section.

1.02 REFERENCES

- A. Associated General Contractors (AGC):
 - 1. Manual of Accident Prevention in Construction (Section 9)
- B. Division of Industrial Safety (DIS)
- C. Institute of Makers of Explosives (IOMOE)
- D. Occupational Safety and Health Act (OSHA)
- E. California Department of Transportation (CALTRANS)
- F. El Dorado County Sheriff's Department
- G. California Highway Patrol (CHP)
- H. City of South Lake Tahoe (City)

1.03 SUBMITTALS

- A. Rock excavation plan
 - 1. The Contractor shall submit to the District for review and approval a Rock Excavation Plan stating in detail the methods it will employ to excavate rock in the Project Area, as characterized in the Geotechnical Report for this Project.
 - 2. The plan shall identify at a minimum, the following:
 - a. A detailed description of each method that will be employed, and the order in which they will be applied (if more than one), to accomplish rock excavation, including the criteria for determining when a method will be used.

- b. The name, firm, qualifications (as per below), and licensure (if required) of the contractor performing each method.
 - c. A list of permits required to employ the stated methods.
 - d. Plans for notification of residents and protection of existing improvements.
- B. If blasting is included in the proposed methods for rock excavation, then the following additional requirements shall apply:
 - 1. Qualifications: Verification of at least 5 years blasting experience in the Tahoe area for both supervisory individuals to be assigned to the work and firm experience.
 - 2. Licensure:
 - a. All applicable licenses required to perform blasting operations.
 - b. All applicable federal, state, and local permits required for transporting and using explosives.

1.04 DEFINITIONS

- A. Rock Excavation – consists of the removal of hard igneous, metamorphic, and/or sedimentary rock in solid beds or masses in original or stratified position which by actual demonstration cannot, in the engineer's opinion, be reasonably removed, loosened, or ripped by standard equipment and which can be removed only by systematic drilling, blasting, or the use of pneumatic tools, and all boulders of 0.5 cubic yards in volume or larger. Material which can be loosened with a pick, frozen materials, soft laminated shale and hardpan, which for convenience or economy is loosened by drilling, blasting, wedging, or the use of pneumatic tools, removal of concrete pavement and retaining walls, shall not be classified as rock excavation.
- B. Standard Equipment – If not defined by the geotechnical report, standard equipment shall be considered a hydraulic excavator equipped with ripper teeth having a minimum 110 flywheel horsepower, equivalent to a CAT 315 or larger.

1.05 SEQUENCING AND SCHEDULING

- A. Provide Rock Excavation Plan for review and approval at least two weeks prior to commencing rock excavation.
- B. Notify all residents living within 2,000 feet of blasting areas at least 48 hours in advance of all blasting activities.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION

3.01 GENERAL

- A. Make a photographic record of pre-construction condition of road and structures within 500 feet of rock excavation area. Damage to existing improvements caused by the rock excavation process shall be repaired to the District's satisfaction at no additional cost to the District.

- B. Obtain all applicable permits required for rock excavation and transport of rock excavation materials (ie., explosives) prior to commencing work.
- C. The Contractor shall remove and dispose of all excess excavated material in accordance with 31 20 00 EARTHWORK.

3.02 BLASTING

- A. Blasting will not be permitted, except by express permission of the Engineer on a case-by-case basis. The use of explosives will be subject to the approval and regulations of all agencies having jurisdiction. If blasting is utilized at the site of the Work, the Contractor shall take all precautions and provide all protective measures necessary to prevent damage to property and structures or injury to person. Prior to blasting, the Contractor shall secure all permits required by law for blasting operations and shall provide any additional hazard insurance required by the Owner. The Contractor shall have a fully qualified, licensed and experienced blasting foreman in charge of all blasting operations.
- B. If pre-drilling and blasting will be employed, the same party shall be used to complete pre-drilling operations and drilling operations for blasting.
- C. Blasting shall only be completed with the approval of the ENGINEER and the OWNER.
- D. Blasting, if employed, shall be performed:
 - 1. In accordance with recommendations for best practice in AGC Manual, Section 9 and of IOMOE Manual;
 - 2. In accordance with requirements of DIS and OSHA;
 - 3. In such a manner that no damage occurs to any building, structure, pipeline, or facility on or off site of the work, above or below ground;
 - 4. In such a manner that earth is not loosened or disturbed below footing or foundation of any proposed structure.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 31 23 19

DEWATERING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Removal and exclusion of water, including, but not limited to, stormwater, groundwater, irrigation water, water from leaking pipes, water drained from existing distribution pipes (usually encountered during tie-ins), and wastewater, from all excavations.
- B. Related Sections:
 - 1. 31 20 00 Earthwork
 - 2. 31 25 13 Erosion Control

1.02 SUBMITTALS

- A. Prior to commencement of excavation, the Contractor shall submit a detailed plan and operation schedule of dewatering of excavations. The Contractor may be required to demonstrate the system proposed and to verify that adequate equipment, personnel, and materials are provided to dewater the excavations at all locations and times. All elements of the Contractor's dewatering plan are subject to review and approval by the Engineer.
- B. The dewatering plan shall show the arrangement and location of wells or wellpoints, sump pumps, methods of installation, location of headers and discharge lines, flow control valves, meters, sampling ports and points of discharge disposal. Review by the Engineer shall not relieve the Contractor of responsibility for the adequacy of the dewatering system to achieve the specified result.
- C. After completion of the dewatering installation and prior to commencement of excavation, the Contractor shall submit for review a detailed plan of the dewatering system as constructed, together with site data and computations demonstrating that the system is capable of achieving the specified result.

1.03 QUALITY ASSURANCE

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.
- C. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at

frequent intervals to detect any settlement which may develop. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Dewatering equipment may include the use of well points, sump pumps, temporary pipelines for water disposal, storage tanks, desilting equipment, rock or gravel placement, and other apparatus. Standby pumping equipment shall be maintained on the job site once dewatering operations commence.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall provide all equipment necessary for dewatering and shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workmen for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.
- B. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.
- C. At all times, site grading shall promote drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.
- D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
- E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock at no additional cost to the Owner.

- F. The Contractor shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation, construction, backfilling, and until acceptance.
- G. Flotation shall be prevented by the Contractor by maintaining a positive and continuous removal of water. The Contractor shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.
- H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering. The pumping of fine sands or silts from the subsurface shall be prevented by sand packing or other means. The Contractor shall continually check and verify that subsurface soil is not being removed by the dewatering operation.
- I. Open pumping with sumps and ditches, if it results in boils, loss of fines, softening of the ground, or instability of slopes will not be permitted.
- J. The Contractor shall dispose of water from the Work in a suitable manner without damage to adjacent property. Sanitary sewers may be used for disposal of water if approved by the Owner. No water shall be drained into work built or under construction without prior consent of the Engineer. Water shall be filtered using an approved method to remove sand and fine-sized soil particles before disposal into any drainage system. Water disposed of into the sanitary sewer shall have turbidity less than 200 NTU with less than 300 MG/L of suspended solids. The discharge shall be arranged to facilitate collection of samples by the Engineer. The Owner is to be notified prior to any disposal of water in any drainage system or sewer. Water discharges shall comply with the requirements of the Tahoe Regional Planning Agency and the Lahontan Regional Water Quality Control Board.
- K. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, sewers, and other facilities.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 31 25 00

EROSION CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: provision, installation and maintenance of temporary erosion control devices and vegetation protective fencing during construction and revegetation of disturbed areas after construction.
- B. Related Sections:
 - 1. 01 50 00 Temporary Facilities and Controls
 - 2. 31 20 00 Earthwork
 - 3. 31 23 19 Dewatering
- C. References:
 - 1. 2026 Pioneer Trail Waterline SWPPP, Prepared by Lumos & Associates – See Appendices
 - 2. BMP Sheets

PART 2 PRODUCTS

2.01 GENERAL

- A. Temporary erosion control measures include filter fabric fence and/or other approved sediment control barriers.
- B. Complete permanent stabilization measures in accordance with the Project specifications and plans.

PART 3 EXECUTION

3.01 GENERAL

- A. A pre-grading inspection attended by the District, TRPA, Lahontan and the Contractor is required prior to commencement of any grading activities.
- B. Erosion control work is subject not only to the approval of the Engineer, but also to the approval of both the TRPA and Lahontan representatives for the project.
- C. Erosion control measures shall be installed as shown on the Plans or as otherwise directed by the Engineer, TRPA or Lahontan.

- D. Filter fabric fence and/or sediment control barriers shall be properly installed and conscientiously maintained during the project and, if requested by the Engineer, shall be left in place after completion of construction.
- E. The Contractor shall locate material stockpiles away from drainages, upslope from excavations where practical, and generally so as to minimize erosion potential in the event of a storm. The Contractor shall have on hand plastic sheeting to cover small spoils piles during storms.
- F. Routine sweeping of surface subject to runoff or traffic.
- G. Attendance to weekly SWPPP compliance tailgate meetings, trainings, and walkthrus; compliance with Rain Event Action Plans (REAPs) in advance of forecasted precipitation, responding to storm events, and continuous cleanup and maintenance of BMPs in accordance with the SWPPP for the duration of the Project.
- H. In the event the Contractor is unavailable or refuses to respond to a compliance issue, the District may mobilize other forces and seek cost recovery from the Contractor.

3.02 DISTURBED AREAS

- A. Grading and ground disturbance shall be limited to the areas of work as shown on the Plans.
- B. Permanent stabilization shall be completed in accordance with the SWPPP, plans, and specifications, including, but not limited to, revegetation and re-compaction of disturbed roadside shoulder areas.
- C. Traffic shall not be permitted on un-improved surfaces that leads to the generation of dust or tracking.

END OF SECTION

DIVISION 32

THIS PAGE LEFT INTENTIONALLY BLANK

TYPE TYPE BSECTION 32 12 16

ASPHALTIC PAVING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Hot Mix Asphalt on prepared subgrade or aggregate base course to lines, grades and compacted thickness as indicated on the Drawings.
- B. Related Sections:
 - 1. 31 20 00 Earthwork
 - 2. 31 25 13 Erosion Control

1.02 REFERENCES

- A. State of California Department of Transportation Standard Specifications, latest edition (CALTRANS Standard Specifications).
 - 1. Section 24 – Lime Stabilization
 - 2. Section 37 – Bituminous Seals.
 - 3. Section 39 – Hot Mix Asphalt.
 - 4. Section 92 – Asphalts.
 - 5. Section 93 – Liquid Asphalts.
 - 6. Section 94 – Asphaltic Emulsions.
- B. CALTRANS Standard Test Methods:
 - 1. Calif Test 204 - Plasticity Index of Soils
 - 2. Calif Test 304 - Preparation of Bituminous Mixtures for Testing.
 - 3. Calif Test 309 - Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
 - 4. Calif Test 362 - Determining Asphalt Content in Bituminous Mixtures by Vacuum Extraction.
 - 5. Calif. Test 366 – Method of Test for Stabilometer Value
 - 6. Calif Test 367 – Recommending Optimum Bitumen Content (OBC)
 - 7. Calif Test 371 - Resistance of Compacted Bituminous Mixture to Moisture Induced Damage
 - 8. Calif Test 375 - Determining the In-Place Density and Relative Compaction of AC Pavement.
 - 9. Calif Test 379 - Determining Asphalt Content in Bituminous Mixtures (Troxler Nuclear Gage Model 3241).
- C. CALTRANS Standard Laboratory Procedures
 - 1. LP-1 Determination of Theoretical Maximum Specific Gravity of Mixtures with Different Asphalt Contents
 - 2. LP-2 Determination of the Voids in Mineral Aggregate
 - 3. LP-3 Determination of the Voids Filled with Asphalt
 - 4. LP-4 Determination of Dust Proportion
 - 5. LP-5 Liquid Anti-Strip Mix Design

6. LP-6 Dry Lime on Damp Aggregate Mix Design
 7. LP-7 Lime Slurry Marination Mix Design
- D. American Society for Testing and Materials (ASTM) Standards:
1. D1561 Practice for Preparation of Bituminous Mixture Test Specimens by Means of California Kneading Compactor.
 2. D2074 Standard Test Methods for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method.
 3. D217 Standard Test Methods for Cone Penetration of Lubricating Grease.

1.03 SYSTEM DESCRIPTION

- A. This Work shall consist of furnishing and mixing aggregate and asphalt binder at a central mixing plant, spreading and compaction of the mixture as specified and as indicated on the Drawings.
- B. In general, asphalt concrete and asphalt concrete base shall conform to Section 39 "Hot Mix Asphalt," and all applicable referenced sections, of the CALTRANS Standard Specifications.
1. Where conflicts exist, this specification shall govern.

1.04 DEFINITIONS

- A. "Asphalt Concrete" shall be considered the "Surface Course," or the final lift of the pavement section.
- B. "Asphalt Concrete Base" shall be the remaining portion of the asphalt pavement section excluding the final lift.
- C. "Hot Mix Asphalt" (HMA) as used by CALTRANS refers to the total pavement section of asphalt including Asphalt Concrete and Asphalt Concrete Base.

1.05 SUBMITTALS

- A. Mix design.
1. Contractor shall submit the proposed asphalt concrete mix design and test results which conform to these specifications. The proposed mix design shall be reviewed and approved by the Engineer prior to commencing work.
 2. Contractor shall provide a mix design that conforms to the applicable requirements of Part 2.01 of this Section and complies with the following design requirements set forth in Section 39-1.03B of the CALTRANS Standard Specifications.

Quality Characteristic	Test Method	HMA Type		
		A	B	RHMA-G Special Provisions
Air Voids Content (%)	CT 367 ^a	4.0	4.0	
Voids in mineral aggregate (% min)	LP-2	17.0	17.0	--
		15.0	15.0	--
		14.0	14.0	18.0-23.0 ^b
		13.0	13.0	18.0-23.0 ^b
Voids filled with asphalt (%)	LP-3			
No. 4 grading		76.0-80.0	76.0-80.0	Note d

3/8" grading		73.0-76.0	73.0-76.0	
1/2" grading		65.0-75.0	65.0-75.0	
3/4" grading		65.0-75.0	65.0-75.0	
Dust proportion No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4	0.9-2.0 0.6-1.3	0.9-2.0 0.6-1.3	Note d
Stabilometer value (min.) ^c No. 4 and 3/8" gradings 1/2" and 3/4" gradings	CT 366	30 37	30 35	-- 23

Notes:

a. Calculate the air voids content of each specimen using California Test 309 and Lab Procedure LP-1. Modify California Test 367, Paragraph C5, to use the exact air voids content specified in the selection of OBC.

b. Voids in mineral aggregate for RHMA-G must be within this range.

c. Modify California Test 304, Part 2.B.2.c: "After compaction in the compactor, cool to 140° ± 5°F by allowing the briquettes to cool at room temperature for 0.5-hour, then place the briquettes in the oven at 140°F for a minimum of 2 hours and not more than 3 hours.

d. Report this value in the job mix formula Submittal.

3. Mix shall have a tensile strength ratio of at least 70, as determined by California Test 371.
 - a. If the tensile strength ratio of untreated HMA is less than 70, then the mix shall be treated with an appropriate antistrip treatment, and retested to achieve a minimum tensile strength ratio of 70.
4. Submittal shall conform to the requirements of Section 39-1.03C of CALTRANS Standard Specifications.

B. Test Results

1. Contractor shall submit the results of all tests which conform to these specifications.
2. Contractor shall provide one sieve analysis per day taken from the previous day's run.

C. Shop Drawings.

D. Product data:

1. Asphalt.
2. Asphalt aggregate
3. Pavement reinforcing fabric.

E. Quality Control Submittals:

1. Test Results.
2. Certificate of Compliance.
3. Certificate of Competence.

F. Equipment List.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Hot Mix Asphalt Delivery:

1. Transport the mixture from the mixing plant to the point of use in vehicles having tight bodies previously cleaned of all foreign materials.
2. Treat bodies as necessary to prevent material from sticking to the bodies.
3. Cover each load with canvas or other suitable material of sufficient size and thickness to protect the asphalt mixture from the weather.

1.07 Quality Assurance

- A. Comply with the Section 01 43 00 Quality Assurance

PART 2 PRODUCTS

2.01 HOT MIX ASPHALT MATERIALS

- A. Asphalts:
1. Asphalt Binder: Steam-refined paving asphalt conforming to Section 92-1.02B "Grades" of the CALTRANS Standard Specifications. The Contractor shall furnish asphalt in conformance with the CALTRANS "Certification Program for Suppliers of Asphalt" (http://www.dot.ca.gov/hq/esc/Translab/ofpm/pdf/COC_Guidelines.pdf).
 2. Tack Coat: Grade SC-70, conforming to Section 93-1.01 of the CALTRANS Standard Specifications.
 3. Fog Seal: Asphaltic Emulsion, Grade SS-1h, conforming to Section 94-1.02 of the CALTRANS Standard Specifications.

- B. Asphalt Aggregate:
1. Aggregate for asphalt concrete shall conform to Section 39-1.02E of the CALTRANS Standard Specifications for Type A grading.
 2. Aggregate for asphalt concrete base shall conform to Section 39-1.02E of the CALTRANS Standard Specifications for Type B grading.
 3. For all asphalt concrete paving performed for Trench And Miscellaneous Patching within the State of California (Caltrans) Right-of-Way, or for mill and Asphalt Concrete Overlay within Caltrans Right-of-Way, the following specifications shall apply to bituminous aggregates:
 - a. Bituminous aggregate material shall be Type A and conform to the provisions of Section 39, Hot Mix Asphalt of the Caltrans Standard Specifications.
 - b. Unless otherwise directed by the Engineer, asphalt binder to be mixed with the mineral aggregate, shall be steam refined paving asphalt, viscosity PG64-28 (Neat). The percentage of asphalt in the mix shall be determined by California Test Method 367.
 - c. Aggregate gradations shall conform to the grading specified for ¾-inch HMA in Section 39-1.02E, Aggregate, of the Caltrans Standard Specifications.

Sieve Size	Percentage Passing	Allowable Tolerance
3/4	90-100	±5
1/2	70-90	±6
No. 4	45-55	±7
No. 8	32-40	±5
No. 30	12-21	±4
No. 200	2-7	±2

- d. Aggregate shall comply with the Aggregate Quality criteria set forth in Section 39-1.02E of the CALTRANS Standard Specifications.

- e. Bituminous aggregate material shall be treated with anti-strip treatment in accordance with Part 2.01.D.
- 4. For all asphalt concrete paving performed for Trench And Miscellaneous Patching within the Caltrans or County of El Dorado Right-of-Way, 3-inch Mill and Asphalt Concrete Overlay with-in the City of South Lake Tahoe or El Dorado County Right-of-Way, or for all new paving in the South Tahoe Public Utility District Plant, the following specifications shall apply to bituminous aggregates:
 - a. Bituminous aggregate material shall be Type B and conform to the provisions of Section 39, Hot Mix Asphalt of the Caltrans Standard Specifications.
 - b. Unless otherwise directed by the Engineer, asphalt binder to be mixed with the mineral aggregate, shall be steam refined paving asphalt, viscosity PG64-28 (Neat) The percentage of asphalt in the mix shall be determined by California Test Method 367.
 - c. Aggregate gradations shall conform to the surface course grading for ½-inch HMA specified in Section 39-1.02E, Aggregate, of the Caltrans Standard Specifications.

Sieve Size	Percentage Passing	Allowable Tolerance
1/2	95-99	±6
3/8	75-95	±6
No. 4	55-66	±7
No. 8	38-49	±5
No. 30	15-27	±4
No. 200	2-8	±2

- d. Aggregate shall comply with the Aggregate Quality criteria set forth in Section 39-1.02E of the CALTRANS Standard Specifications.
- e. Bituminous aggregate material shall be treated with liquid anti-strip treatment in accordance with Part 2.01.D.
- C. Hot Mix Asphalt shall be produced in a batch mixing plant or a continuous mixing plant in accordance with Section 39-1.08 of the CALTRANS Standard Specifications.
 - 1. Production shall conform to Section 39-1.08.A of the CALTRANS Standard Specifications.
 - 2. Mixing shall conform to Section 39-1.08.B of the CALTRANS Standard Specifications.
- D. Anti-strip treatment
 - 1. General
 - a. Apply an appropriate antistrip treatment, as indicated in the following table, based on the plasticity index of the aggregate determined by California Test Method 204.

Antistrip Treatment Procedures	
Antistrip Treatment Type	Lab Procedure for Mix Design
Plasticity Index = 4 to 10 ^a	
Dry hydrated lime with marination	LP-6

Lime Slurry with marination	LP-7
Plasticity Index < 4	
Liquid Antistrip	LP-5
Dry hydrated lime without marination	LP-6
Dry hydrated lime with marination	LP-6
Lime slurry with marination	LP-7

^a Aggregate shall not have a PI > 10

- b. Full compensation for anti-strip treatment is included in the contract price paid for HMA as designated in the Bid Form and no separate payment will be made thereafter.

2. Liquid Anti-Strip Treatment

- a. This work shall consist of furnishing liquid anti-strip and treating asphalt concrete, rubberized asphalt concrete, and open graded asphalt concrete with liquid anti-strip in conformance with these special provisions.
- b. Material:
 - 1) Minimum total amine value shall be 325 as measured by ASTM Designation: D2074. Formulation with no solvents will be used as cutback.
 - 2) Liquid anti-strip shall be of only one type or brand at any one time during production. Liquid anti-strip of more than one type or more than one brand shall not be mixed.
 - 3) After treatment with liquid antistrip, the asphalt binder must comply with Section 39 of the CALTRANS Standard Specifications and the requirements of Part 2.01 of this Section.
- c. Construction
 - 1) Liquid anti-strip shall be stored and introduced either at refinery or into the asphalt concrete at the asphalt concrete plant in conformance with the manufacturer's recommendations.
 - 2) Liquid anti-strip shall be added at a rate of 0.5 to 1 percent by mass of the asphalt binder.
 - a) If three consecutive sets of recorded production data show actual delivered liquid anti-strip weight is more than ± 1 percent of the approved mix design liquid anti-strip weight, then stop production and take corrective action.
 - b) If a set of recorded production data shows actual delivered liquid anti-strip weight is more than ± 2 percent of the approved mix design liquid anti-strip weight, then stop production.
 - c) If the liquid anti-strip weight exceeds 1.2 percent of the asphalt binder weight, do not use the hot mix asphalt represented by that data.
- d. Quality Assurance
 - 1) The continuous mixing plant controller proportioning the hot mix asphalt must produce a production data log. The log consists of a series of data sets captured at 10-minute intervals throughout daily production. The data must be a production activity register, not a summation. The material represented by the data is the amount produced 5 minutes before and 5 minutes after the capture time. For the duration of the contract, collected data must be stored by the plant controller or a computer's memory at the plant.

3. Lime Treatment

- a. This work shall consist of furnishing and treating aggregates with lime by the slurry method or dry method in accordance with the requirements of these specifications.
- b. Materials
 - 1) High-calcium hydrated lime and water must comply with Section 24-1.02 of the CALTRANS Standard Specifications.
 - 2) Aggregate must conform to aggregate quality specifications before it is treated with lime slurry. Treated aggregate shall only be tested for gradation for quality control purposes.
 - 3) Treated aggregate must not have lime balls or clods.
 - 4) The lime ratio is the pounds of dry hydrated lime per 100 pounds of dry aggregated expressed as a percent. Water content of slurry or untreated aggregate must not affect the lime ratio. Lime ratio ranges are:

Aggregate Gradation	Lime Ratio
Coarse	0.4 to 1.0
Fine	1.5 to 2.0
Combined	0.8 to 1.5

- a) For open graded friction course, the combined aggregate lime ratio may be reduced to 0.5 to 1.0 percent.
 - b) The lime ratio for fine and coarse aggregate must be within ± 0.2 percent of the lime ratio in the accepted job mix.
 - c) The lime ratio must be within ± 0.2 percent of the approved lime ratio when you combine the individual aggregate sizes in the job mix formula proportions.
 - d) If three consecutive sets of recorded treatment data indicate deviation more than 0.2 percent above or below the lime ratio in the accepted job mix, stop treatment.
 - e) If a set of recorded treatment data indicates a deviation of more than 0.4 percent above or below the lime ratio in the accepted job mix, stop treatment and do not use the day's total treatment in HMA.
 - f) If treatment is stopped for noncompliance, the corrective action must be implemented and successful treatment must be demonstrated for a 20 minute treatment period. Notify the Engineer before beginning the 20-minute treatment period.
- c. Slurry Method
- 1) Prior to being incorporated into asphalt concrete, aggregate shall be treated with a slurry of lime and water according to the requirements of these specifications, and placed in stockpiles to marinate.
 - 2) Proportioning and Mixing
 - a) Proportion lime and water with a continuous or batch operation.
 - b) Treat HMA aggregate by proportioning lime slurry and aggregate by weight in a continuous operation.
 - c) Marinate treated aggregate in stockpiles from 24 hours to 60 days before using the HMA. Do not use aggregate marinated longer than 60 days.
 - 3) Quality Control

- a) The device controlling slurry proportioning must produce a treatment data log. The log consists of a series of data sets captured at 10-minute intervals throughout daily treatment. The data must be a treatment activity register and not a summation. The material represented by the data set is the amount produced 5 minutes before and 5 minutes after the capture time. For the Contract's duration, collected data must be stored by the controller.
- d. Dry Lime Method
 - 1) Prior to being incorporated into asphalt concrete, aggregate shall be treated with lime using the dry lime method according to the requirements of these specifications, either with marination or without.
 - 2) The dry lime method shall be used to treat aggregate for Type A HMA.
 - 3) Proportioning and Mixing
 - a) Proportion dry lime by weight with a continuous operation.
 - b) If you use a batch-type proportioning operation for HMA production, control proportioning in compliance with the specifications for continuous mixing plants. Use a separate dry lime aggregate treatment operation from HMA batching operations including:
 - (1) Pugmill mixer;
 - (2) Controller;
 - (3) Weigh belt for the lime;
 - (4) Weigh belt for the aggregate.
 - c) If using a continuous mixing operation for HMA without lime marinated aggregates, use a controller that measures the blended aggregate weight after any additional water is added to the mixture. The controller must determine the amount of lime added to the aggregate from the aggregate weight belt input in connection with the manually input total aggregate moisture, the manually input target lime content, and the lime proportioning system output. Use a continuous aggregate weight belt and pugmill mixer for the lime treatment operation in addition to the weight belt for the aggregate proportioning to asphalt binder in the HMA plant. If you use a water meter for moisture control for lime treatment, the meter must comply with California Test Method 109.
 - d) At the time of mixing dry lime with aggregate, the aggregate moisture content must ensure complete lime coating. The aggregate moisture content must not cause aggregate to be lost between the point of weighing the combined aggregate continuous stream and the dryer. Add water for mixing and coating aggregate to the aggregate before dry lime addition. Immediately before mixing lime with aggregate, water must not visibly separate from aggregate.
 - e) The HMA plant must be equipped with a bag house dust system. Material collected in the dust system must be returned to the mix.

- f) Mix aggregate, water and dry lime with a continuous pugmill mixer with twin shafts.
- g) Store dry lime in a uniform and free flowing condition.
- h) Introduce dry lime to the pugmill in a continuous operation. The introduction must occur after the aggregate cold feed and before the point of proportioning across a weigh belt and the aggregate dryer. Prevent loss of dry lime.
- i) If marination is required, marinate treated aggregate in stockpiles between 24 hours and 60 days before using in HMA. Do not use aggregate marinated more than 60 days.
- j) The pugmill must be equipped with paddles arranged to provide sufficient mixing action and mixture movement. The pugmill must produce a homogeneous mixture of uniformly coated aggregates at mixer discharge.
- k) If the aggregate treatment operation is stopped longer than 1 hour, clean the equipment of partially treated aggregate and lime.
- l) Aggregate must be completely treated before introduction in the mixing drum.

E. Tack Coat:

- 1. Prior to placing asphalt concrete on any other type of asphalt concrete or on an existing bituminous pavement, tack coat shall be applied in one application at a rate between 0.05 to 0.10 gallons per square yard of surface area to be covered. Tack coat shall be composed of a bituminous material uniformly emulsified with water and an emulsifying or stabilizing agent. The mixture shall consist of a 60% bituminous material to a 40% water and emulsifier ratio.
- 2. Tack coat shall be asphaltic emulsion SS-1 and shall conform to the provisions of Section 94, Asphalt Emulsions, and Section 39-1.09C of the Caltrans Standard Specifications.
- 3. The area to which Tack coat has been applied shall be closed to vehicular traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction

2.02 FOG SEAL

- A. A fog seal shall be applied to all surfaces of Types A and B asphalt concrete in conformance with the provisions in Section 37-1, and all applicable referenced sections of the CALTRANS Standard Specifications, where indicated on the drawings.

2.03 SLURRY SEAL

- A. Slurry seal, Type II, shall be applied in conformance with the provisions in Section 37-2, and all applicable referenced sections of the CALTRANS Standard Specifications, at the following locations, where indicated on the drawings.

2.04 AGGREGATE BASE COURSE

- A. Aggregate Base Course shall conform with requirements for Aggregate Base as described in Section 31 20 00 Earthwork, Part 2.02.C..

- B. Aggregate Base Course shall be placed at the following locations:
 - 1. At all locations indicated on the Drawings.
- C. Compacted thickness of Aggregate Base Course shall be as indicated on the Drawings.

2.05 EQUIPMENT

- A. Spreading and Compacting Equipment:
 - 1. Spreading equipment shall conform to Section 39-1.10 and all applicable referenced sections, of the CALTRANS Standard Specifications.
 - a. Only in areas inaccessible to the machine, by approval of the Engineer, will hand spreading be permitted.
 - 2. Compaction equipment shall conform to Section 39-1.10 and 2.04 and all applicable referenced sections, of the CALTRANS Standard Specifications.

2.06 SOURCES QUALITY CONTROL

- A. The Engineer will perform sampling and tests of materials in accordance with California Test Method Number 304 and California Test Method Number 362 or 379, as applicable. Samples will be taken from materials as delivered to the site.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify surfaces and site conditions are ready to receive work. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning application means acceptance of existing conditions.

3.02 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Hot Mix Asphalt:
 - a. Placement of hot mix asphalt shall be performed only when surface is dry and when atmospheric temperature is above 50°F.
 - b. Do not place hot mix asphalt when weather is foggy or rainy nor when base on which material is to be placed is in wet or frozen conditions or when, in the opinion of the ENGINEER, weather conditions will prevent proper handling, finishing, compaction of the mixtures.

3.03 PREPARATION

- A. Protection:
 - 1. Protect concrete pavements and walks, curbs and bases, and other improvements adjacent to the operations with suitable materials.
 - 2. Building and other surfaces shall be covered with paper or other protection, when required.

3. Contractor shall be responsible for any damage caused by Contractor's employees. All damage caused by the Contractor's operations shall be repaired to the satisfaction of the Engineer at no additional cost to Owner.
- B. Subgrade Preparation:
1. Immediately prior to applying tack coat, or immediately prior to placing the Hot Mix Asphalt when tack coat is not required, the subgrade to receive Hot Mix Asphalt shall conform to the compaction requirement and elevation tolerances specified for the material involved and shall be cleaned to remove any loose or extraneous material.
 2. If the Hot Mix Asphalt is to be placed on an existing base or pavement which was not constructed as part of the contract, the Contractor shall clean the surface by sweeping, flushing or other means to remove all loose particles of paving, all dirt and all other extraneous material immediately before applying the tack coat.

3.04 TACK COAT

- A. Tack Coat:
1. A tack coat of asphaltic emulsion shall be applied to all vertical surfaces of existing pavement, curbs, gutters, and construction joints in the surfacing against which additional material is to be placed, or as otherwise specified herein.
 2. Tack coat shall be applied in one application at a rate of 0.1 gallons per square yard of surface covered.

3.05 HOT MIX ASPHALT

- A. Placing materials in a windrow, then picking it up and placing it in the asphalt paver with loading equipment will be permitted provided that:
1. The asphalt paver is of such design that the material will fall into a hopper which has a movable bottom conveyor to feed and screed.
 2. The loader is constructed and operated so that substantially all of the material deposited into windrows is picked up and deposited into the paving machine.
 3. The windrow is deposited only so far in advance of the paver to provide for continuous operation of the paver and not so far as to allow the temperature of the Hot Mix Asphalt in the windrow to fall below 260° F.
- B. Unless lower temperatures are directed by the Engineer, asphalt concrete shall be spread, and the first coverage of initial or breakdown compaction shall be performed when the temperature of the mixture is not less than 250° F, and all breakdown compaction shall be completed before the temperature of the mixture drops below 205° F.
- C. Hot Mix Asphalt shall be spread and compacted in the number of layers and of the thicknesses indicated in the following table:
1. A thickness tolerance of ± 0.1 inches is allowed for asphalt concrete.
 2. A total thickness tolerance of ± 0.2 inches is allowed for asphalt concrete base.

Total Thickness Indicated on Drawings ^a	Number of Lifts	Top Layer Thickness		Next Lower Layer Thickness		All Other Lower Layer Thicknesses	
		Min	Max	Min	Max	Min	Max
< 2 3/4"	1	-----	-----	-----	-----	-----	-----
2 3/4" to 3"	2	1 1/4"	1 3/4"	1 1/4"	1 3/4"	-----	-----
>3" to 4 1/2 "	2	1 1/4"	2 1/2"	1 1/4"	2 1/2"	-----	-----
>4 1/2 "	^b	1 1/4"	2 1/2"	1 1/4"	3"	1 1/4"	5"
^a When pavement reinforcing fabric is shown to be placed between layers of Hot Mix Asphalt, the thickness of Hot Mix Asphalt above the pavement reinforcing fabric shall be considered to be the "Total Thickness Indicated on the Drawings" for the purpose of spreading and compacting the Hot Mix Asphalt above the pavement reinforcing fabric.							
^b At least three layers shall be placed if the total thickness is more than 4 1/2", up to 10 1/2". At least four layers shall be placed if the total thickness is greater than 10 1/2".							

- D. A layer shall not be placed over another layer which exceeds 3 inches in compacted thickness until the temperature of the layer which exceeds 3 inches in compacted thickness is less than 160° F at mid depth.
1. If the temperature of any layer drops below 140° F, or if directed by the Engineer, apply tack coat before placing next layer.
- E. Unless otherwise indicated on the Drawings, asphalt mixtures shall not be handled, spread or windrowed in a manner that will stain the finished surface of any pavement or other improvements.
- F. The completed mixture shall be deposited on the prepared subgrade at a uniform quantity per linear foot, as necessary to provide the required compacted thickness without resorting to spotting, picking-up or otherwise shifting the mixture.
- G. Spreading:
1. All layers of Hot Mix Asphalt shall be spread with an asphalt paver and shall conform to Section 39-1.11 and all applicable referenced sections of the CALTRANS Standard Specifications.
 2. At locations where the Hot Mix Asphalt is to be placed over areas inaccessible to spreading and rolling equipment, all layers of Hot Mix Asphalt shall be distributed directly out of the back of the dump truck and spread by hand.
 - a. Hot Mix Asphalt spread by hand shall be compacted thoroughly to the required lines, grades and cross-sections by means of pneumatic tampers, or by other methods that will produce the same degree of compaction as pneumatic tampers.
- H. Compaction:
1. Compaction of Hot Mix Asphalt shall conform to Section 39-1.11 and all applicable referenced sections of the CALTRANS Standard Specifications.
 2. Minimum required density for each layer of Hot Mix Asphalt shall be 95% of that obtained in the laboratory according to ASTM Test Method D-1561.
- I. Segregation shall be avoided and the surfacing shall be free of pockets of coarse or fine material. Hot Mix Asphalt containing hardened lumps shall not be used.

1. In areas inaccessible to paving and compacting equipment where spreading is done by hand, minimize the amount of segregation.
- J. Location of longitudinal joints in the top layer will be determined by the Engineer and shall not adversely affect the quality of the finished product.
- K. At all locations, or as directed by the Engineer, the asphalt concrete shall be square and at least 1 inch thick when conforming to existing surfacing. Tapering or feathering is not allowed.

3.06 FIELD QUALITY CONTROL

- A. All Hot Mix Asphalt shall match the grades indicated on the Drawings and shall be completely free from unintended hollows and high spots.
- B. Engineer may perform in-place density and compaction tests of the completed pavement in accordance with California Test Method Number 375, to determine compliance with the specified requirements. Contractor shall pay for all retesting and coring on failed test.
- C. Cracks, settling of surface, improper drainage, improper compaction, and sloppy connection to previously laid surfaces will be construed as improper workmanship and will not be accepted.

3.07 MAINTENANCE OF PAVEMENT

- A. Upon completion of final rolling, traffic shall not be permitted on the finished pavement for at least 6 hours, or until the Hot Mix Asphalt has cooled sufficiently to withstand traffic without being deformed as determined by the Engineer.

3.08 WORKMANSHIP AND WARRANTY

- A. Contractor shall provide written warranty against defects in materials or workmanship for a period of not less than 1 year upon acceptance of Work.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 32 94 00

REVEGETATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Seedbed Preparation
 - 2. Topsoil bedding
 - 3. Seeding
 - 4. Mulch
 - 5. Fertilizer
 - 6. Maintenance
- B. Related Sections:
 - 1. 31 20 00 Earthwork
 - 2. 31 25 13 Erosion Control

1.02 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A300 - Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices.
 - 2. ANSI Z60.1 - Nursery Stock.
- B. Forest Stewardship Council:
 - 1. FSC Guidelines - Forest Stewardship Council Guidelines.
- C. Tahoe Regional Planning Agency:
 - 1. BMP Handbook May 2014
- D. 2026 Pioneer Trail Waterline Project Stormwater Pollution Prevention Plan (SWPPP) – See Appendices
- E. USFS Resource Protection Measures (RPMs) – See Appendices

1.03 DEFINITIONS

- A. Weeds: Include any non-native species unless specified in table in section 3.
- B. Soil Infiltration Treatment: Any process which decompacts the soil prior to revegetation treatment.

1.04 SUBMITTALS

- A. The Contractor shall submit seed labels a minimum of 20 working days prior to seed application for acceptance by the Engineer. Labels shall show seed vendor's certification for required seed mixtures, indicating percentage by weight, and percentages of purity, germination and weed seed for each species.
- B. Contractor shall provide at least three references for past successful revegetation projects.

1.05 QUALITY ASSURANCE

- A. Tree Pruning: ANSI A300 Pruning Standards for Woody Plants.
- B. Perform Work in accordance with Caltrans Standard Specifications.

1.06 QUALIFICATIONS

- A. Contractor performing revegetation must have 5 years, minimum, experience in the installation and establishment of local native plant materials for revegetation erosion control projects.
- B. Experience must include temporary irrigation, seeding, and a plant establishment and maintenance period.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver seed in sealed bags showing vendor information, seed mixtures, indicating percentage by weight, and percentages of purity, germination and weed seed for each species
- B. Protect and maintain until planted.
- C. Seed material damaged as a result of delivery, storage or handling will be rejected.

PART 2 PRODUCTS

2.01 SEED

- A. Seed:
 - 1. Species: In accordance with TRPA Site Type Recommended Seed Mixes, see schedule in Part 3.
 - 2. Pure Live Seed Rating: 90% purity and 80% germination.
 - 3. Labeling: Labels shall show seed vendor's certification for required seed mixtures, and indicate percentage by weight and percentages of purity, germination, and weed seed for each species, as well as the date of testing.

2.02 SOIL AMENDMENT MATERIALS

- A. Fertilizer: Slow-release organic phosphorous free

2.03 MULCH MATERIALS

- A. Mulching Material:
 - 1. Composted, shredded hardwood bark, free from food and animal waste.
 - 2. Paper mulch with tackifier accepted if spray applied.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify surfaces and site conditions are ready to receive work.
- B. Saturate soil with water to test drainage.
- C. The contractor shall notify the District no less than three working days in advance of revegetation work and shall not begin work until prepared revegetation treatment areas have been accepted by the District.

3.02 TOPSOIL SALVAGE

- A. In areas free from invasive weeds, Contractor shall salvage existing vegetative litter, duff and upper 3-inches of top soil from areas to be graded or disturbed on the project site before disturbance and store until such time it can be incorporated back into the revegetation project.
- B. Protect stockpiles from precipitation and erosion until placed. At no time shall materials be stockpiled for more than 3 months without written approval by the District.

3.03 PREPARATION OF SUBSOIL

- A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.
- C. Scarify subsoil to depth of 6 inches where plants are to be placed. Subgrade depths plus specified depth of topsoil should equal finished grade. Contractor shall establish finished grades to blend with existing grades and eliminate uneven areas resulting from rough-grading operations.

- D. The Contractor shall contact the Engineer a minimum of four (4) working days prior to commencement of decompaction so that the process can be accepted and a field demonstration and coordination can take place.
- E. Wherever soil loosening is to take place tree roots and existing plants will be avoided wherever possible. Machine loosening shall not take place within the dripline of mature trees or shrubs. Where tree roots are encountered, loosening shall take place by hand implements such as pick mattocks or Pulaskis to approximately a depth of 6 inches.

3.04 SOIL AMENDMENTS AND FERTILIZING

- A. Apply compost to a depth of 3-4 inches, mix in during scarify process.
 - 1. Compost shall be a weed-free soil amendment comprised of decomposed forest products, rice hulls, gypsum, and steer manure
- B. Incorporate fertilizer at a rate of 270 lbs per acre into areas to be revegetated.
- C. Irrigate area slowly to help incorporate fertilizer into the soil. Only water until soil is moist to avoid runoff, as excess water will transport fertilizer away.

3.05 WEED CONTROL

- A. Contractor is to conduct bi-weekly weed control practices to maintain a weed free area within the revegetated area. Weeds shall be removed before reaching 4-inches in height and before the weeds produce viable seeds. This is to be performed throughout the project duration.
- B. Weed removal shall not cause disruption to the root systems and aboveground structure of the revegetated area. Vegetation control shall be conducted using hand-pulling - at no time shall herbicide be used.
- C. Contractor must be familiar with identification of noxious and invasive weed species that may occur in or near the project area. Delineation shall be completed by the District's environmental consultant.
- D. Equipment shall be cleaned prior to mobilization to the Project site with proof of cleaning provided and subject to inspection. Equipment shall be re-cleaned following operation with in areas of noxious and/or invasive weeds prior to mobilization to other Project areas or removal of equipment from the Project so as to prevent the spread of invasive weeds. No staging shall occur within areas identified as containing noxious or invasive weeds.

3.06 PLANTING

- A. Soil preparation shall occur within one week after grading is completed and planting shall occur within one week after soil preparation is completed. Seeding operations in revegetation areas indicated on the Plan shall be conducted before any snow accumulation or ground freeze.

- B. Time of Seeding: Perform all seeding between October 1st and November 15th. Seeding may not occur if soil is excessively wet, or snow is on the ground. Seeding during this window will allow for natural moisture to promote germination and establishment in the following spring and summer. Supplemental water should not be used to prevent issues with inappropriate water timing and erosion.
- C. Seed shall be delivered in unopened containers with the seed tag attached and is subject to observation and approval by the District in consultation with the USFS prior to installation.
- D. The Contractor shall coordinate the placement of materials and equipment when necessary to complete the work as quickly and efficiently as possible.
- E. The Contractor shall uniformly seed areas of disturbance using one of the following three methods:
 - 1) Hand broadcast seeding with coir mat (areas not subject to traffic)
 - a) First Application (Seed): In order to ensure that the seed is being applied at the correct rate areas to be seeded shall be marked off/flagged at a minimum of half acre increments prior to seeding. Seed shall be applied by hand or with hand seeders. Seed will be distributed in such a way as to assure all species in the seed mix are evenly distributed across the area, regardless of seed size. Once seed has been applied the Contractor shall lightly rake the seed into the soil to a depth of ¼". Do not smooth with the backside of the rake, light furrows in the soil are desired. Raking may alternatively be accomplished with a chain harrow behind an ATV/small vehicles.
 - b) Second Application (Erosion Control Mat): After seed has been placed and raked install an erosion control blanket over the top of the seed. The coir mat shall be composed of certified weed free coir mechanically bound between two all-natural fiber nettings (no plastic netting, straw, or jute is authorized). Ensure materials are protected from weather and/or handling damage prior to install. Utilize U-shaped wire staples with a minimum of 12-inch-long legs and 8 gauge thickness to facilitate installation without bending. The coir mat does not need to be trenched in.
 - 2) Hand broadcast seeding with wood chip
 - a) First Application (Seed): In order to ensure that the seed is being applied at the correct rate areas to be seeded shall be marked off/flagged at a minimum of half acre increments prior to seeding. Seed shall be applied by hand or with hand seeders. Seed will be distributed in such a way as to assure all species in the seed mix are evenly distributed across the area, regardless of seed size. Once seed has been applied the Contractor shall lightly rake the seed into the soil to a depth of ¼". Do not smooth with the backside of the rake, light furrows in the soil are

desired. Raking may be alternatively be accomplished with a chain harrow behind an ATV/small vehicles.

- b) Second Application (wood chip): After seed has been place and raked apply a light cover of wood chip over the top of the seed. The wood chip shall be applied by hand evenly over the soil surface without any mounds or bare areas greater than 6". Chip cover shall be 75-90% over the seeded area with a maximum depth of 1" to allow for seed germination. The goal is to apply a continuous single layer of chip over the seeded area to hold soil moisture and increase surface roughness to increase seed germination and survival.

3. Hand broadcast seeding with hydromulch

1. 2,200 lbs./acre of long strand virgin wood fiber and;
2. Non-toxic, and natural and biodegradable plant-based psyllium/alpha plantago tackifier. Depending on product apply at a rate of 80 lbs. per acre on slopes less than 3H:1V and apply at a rate of 100 lbs./acre on slopes greater than 3H:1V.
3. Non-toxic, 100% environmentally safe tracer dye material at a rate of around 200-300 pounds per acre to provide visible evidence of uniform application.
4. All hydromulch mixing shall be performed in a clean tank. The tank and hoses must be rinsed a minimum of 3x to remove any seed prior to arriving at the project site.
5. The hydromulcher must be equipped with a built-in continuous agitation and recirculation system of sufficient operating capacity to produce homogeneous slurry and a discharge system that will apply slurry to the designated areas at a continuous and uniform rate. No fertilizers, mycorrhizae, or other amendments shall be added to the hydroseed slurry.
6. The Contractor shall spray designated areas with the slurry in a sweeping motion and in an arched stream until a uniform coat is achieved, with no slumping or shadowing, as the material is spread at the required rate. The hydromulch slurry should float down from the arched stream, as opposed to being shot directly at the ground. During hydromulching the existing native vegetation must be protected from damage (including, but not limited to, coating with mulch, damage by direct spray, and dragging hose).

- F. Native Plant Cover Success Criteria: All areas disturbed by project activities shall have more than 20% cover of native species by the end of the first growing season post construction (Fall 2027).

- G. Seed shall not be left uncovered for more than 24 hours, unless otherwise approved by the District.
- H. Seeding shall not occur when wind speeds exceed 5 miles per hour.

SEED SCHEDULE

- I. Seed Schedule, Upland-High Disturbance:
 - 1. Composition of mix is based in part on commercial availability of plant cultivars, and because availability of cultivars frequently changes, cultivar substitutions may be necessary
 - 2. $PLS = \text{Pure Live Seed} = (\text{percentage purity})(\text{percentage germination})/100$
 - 3. Amounts assume broadcast (hand) application of seed, and have been designed for 80–100 PLS sq. ft. because greater seed densities may result in densities of competing seedlings sufficient to reduce growth and inhibit establishment.
 - 4. The seed source must be collected above 4,000 ft elevation within the Sierra Nevada Mountain range. Seed shall not be accepted until USFS has approved seed analysis results, which must include weed testing for all State noxious weeds and follow AOSCA protocols for necessary sample sizes. The weed seed percentage in the seed lot may not exceed 0.02 or otherwise approved by the USFS.

Scientific Name	Common Name	Application Rate (PLS lbs./acre)
Grasses, Rushes, and Sedges		
<i>Bromus carinatus</i>	CA brome var. carinatus	7
<i>Elymus elymoides</i>	Squirreltail	7
<i>Poa ampla</i> , 'Sherman'	big bluegrass, 'Sherman'	3.5
Forbs		
<i>Achillea millefolium</i>	yarrow	0.5
<i>Eriogonum</i>	sulphur buckwheat	7
<i>Linum lewisii</i>	Lewis flax	3.5
<i>Lupinus argenteus</i>	Silver lupine	7
Total Pounds of Pure Live Seed per Acre		35.5

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

DIVISION 33

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 33 05 63
PRECAST CONCRETE VAULTS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section covers furnishing and installation of special purpose precast concrete vaults.

1.02 ADAPTATION OF PRODUCT

- A. Furnish product readily adaptable for installation and operation in the manner shown on the Drawings.

1.03 SUBMITTALS

- A. Shop Drawings showing detailed dimensions, block outs, floor doors, and specifications for materials used, parts, devices, and other accessories forming part of the vault.

PART 2 – PRODUCTS

2.01 GENERAL

- A. The vaults shall be precast as manufactured by Jensen Precast, Inc.; Oldcastle Precast, Inc.; or equivalent, with tops, walls, and bases modified as shown on the Drawings. All vault covers shall be watertight.

2.02 DESIGN

- A. Conform to ASTM C913.
- B. Design for HS-20 Full Traffic.

2.03 FABRICATION

- A. Precast elements shall provide for watertight sealing of mating surfaces using epoxy grout, field applied.
- B. Openings shall be located and sized as dimensioned on the Drawings. Where drains are connected to piping below the base of the precast unit, provide adequate opening with keyway to facilitate a field installation and grouting of base drains and trap units as shown on the Drawings. Standard products may be used where provision exists for achieving the configuration shown on the Drawings.
- C. Embedded items shall be provided in the tops, walls, and bases where indicated on the Drawings.
 - 1. Furnish access hatches with frames cast integrally with the concrete top unit and in accordance with the notes on the Drawings.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The bottom of the excavation for the vaults shall be fine graded to a plane surface on firm undisturbed subgrade material. Loose subgrade soils shall be compacted.
- B. Granular pipe bedding material shall be uniformly spread to a depth of 4 inches over the bottom of the excavated area to provide uniform bearing for the vault. Foundation bedding material shall be brought to precise elevations called for on the Drawings and leveled.
- C. Install vault and accessories in conformance with Drawings, Specifications, and recommendations of vault manufacturer unless otherwise instructed in writing by the Engineer. Vault location and orientation shall conform to the Drawings.
- D. The vault joints, pipeline, and conduit penetrations through walls, as shown on the plans, shall be sealed watertight using epoxy cement grout. No leakage will be allowed into the vault.
- E. Concrete fill for sloping vault bottoms shall be placed by the Contractor in the field in conformance with the Drawings.
- F. Concrete collars
 - 1. Shall be included for hatches and manholes which extend above the concrete vault lid in paved and unpaved areas.
 - 2. Shall be included for vault lids which do not have protruding hatches or manholes if located within paved areas.
 - 3. Collar shall be 8 inches thick and 24 inches wide.
 - 4. Collar shall include at least one hoop of #4 rebar.

END OF SECTION

SECTION 33 11 13

WATER DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: PVC pipe, ductile iron pipe, steel pipe and HDPE pipe for water distribution, including fittings and joints.
- B. Related Sections:
 - 1. 31 20 00 Earthwork
 - 2. 31 23 19 Dewatering
 - 3. 33 12 13 Water Service Connections
 - 4. 33 13 00 Water Pipeline Testing and Disinfection
 - 5. 33 14 16 Water Distribution Valves
 - 6. 33 14 19 Fire Hydrants

1.02 REFERENCES

- A. American Water Works Association
 - 1. C110 Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In.
 - 2. C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
 - 3. C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
 - 4. C105 Polyethylene Encasement for Ductile-Iron Pipe Systems
 - 5. C115 Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
 - 6. C150 Thickness Design of Ductile Iron Pipe
 - 7. C151 Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids
 - 8. C153 Ductile-Iron Compact Fittings for Water Service
 - 9. C200 Steel Water Pipe – 6 in. and Larger
 - 10. C206 Field Welding of Steel Water Pipe
 - 11. C207 Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In.
 - 12. C208 Dimensions for Fabricated Steel Water Pipe Fittings
 - 13. C600 Installation of Ductile-Iron Water Mains and their Appurtenances
 - 14. C606 Grooved and Shouldered Joints
 - 15. C900 PVC Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In.
 - 16. C905 PVC Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In.
 - 17. M11 Steel Pipe: A Guide for Design and Installation
 - 18. M23 PVC Pipe – Design and Installation
- B. American Society of Testing and Materials (ASTM)
 - 1. A36 Carbon Structural Steel
 - 2. A47 Ferritic Malleable Iron castings
 - 3. A139 Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)
 - 4. A183 Carbon Steel Track Bolts and Nuts
 - 5. A307 Carbon Steel Bolts and Studs

6. A536 Ductile Iron Castings
7. A572 High Strength Low Alloy Columbian-Vanadium Structural Steel
8. D638 Test Method for Tensile Properties of Plastics
9. D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
10. D1248 Polyethylene Plastics Extrusion Materials For Wire and Cable
11. D1505 Test Method for Density of Plastics by the Density-Gradient Technique
12. D2240 Test Method for Rubber Property - Durometer Hardness
13. D2241 PVC Pressure-Rated Pipe (SDR Series)
14. D2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
15. D3350 Polyethylene Plastics Pipe and Fittings Materials
16. F894 Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
17. F714 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter

C. American Society of Mechanical Engineers (ASME)

1. B16.1 Cast Iron Pipe Flanges and Flanged Fittings

D. Underwriters Laboratory (UL)

1. 1285 Pipe and Couplings, Polyvinyl Chloride (PVC), and Oriented Polyvinyl Chloride (PVCO) for Underground Fire Service.

1.03 SUBMITTALS

A. Shop Drawings:

- a. Indicate thickness of pipe wall, lining and coating, type of joint and joint restraint, if any.
- b. Details of straight pipe, fittings, and specials, showing thickness and dimensions of plates, detail of welds, and materials; listing of proposed service and tabulated layout schedules.

B. As-Built Drawings: The Contractor shall provide surveyed "as-built" drawings for all water piping and water appurtenances installed. Surveys shall be performed in conformance with Section 01 73 00. Surveyed information shall include, but is not limited to, all tie-in locations, bends, tees, crosses, valves, hydrants, water service connections.

C. Test Results:

1. All pipe: All materials testing shall be based upon applicable ASTM Test Methods referenced herein for the materials specified. A report of the test results shall be furnished. All costs of such inspection and tests shall be borne by the Contractor.
2. HDPE:
 - a. The pipe shall be tested for dimensions, ring stiffness constant (RSC), flattening, and joint tightness, in accordance with the requirements of ASTM F894. A report of the test results shall be furnished.
 - b. The stress regression testing shall have been done in accordance with ASTM D2837, and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDR) of 1,600 psi, as determined in accordance with ASTM D2837.

3. Fusible PVC:
 - a. Submit manufacturer's specific technical data with complete information on physical properties of pipe and pipe dimensions pertinent to this job
 - b. Complete calculations including lists of parameters, all formulas and all other data showing the design of the new pipe.
 - c. Qualification of fusion technicians shall be documented by the pipe supplier, and shall be current as of the date of the welding for the project.
 - d. Contractor shall register and/or record the parameters required by the pipe supplier and these Specifications, and provide them to the District as the Work proceeds.
- D. Certification:
 1. All pipe:
 - a. Manufacturer's certificates of compliance shall be furnished by the Contractor.
 - b. A certificate of "Compliance with Specification" or suitable alternative shall be furnished for all materials to be supplied.
 2. HDPE:
 - a. The Contractor shall provide certification from the pipe manufacturer that stress regression testing has been performed on the specific product. The said certification shall include a stress life curve per ASTM D2837. The certification shall state that the pipe was manufactured from one specific resin in compliance with these specifications. The certificate shall state the specific resin used, its source, and list its compliance to these specifications.
 - b. Provide certification that the pipe conforms to dimensions and tolerances specified in Part 2.02 and that the pipe has been inspected and meets industry accepted manufacturer standards.

PART 2 PRODUCTS

2.01 GENERAL

- A. All pipe shall be new, not from manufacturer's inventory.
- B. Any pipe that does not meet specifications or has been rejected, shall be removed from the jobsite and disposed of by the Contractor at no extra cost to the Owner.
- C. Where new fittings are to be cut into or attached to existing piping or where connections are to be made to existing piping, the Contractor shall furnish and install the necessary sleeves, flanges, nipples, couplings, fittings, etc. needed to accomplish the cutting-in or connections, whether specifically indicated on the Plans or not.
- D. All Pipe must be NSF 61 compliant.
- E. See plans for pressure class and material of pipe to be installed.

2.02 PIPE

A. Ductile Iron Pipe

1. Pipe shall have a minimum pressure rating of 150 psi conforming to AWWA C150 and C151.
2. Pipe with screw-on shall have a minimum pressure rating of 150 psi conforming to AWWA C115.
3. Ductile iron pipe shall be coated on the inside with cement mortar conforming to AWWA C104/ANSI A.21.4, and seal coated on the inside and outside with bituminous coating.
 - a. Coating shall be applied on clean bare metal surfaces.
 - b. Coating shall extended to the ends of spigots and shoulders of hubs.

B. Steel Pipe:

1. Steel shall conform to ASTM A36 or A572 Grade 42.
2. Pipe shall conform to AWWA C200 and ASTM A139 Grade B.
3. Size and wall thickness shall be as shown on the Plans and indicated in the Specifications.
4. Steel pipe shall be designed in accordance with AWWA Manual M11.
5. Steel pipe shall be coated inside and outside with a 100% solids, thermosetting, fusion bonded dry powder epoxy resin (Scotchkote No. 206-N as manufactured by 3M Company, or equal). Application shall be by the fluidized bed method. Coating thickness shall be at least 10 mils DFT. Surface preparation shall include grinding of all irregularities, welds, and weld splatter and blasting to a near white surface in accordance with Steel Structures Painting Council (SSPC) Guidelines (SP-10).

C. PVC Pipe:

1. NOMINAL DIAMETERS 6 TO 12 INCHES: Pipe shall meet the requirements of AWWA C900, with a minimum pressure rating of 235 psi. Pipe shall have outside diameters of ductile iron pipe sizes. Pipe shall also meet the requirements of ASTM D2241 and UL 1285. Each length of pipe shall be capable of withstanding without failure 600 psi hydrostatic pressure for a minimum of 5 seconds. The integral bell shall be tested with the pipe.
2. NOMINAL DIAMETERS 14 TO 18 INCHES: Pipe shall meet the requirements of AWWA C905, with a minimum pressure rating of 235 psi. Pipe shall have outside diameters of ductile iron pipe sizes as listed below. Pipe shall also meet the requirements of ASTM D2241 and UL 1285. Each length of pipe shall be capable of withstanding without failure 600 psi hydrostatic pressure for a minimum of 5 seconds. The integral bell shall be tested with the pipe.
3. Provisions shall be made for contraction and expansion at each joint with a rubber ring and integral thickened bell as part of each joint. The rubber ring shall meet the requirements of ASTM D 2241. The bell section shall be at least as strong as the pipe barrel.
4. At least 85 percent of the total footage of pipe installed shall be furnished in standard lengths of 20 feet. The remaining footage of pipe may be in random lengths of not less than 10 feet long.
5. Manufacturers: C900 or C905 "Big Blue" or "Blue Brute" pipe manufactured by J-M Manufacturing Company, Inc. and Formosa Plastics Corporation, U.S.A, MAY NOT be used.

D. HDPE Pipe:

1. Pipe shall be high density polyethylene pipe. Size and SDR rating of polyethylene pipe shall be as shown on the Plans and indicated in the Specifications.
2. Materials used for the manufacture of polyethylene pipe and fittings shall be extra high molecular weight, high density ethylene/hexene copolymer PE 3408 polyethylene resin meeting the below listed physical property and pipe performance requirements:

<u>Property</u>	<u>Specification</u>	<u>Units</u>	<u>Pipe</u>
Material Designation	PPI/ASTM	-	PE 3408
Material Classification	ASTM D1248	-	III C 5 P34
Cell Classification	ASTM D3350	-	345434C
Density	ASTM D1505	gm/cm ³	0.955
Flex Modulus	ASTM D790	psi	135,000
Tensile	ASTM D638	psi	3,200
Hardness	ASTM D2240	Shore "D"	65
Compressive Strength (Yield)	ASTM D638	psi	1,600
Tensile Strength @ Yield (Type IV Spec)	ASTM D638 (2"/min)	psi	3,200
Elongation @ Yield	ASTM D638	%	8 min.
Modulus of Elasticity	ASTM D638	psi	130,000
NSF Listing	Standard #14	-	"Listed"

3. Material shall conform to ASTM F714 and meet accepted manufacturer standards for:
 - Diameter
 - Straightness
 - Wall Thickness
 - Ovality
 - Concentricity
 - Toe-in
 - Quick Burst
 - Overall Workmanship
 - Pressure and Ductility
 - Inspection ID and OD
 - Joint Length
 - Print Line
4. The pipe shall be extruded using a melt homogenizing/plasticating extruder and appropriate die. The extruder screw design should be customized for the HDPE being processed to minimize melt fracture of the molecular structure, thus reducing the molecular weight and changing some physical properties from resin to pipe. The resin should be processed at its appropriate melt temperature. The extruded tubular melt will be vacuum or pressure sized in downstream cooling tanks to form round pipe to specification diameter and wall thickness with a "matte-finish" surface.
5. 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. The pipe shall be homogenous throughout and free of visible cracks,

- holes, voids, foreign inclusions, or other deleterious defects, and shall be identical in color, density, melt index and other physical properties throughout.
6. The pipe shall be extruded from resin meeting specifications of ASTM D-3350 with a cell classification of PE:345434C; and ASTM D-1248 pipe grade resin type III, Class C, Category 5, grade P34 polyethylene compound. The pipe shall provide the long term endurance characteristics recognized by: a compressive pipe ring environmental stress crack resistance greater than 1,000 hours; a slow crack growth resistance greater than 32 days; an impact strength (toughness) greater than 48 in-lb/in notch; and rotary fatigue endurance at 1,600 psi bending stress with $F_o > 20,000$ cycles.

2.03 FITTINGS

A. General:

1. Fittings shall include all tees, crosses, reducers, and elbows as shown on the Contract Drawings and shall include all nuts, bolts and gaskets necessary for the installation requirements.

B. For Ductile Iron Pipe:

1. Fittings shall be as specified in ANSI A 21.10 or A 21.53 (AWWA C110 or C153), of the same pressure rating and same joint configuration as the pipe with which they are to be used.
2. All fittings shall be smooth cement-lined in accordance with ANSI A 21.4 (AWWA C104). Special attention shall be given to bare metal. All lining shall extend to the faces of flanges, to the end of spigots, or to the shoulder of hubs, as the case may be.
3. In addition, all fittings shall be coated inside and outside with bituminous material.

C. For Steel Pipe:

1. Fitting shall be steel and shall conform to ASTM A36 or A572 Grade 42.
2. Fittings shall conform to AWWA C200 and AWWA C208, except where specific dimensions are called out on the Plans.
3. Steel fittings shall be designed in accordance with AWWA Manual M11.
4. Fittings shall be heated and cured in accordance with the manufacturer's recommendation.
5. Fittings and headers fabricated from steel pipe require hydrostatic testing.

D. For PVC Pipe:

1. Fittings shall be ductile iron fittings as described in Part 2.03.B (above).
2. Fittings shall be properly sized for the dimensions of the pipe being used.

E. For HDPE Pipe:

1. Ductile Iron Fittings:
 - a. Fittings shall be ductile iron fittings as described in Part 2.03.B (above). Fittings shall be properly sized for the dimensions of the pipe being used.
 - b. Only flanged fittings shall be used when specified with high-density polyethylene piping systems. Mechanical joint fittings shall not be used.
 - c. The joining system between high-density polyethylene pipe and flange fittings shall be made by a method recommended by the pipe

manufacturer or submitted by the Contractor and approved by the Engineer.

2. Standard HDPE fittings:
 - a. Standard commercial products manufactured by injection molding or by extrusion and machining, or fabricated from PE pipe conforming to this specification.
 - b. The fittings shall be fully pressure rated by the manufacturer to provide a working pressure equal to the pipe for 50 years service at 73.4°F with an included 2:1 safety factor.
 - c. The fittings shall be manufactured from the same resin type, grade, and cell classification as the pipe itself.
 - d. The manufacture of the fittings shall be in accordance with good commercial practice to provide fittings homogeneous throughout and free from crack, holes, foreign inclusions, voids, or other defects. The fittings shall be as uniform as commercially practicable in color, opacity, density and other physical properties.
 - e. The minimum "quick-burst" strength of the fittings shall not be less than that of the pipe with which the fitting is to be used.

2.04 PIPE JOINTS

A. General

1. All pipe which will operate under pressure shall be properly protected from the effects of thrust at all fittings where the pipeline changes direction, changes size, or ends, using concrete thrust blocks, or restrained joints where required.
 - a. Concrete thrust blocks shall be sized so as to give bearing against undisturbed vertical earth banks sufficient to absorb the thrust from line pressure, allowing an earth bearing of 200 pounds per square foot per foot of depth below natural grade to a maximum of 1,000 pounds per square foot. (Earth bearing value may be increased, if substantiated by soils analysis). The line pressure shall be the product of the nominal cross sectional area of the pipe and the test pressures as specified for each type of pipe. The concrete shall be placed, unless specifically indicated otherwise on the Plans, so that the pipe joints and fittings will be accessible. Concrete used for all thrust blocks shall be a Class C as identified Section 03 30 00 of these specifications.
2. Pipe joints shall be provided as specified or as indicated on the contract drawings.

B. For Ductile Iron Pipe:

1. Flanged Joints:
 - a. Flanges: Gaskets shall be synthetic rubber, either ring or full faced and a minimum of 1/8-inch thick for ductile iron pipe. Flanges shall be one of the following with diameter, thickness, drilling, and other characteristics in accordance with ANSI B16.1:
 - 1) Cast integrally with the pipe.
 - 2) Screw-on: Comply with the following:
 - a) Long hub, threaded, and specially designed for ductile iron pipe.
 - b) After attaching to pipe, machine flange face to make pipe end and flange even and perpendicular to the axis of the pipe.
 - b. Bolt Holes: Two-holed and aligned at both ends of pipe.

- c. Cap Screw or Stud Bolt Holes: Tapped.
 - d. Bolts and Nuts:
 - 1) High strength low alloy hardware shall be used for all buried applications having the characteristics specified in AWWA C111 / ANSI A 21.11.
 - 2) 316 Stainless Steel hardware with flouropolymer coating shall be used in all underwater or vault installations.
 - e. Protective Coating: both the following.
 - 1) Petrolatum wrap tape consisting of plastic fiber felt saturated with petrolatums, plasticizers, and corrosion inhibitors.
 - a) Trenton No. 1 Wax Tape (Trenton Corporation)
 - b) Or equal.
 - 2) "Rock Shield" type material
 - a) Trenton Guard Wrap (Trenton Corporation)
 - b) Poly-ply (Trenton Corporation)
 - c) Or equal.
2. Mechanical Joints: AWWA C111/ANSI A 21.11
 3. Push-On Rubber Gasket Joints: AWWA C111/ANSI A 21.11.
 4. Plain-end Joints:
 - a. Flanged Coupling Adaptor
 - 1) Sleeve-type flanged coupling adaptors shall be:
 - a) Smith-Blair Type 913;
 - b) Dresser Style 128;
 - c) Or equal.
 - b. Flex Coupling Adaptor
 - 1) Sleeve-type mechanical couplings shall be:
 - a) Smith-Blair Type 411;
 - b) Dresser Style 38;
 - c) Or equal.
 - 2) Sleeve-type mechanical couplings shall have the stop removed from the middle ring.
 - c. Bolts and nuts for buried service shall be mad of non-corrosive high-strength, low-alloy steel having the characteristics specified in AWWA C111 / ANSI A 21.11, regardless of any other protective coating.
 - d. Where washers are required, they shall be of the same material as the associated bolts.
 - e. Where required for resistance to pressure, mechanical couplings shall be restrained in accordance with Chapter 13 of AWWA M11, including Tables 13-4, 13-5 and 13-5A, and Figure 13-20.
 5. Restrained Joints:
 - a. Mechanical Joints:
 - 1) Megalug as manufactured by EBAA Iron Sales.
 - 2) MJ Field Lok Gasket and Gland as manufactured by United States Pipe and Foundry Company.
 - 3) Grip Ring Pipe Restrainer as manufactured by Romac Industries
 - 4) Or Approved Equal
 - b. Push-On Joints:
 - 1) Comprised of ductile iron locking segments inserted through slots in the bell face, providing positive axial lock between the bell interior

surface and a retainer weldment on the spigot end of the pipe, or a retainer weldment through a boltless system, providing a positive restraint against joint separation; with a safety factor of 2 under a pressure equal to the specified test pressure; capable of easy disassembly without cutting or burning of the gasket; suitable for the following working pressures: For 4 through 24 inch Pipe: 350 pounds per square inch gauge.

- a) TR Flex as manufactured by United States Pipe and Foundry Company;
- b) or equal.

C. For Steel Pipe:

- 1. Flanged Joints:
 - a. As described in Part 2.04.B.1 (above).
 - b. Flanges for steel pipe and fittings shall be flat faced conforming to AWWA C207, Class D. Flange bolts and nuts shall conform to ASTM A307, Grade B. Flange gaskets shall be full faced, compressed non-asbestos 1/16-inch thick.
- 2. Mechanical Joints:
 - a. As described in Part 2.04.B.2 (above).
- 3. Push-on Rubber Gasket Joints:
 - a. As described in Part 2.04.B.3 (above).
- 4. Plain-End Joints:
 - a. As described in Part 2.04.B.4 (above).
 - b. Welded joints: field welding of steel pipe will not be allowed without the permission of the Engineer. Field welding, if allowed, shall conform to AWWA C206.
- 5. Restrained Joints:
 - a. As described in Part 2.04.B.5 (above).
- 6. Grooved Joints:
 - a. AWWA C606, as complemented and modified below, radius-cut type, with following components:
 - 1) Couplings: Rigid type, cast from ductile iron in accordance with ASTM A536, Grade 65-45-12 or malleable iron in accordance with ASTM A47, Grade 32510.
 - 2) Bolts and Nuts: ASTM A183, Grade 2.
 - 3) Gaskets: Capable of being applied on surface of piping with cavities to provide for an improved seal with the internal piping pressure; material for following services:
 - a) Halogenated butyl.
 - 4) Fittings: AWWA C 606, rigid radius-cut groove.
 - a) Center-to-Center Dimensions: AWWA C 110/ANSI A 21.10.
 - b) Wall Thickness and Other Characteristics: AWWA C153.
 - b. Flanged Unit Connections: Flanged to grooved joint adapters or a long enough spool with 1 end flanged and the other grooved to prevent interference with the operation of adjacent valves, pumps, or other items.

D. For PVC Pipe:

- 1. Mechanical Joints:
 - a. As described in Part 2.04.B.2 (above).
- 2. Push-on Rubber Gasket Joints:

- a. As described in Part 2.04.B.3 (above).
- 3. Plain-End Joints:
 - a. As described in Part 2.04.B.4 (above).
 - b. Welded Joints
 - 1) Pipe to be welded shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
 - 2) Connections to fused PVC pipe may be made using restrained, ductile iron fittings only.
- 4. Restrained Joints:
 - a. As described in Part 2.04.B.5 (above).
- E. For HDPE Pipe:
 - 1. Plain-End Joints:
 - a. As described in Part 2.04.B.4 (above).
 - b. Welded Joints
 - 1) Pipe to be welded shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

PART 3 EXECUTION

3.01 GENERAL

- A. All piping and appurtenances shall be installed in accordance with manufacturers recommendations.
- B. When pipe laying is interrupted, or stopped at the end of the work shift, the open ends of pipe shall be sealed with a watertight plug, or other means acceptable to the Engineer, to prevent water from entering the pipe.

3.02 MATERIAL DELIVERY, STORAGE, HANDLING AND PROTECTION

- A. All piping shall be delivered in a clean and undamaged condition.
- B. All piping materials, fittings, valves, and accessories shall be carefully handled during loading, unloading, and installation. All pipe, fittings, and related appurtenances shall be handled in a manner that will insure installation in sound, undamaged, like new condition. Pipe should be loaded, off-loaded, and otherwise handled in accordance with AWWA M23, and all of the manufacturer's guidelines should be followed.
- C. In shipping, material shall be blocked in such a manner as to prevent damage to castings or cement lining.
- D. All pipe shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Flanged pipe shall have the flange faces protected. Any pipe damaged in shipment shall be replaced as directed by the Engineer.

- E. Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify Engineer immediately if more than immaterial damage is found. Each pipe shipment should be checked for quantity and proper size, color and type.
- F. All material shall be carefully lowered to the ground by mechanical means. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way. Pipe and fittings with cement mortar or epoxy lining or special coatings shall handled with rubber covered hooks, or other type of equipment to prevent damage. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick cut, or gouge the pipe are strictly prohibited.
- G. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.
- H. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to insure that pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped from trucks.
- I. Storage:
 - 1. HDPE Pipe: Pipe lengths should be stored and placed on flat, level ground, with no rocks, timbers or other objects under the pipe. Pipe should be stored in the unit packaging provided by the Manufacturer until ready for use. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe.
 - 2. All Other Pipe shall be stored off the ground in conformance with the Manufacturer's instructions.
- J. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- K. If pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.
- L. Pipe shall be stored and stacked per the manufacturer's guidelines.
- M. Pipe, fittings and accessories shall be carefully inspected by the Contractor before and after installation, and those materials found defective shall be rejected.
- N. Any length of pipe showing a crack or blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected.
 - 1. For PVC and HDPE pipe, any scratch or gouge greater than 10% of the wall thickness will be significant and can be rejected unless determined acceptable by the Engineer.
- O. Pipe and fittings shall be free from fins and burrs.

- P. Pipe and fittings in which the lining or coating has been damaged shall be immediately removed from the job site and replaced with new materials.
 - 1. In instances where damage is minimal, the Contractor may, with approval from the Engineer, have the damage repaired by a qualified representative of the pipe manufacturer or fabricator.
- Q. Do not drop or pound pipe to fit grade.
- R. Before being placed in position, pipe, fittings and accessories shall be cleaned and shall be maintained in a clean condition.

3.03 ALIGNMENT

- A. All piping shall be installed to lines, grades, and elevations indicated on the contract drawings.
- B. All deviations from the line, grade, or elevation as indicated on the contract drawings shall be approved in writing by the Engineer.
- C. The Contractor is responsible for coordinating all other work to insure that piping is installed as indicated on the Contract Drawings.
- D. Piping intended to be straight shall be straight. Deflections from a straight line or grade shall be approved in writing by the Engineer and shall be accomplished by the use of approved fittings.

3.04 PIPE INSTALLATION

- A. General: All piping shall be installed as specified, as indicated on the contract drawings and in a manner acceptable to the Inspector.
- B. Special Instructions for Installation of Ductile Iron Pipe:
 - 1. Install ductile iron piping in accordance with AWWA C600
 - 2. Lay mechanical joint or bell and spigot pipe with 1/8 inch space between the spigot and shoulder of the pockets.
 - 3. Special Techniques:
 - a. Polyethylene Encasement: Wrap ductile iron pipe and fittings to be buried with minimum 8 mil thick V-Bio® polyethylene encasement, or approved equal. Repair tears and make joints with double plastic tape wrap.
 - 1) Polyethylene: AWWA C105.
 - 2) Plastic Tape Wrap: One of the following or equal:
 - a) Polyken Number 910 as manufactured by Polyken Pipeline Coatings.
 - b) Tapecoat CT as manufactured by The Tapecoat Company.

3.05 FIELD JOINING (FUSION WELDING)

- A. HDPE:
 - 1. Sections of polyethylene pipe shall be joined into continuous lengths on the project site. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations.

The butt fusion equipment used in the joining procedures shall be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400°F, alignment, and interfacial fusion pressure as recommended by the pipe manufacturer.

2. Butt fusion joining shall be 100% efficient offering a joint weld strength equal to or greater than the tensile strength of the pipe. Socket fusion shall not be used. Extrusion welding or hot gas welding of HDPE shall not be used for pressure pipe applications nor in fabrications. Unions, grooved-couplers, transition fittings and mechanical couplers may not be used.
3. The pipe shall not be deflected either vertically or horizontally in excess of the recommendations of the manufacturer.

B. PVC

1. Lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's guidelines for this procedure. All fusion joints shall be completed as described in this specification.
2. Fusible PVC pipe will be fused by qualified fusion technicians certified and experienced in the type and size of pipe being used.
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 properties, including 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 not binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Inset pins shall be installed with no interference to carriage travel.
 - c. **MACHINE BODY** – Overview of machine body shall reveal no obvious defects, missing parts, or potential safety issues during fusion.
 - d. **DATA LOGGING DEVICE** – 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.
4. Pipe rollers shall be used to support pipe to either side of fusion machine.
5. Utilize a weather protection canopy in inclement or windy weather, to allow full machine motion of the heat plate, fusion assembly and carriage. If weather conditions persist such that the Contractor is unable to meet the parameters required by the pipe supplier and these Specifications, the fusion process shall cease until the inclement weather passes and the parameters can be achieved.
6. Use only facing blades specifically design for cutting fusible PVC pipe.

3.06 QUALITY ASSURANCE

- A. Pressure testing of all pipe installations shall be done in conformance with Section 33 13 00 Water Pipeline Testing and Disinfection of the specifications.

- B. Disinfection of piping and appurtenances, as applicable, shall be in conformance with Section 33 13 00 Water Pipeline Testing and Disinfection of the specifications.

END OF SECTION

**SECTION 33 12 13
WATER SERVICE CONNECTION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Water service connections from water mains up to the property line, including curb stop.
- B. Related Sections:
 - 1. 33 13 00 Pipeline Testing and Disinfection
 - 2. 33 14 13 Water Distribution Piping
 - 3. 33 14 16 Water Distribution Valves

1.02 REFERENCES

- A. American Water Works Association (AWWA)
 - 1. C800 Underground Service Line Valves and Fittings
 - 2. C901 Polyethylene Pressure Pipe and Tubing, ½" through 3" for Water Service
- B. American Society of Testing and Materials (ASTM)
 - 1. A536 Ductile Iron Castings
- C. American Society of Mechanical Engineers (ASME)
 - 1. ANSI-ASME B1.20.1 General Purpose Pipe Threads

PART 2 PRODUCTS

2.01 GENERAL

- A. All piping, valves and fittings used for service connections shall conform to the AWWA C800 standard for "Underground Service Line Valve and Fittings".
- B. All fittings for water service connections shall conform to ASME B1.20.1 having N.P.T. threads.
- C. In no case shall copper or copper alloy pipe or fittings be attached to steel pipe, except by means of dielectric coupling expressly made for this purpose and service. Tracer wire shall terminate at the meter, to provide a discontinuity between the private service line and the District's distribution system.
- D. All brass components used in the water distribution system shall be "lead-free" in compliance with California law (AB 1953).

2.02 SERVICE SADDLES

- A. Service saddles shall be installed per project details.
- B. Service saddles shall have a bearing area of sufficient width along the axis of the pipe so that the pipe will not be distorted when the saddle is made tight
- C. For PVC pipe, saddles shall be sized such that the upper end of the OD range is equal to the outside diameter of the pipe.

2.03 CURB AND CORPORATION STOPS

- A. Curb and corporation stops shall be as specified on drawings.

PART 3 EXECUTION

3.01 GENERAL

- A. All service connections which would require crossing existing sewer force mains shall be installed utilizing an open trench method. Additionally, any service connections not crossing existing sewer force mains shall be installed utilizing a trenchless method such as a mole. The Contractor shall submit a written proposal describing the method to be employed, which will be subject to the review and approval of the Engineer.
- B. The Contractor shall indicate sending and receiving pit locations in the field which must be approved by the Engineer. It is the intent of this specification that a majority of the length of all service connections be installed using the proposed trenchless method.
- C. All new service lines shall be installed, including new curb stops, to a point adjacent to existing services and shall be flushed, pressure tested and disinfected along with the new water main, per Section 33 13 00. The new curbstop can be used to facilitate flushing to expel trapped air and to insure adherence to the sterilization specifications. After all the lines have been successfully pressure tested and have passed the disinfection test, they shall be connected to existing service. A new service box shall be installed and brought to proper grade. The price for the new service box and installation shall be included in the unit price for each service.

3.02 SERVICE TAPS

- A. Contractor shall install service saddles at locations shown on the Contract Drawings
- B. An internal shell cutter shall be used to drill through the corporation stop to minimize shavings, retain the coupon, and reduce stress. Single fluted shell cutter or twist drills shall not be used. Cutting lubricant shall be used on the cutting and tapping edges of the tool.

3.03 HOT TAP

- A. All hot tapping of existing mains shall be performed by the District, as directed on the Contract Drawings.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

**SECTION 33 13 00
WATER PIPELINE TESTING AND DISINFECTION**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: flushing, testing and disinfection of all pipelines and appurtenances for water.
- B. Related Sections:
 - 1. 31 23 19 Dewatering
 - 2. 33 12 13 Water Service Connections
 - 3. 33 14 13 Water Distribution Piping
 - 4. 33 14 16 Water Distribution Valves
 - 5. 33 14 19 Fire Hydrants

1.02 REFERENCES

- A. American Water Works Association (AWWA)
 - 1. B300 Hypochlorites.
 - 2. C200 Steel Water Pipe 6" in Diameter and Larger
 - 3. C600 Installation of Ductile Iron Water Pipes and Their Appurtenances
 - 4. C651 Disinfecting Water Mains.(attached)
 - 5. C900 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In.-12 In. for Water Transmission and Distribution
 - 6. C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) through 63 in. (1,600 mm), for Water Distribution and Transmission.
- B. South Tahoe Public Utility District Standards
 - 1. Water System Connection Disinfection and Testing Guide (attached)

1.03 CONTRACTOR SUBMITTALS

- A. Submittals shall be made in accordance with Section 01 33 00 Submittals Process.
- B. The following submittals and specific information shall be provided.
 - 1. A detailed, project-specific testing procedure and schedule, including proposed plans for water conveyance, control, disposal, and disinfection, shall be submitted in writing for approval a minimum of 48 hours before testing is to start.

1.04 QUALITY ASSURANCE

- A. Comply with the Section 01 43 00 Quality Assurance.

PART 2 PRODUCTS

2.01 MATERIALS REQUIREMENTS

- A. All test equipment, chemicals for disinfection, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the Contractor subject to the Engineer's approval. No materials shall be used which would be injurious to the construction or its future function.
- B. Chlorine for disinfection shall be in the form of sodium hypochlorite solution only. Sodium hypochlorite shall be in accordance with the requirements of AWWA B300.

PART 3 EXECUTION

3.01 GENERAL

- A. Testing and disinfection of waterlines shall conform to the requirements of this section and to the District's "Water System Connection Disinfection and Testing Guide", unless otherwise authorized in writing by the Engineer. Alternative testing and disinfection procedures shall be submitted by the Contractor for review and approval in conformance with Part 1.03.B.1, above.
- B. Unless otherwise provided herein, water for testing and disinfecting water pipelines will be furnished by STPUD; however, the Contractor shall make all necessary provisions for conveying the water from STPUD-designated source to the points of use.
- C. All pressure pipelines shall be tested. Disinfection shall be accomplished by chlorination and shall be completed by the contractor. All bacteriological testing operations shall be performed by District Laboratory Personnel in the presence of the Engineer and Contractor.
- D. Disinfection operations shall be scheduled by the Contractor as late as possible during the contract time period so as to assure the maximum degree of sterility of the facilities at the time the Work is accepted by the Engineer and the Inspector. Mains, services, and hydrants shall be tested at the same time. Bacteriological testing shall be performed by District Laboratory Personnel in the presence of the Engineer and Contractor.

3.02 HYDROSTATIC TESTING OF PIPELINES

- A. Pressure Test with Maximum Leakage Allowance for Steel, Ductile Iron, or PVC Pipe
 - 1. All PVC, Ductile Iron, and Steel pressure pipe shall be tested for leakage per AWWA C200, C600, or C900 depending on pipe type, for a minimum duration of 2 hours at 150 psi and measured at the lowest point in the line. Any sections of the pipelines indicating more than the allowable leakage shall be repaired and retested until the leakage is less than the allowable indicated below. The leakage test shall be made after backfilling. Any visible leaks shall also be repaired.

2. Do not test sections longer than 2,000 ft. in total pipe length without prior approval of the Engineer.
3. Pressure test piping after completion of visible leaks test during water absorption period.
4. Accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period.
5. Successful completion of the pressure test with maximum leakage allowance shall have been achieved when the observed leakage during the test period is equal or less than the allowable leakage and no damage to piping and appurtenances has occurred. Calculate the allowable leakage by the following formula:

$$L = \frac{(S * D * \sqrt{P})}{133,200}$$

Wherein the terms shall mean:

L = Allowable leakage in gallons per hour.

S = Length of the test section in feet.

D = Nominal diameter of the piping in inches.

P = Average observed test pressure in pounds per square inches, gauge, at the lowest point of the test section, corrected for elevation of the pressure gauge.

- B. Presssure Test with Maximum Leakage Allowance for HDPE Pipe
 1. All HDPE pressure pipe shall be tested for leakage per AWWA C906.

3.03 DISINFECTING PIPELINES

- A. New Mains
 1. General
 - a. All equipment and pipelines intended to carry potable water shall be sterilized before placing in service.
 - b. Disinfection and bacteriological testing of new mains shall be performed in accordance with the guidelines provided by AWWA C651, in addition to the standards written below.
 2. Flushing
 - a. Before disinfection, the Contractor shall ensure all foreign matter has been flushed from equipment and pipeline.
 - b. Contractor shall provide hoses and temporary pipes as required to dispose of flushing water without damage to adjacent properties.
 - c. Flushing velocities shall be at least 2.5 fps. For large diameter pipe here it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipeline in place from the inside by brushing and sweeping, then flush the line at a lower velocity.
 - d. **Water used for disinfection may be discharged into the District's sanitary sewer manhole at the project site with prior approval of the Engineer. During any discharge into the District's sewer system, the Contractor shall provide monitoring to assure against surcharging the system.**
 3. Additions to AWWA C651:
 - a. Strict adherence to all sections of AWWA standard C651 is required.

- b. Section 4.1 of AWWA C651 shall be followed as written except that sodium hypochlorite is the only form of chlorine to be used for disinfection.
 - c. Section 5.1.1 of AWWA C651 shall be followed as written except that at least two sample sets, obtained on successive days at a minimum of 24 hours apart, shall be collected from the new main and each branch.
 - 1) A sample set consists of three samples for every 1,200 foot section of pipelines: one at the each end and one in the middle. An extra sample is needed for each additional 600 feet of pipe.
 - 2) Water service lateral connections or dedicated sample ports should be used for sample taps. Samples must not be taken from fire hydrants, unless approved by the Engineer.
 - 3) The sample tap should be flushed enough to clear the sample line and ensure that the sample is from the main. Sample taps should be installed at least one (1) foot above grade to prevent contamination from soil.
 - d. A standard heterotrophic plate count (HPC) will be required. This sample will be drawn at the same time as the first sample set for coliforms. HPC must be less than 500 cfu per mL, in accordance with Section 5.1.4 of AWWA C651.
4. Disinfection and Testing Procedures:
- a. Charge and chlorinate the line in accordance with AWWA C651, as modified above. Record initial chlorine level in main.
 - b. The chlorinated water shall be retained in the pipeline for at least 24-hours. If water temperature is less than 5 degrees C, the time required for the chlorinated water to remain in the pipeline shall be no less than 48-hours.
 - c. All valves and hydrants in the treated section shall be operated during the 24-hour chlorination period to disinfect the appurtenances.
 - d. At the end of the 24-hour period (or 48-hour period as required in Part 3.03.A.4.a, above), the treated water in all portions of the main shall be tested by District laboratory personnel and found to have a residual of not less than 10 mg/L free chlorine.
 - e. Before the first bacteriological sample is taken, the main shall be flushed so that the total chlorine residual is no greater than that currently in the water distribution system.
 - f. Samples for bacteriological and HPC testing shall be collected by District laboratory personnel.
 - g. After the first sample for bacteriological testing is taken, the water will remain undisturbed in the main for 24 hours, after which, a second set of samples for bacteriological testing shall be collected by District laboratory personnel. In the event that at the time of the second bacteriological sampling the total chlorine residual is greater than that in the water distribution system, the water line will be flushed until the total chlorine residual is no greater than that of the water in the distribution system. It will be the Engineers discretion to decide whether or not water in the main must remain undisturbed for an additional 24 hours before the second bacteriological sample is taken.
5. The new main shall be approved as disinfected when all of the following have been achieved:
- a. All bacteriological tests on two successive days must be negative for total coliform organisms.

- b. HPC is found to be less than 500 cfu per mL, in accordance with Section 5.1.4.
- 6. Scheduling
 - a. The time required for completing the disinfection and bacteriological testing is at least 4 days and can require up to 6 days, even if test results are acceptable on the first try.
 - b. If the test results show the presence of coliform organisms, more time will be required for further disinfection and testing.
 - c. Flushing of the disinfected water main may take considerable time and should be considered in scheduling work.
 - d. The laboratory should be notified at least 24-hours prior to initial disinfection.
 - e. The Contractor shall provide personnel to assist the District lab personnel to obtain samples.
- B. Repaired Mains, including system interties: The disinfection and bacteriological testing of repaired water mains shall be performed in accordance with the guidelines provided by AWWA C651 and the additions that are written below.
 - 1. All repairs performed by the Contractor, shall be coordinated with the Engineer
 - 2. New pipe segments and fitting shall be swabbed with sodium hypochlorite, as well as the exposed ends of the repaired section.
 - 3. Schedule lab to take tests within 24 hours. Continue until two (2) consecutive negative samples are collected. Corrective action by the contractor may be required and could include flushing, charging, slug chlorination and/or additional repairs at the direction of the Engineer.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK



**American Water Works
Association**

Dedicated to the World's Most Important Resource®

ANSI/AWWA C651-14
(Revision of [ANSI/AWWA C651-05](#))

AWWA Standard

Disinfecting Water Mains

Effective date: Feb. 1, 2015.
First edition approved by AWWA Board of Directors Sept. 30, 1947.
This edition approved June 8, 2014.
Approved by American National Standards Institute Nov. 18, 2014.
Addendum incorporated Jan. 2020.



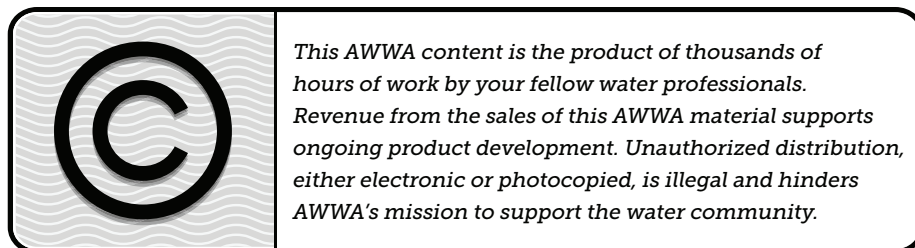
AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. This standard does not supersede or take precedence over or displace any applicable law, regulation, or codes of any governmental authority. AWWA standards are intended to represent a consensus of the water supply industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed in the Official Notice section of *Journal - American Water Works Association*. The action becomes effective on the first day of the month following the month of *Journal - American Water Works Association* publication of the official notice.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether that person has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review, and users are cautioned to obtain the latest editions. Producers of goods made in conformity with an American National Standard are encouraged to state on their own responsibility in advertising and promotional materials or on tags or labels that the goods are produced in conformity with particular American National Standards.

CAUTION NOTICE: The American National Standards Institute (ANSI) approval date on the front cover of this standard indicates completion of the ANSI approval process. This American National Standard may be revised or withdrawn at any time. ANSI procedures require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of ANSI approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036; 212.642.4900, or emailing info@ansi.org.



ISBN-13, print: 978-1-62576-046-3

eISBN-13, electronic: 978-1-61300-310-7

DOI: <http://dx.doi.org/10.12999/AWWA.C651.14>

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information or retrieval system, except in the form of brief excerpts or quotations for review purposes, without the written permission of the publisher.

Copyright © 2015 by American Water Works Association
Printed in USA

Committee Personnel

The AWWA Standards Committee on Disinfection of Facilities, which reviewed and approved this standard, had the following personnel at the time of approval:

Betsy Reilley, *Chair*

General Interest Members

G. Boyd,* Standards Council Liaison, Cadmus Group, Seattle, Wash.	(AWWA)
K.C. Choquette, Consultant, Des Moines, Iowa	(AWWA)
C.B. Hagar, Carollo Engineers, Phoenix, Ariz.	(AWWA)
J.M. Henderson, Consultant, Concord, Mass.	(AWWA)
P.J. Olson,* Standards Staff Liaison, AWWA, Denver, Colo.	(AWWA)
S. Vidika, Dixon Engineering Inc., Medina, Ohio	(AWWA)
J.S. Wailes, Consultant, Black Hawk, Colo.	(AWWA)
T.W. Walker, New York State Department of Health, Victor, N.Y.	(AWWA)
M.L. Wentink, Nebraska DHHS Division of Public Health, North Platte, Neb.	(AWWA)

Producer Members

R.J. Gordhamer, Measurement Technologies Inc., Redmond, Wash.	(AWWA)
D.T. Hanson, Design Water Technologies, Shorewood, Minn.	(AWWA)
P.L. Smith, Smith LaSalle Inc., Western Springs, Ill.	(AWWA)

User Members

G.A. Burlingame, Philadelphia Water Department, Philadelphia, Penn.	(AWWA)
R.C. Lorenz, Westerville Water Plant, Westerville, Ohio	(AWWA)
P.M. Marchand, Bristol County Water Authority, Warren, R.I.	(AWWA)
B. Reilley, MWRA, Southborough, Mass.	(AWWA)
E.D. Schwartz, New Jersey American Water Company, Plainsboro, N.J.	(AWWA)
B.L. Whitteberry, Greater Cincinnati Water Works, Cincinnati, Ohio	(AWWA)

* Liaison, nonvoting

This page intentionally blank.

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

SEC.	PAGE	SEC.	PAGE
Foreword		4.4	Continuous-Feed Method of Chlorination..... 6
I	Introduction..... vii	4.5	Slug Method of Chlorination 10
I.A	Background..... vii	4.6	Spray Disinfection for Large Transmission Lines..... 11
I.B	History..... vii	4.7	Basic Disinfection Procedure for New Mains 11
I.C	Acceptance..... vii	4.8	Preventive and Corrective Measures During New Construction 12
II	Special Issues..... viii	4.9	Final Flushing for New Mains..... 14
II.A	Information on Application of This Standard..... viii	4.10	Final Connections to Existing Mains..... 14
III	Use of This Standard..... xi	4.11	Disinfection Procedures When Cutting Into or Repairing Existing Pipe 15
III.A	Purchaser Options and Alternatives xi	5	Verification
III.B	Modification to Standard xii	5.1	Bacteriological Tests 19
IV	Major Revisions..... xii	5.2	Optional Sampling and Testing..... 21
V	Comments xiii	6	Delivery 21
Standard		Appendixes	
1	General	A	Chlorine Residual Testing..... 23
1.1	Scope 1	A.1	DPD Drop Dilution Method (for Field Test) 23
1.2	Purpose 1	A.2	High-Range Chlorine Test Kits..... 24
1.3	Application..... 1	B	Chlorine Dosages 25
2	References 2	Figures	
3	Definitions 2	1	Suggested Temporary Flushing/Testing Connection 7
4	Requirements		
4.1	Forms of Chlorine for Disinfection ... 3		
4.2	General Considerations for All Methods of Chlorination..... 4		
4.3	Tablet/Granule Method of Chlorination..... 5		

SEC.	PAGE	SEC.	PAGE
2	Suggested Combination Blowoff and Sampling Tap 9	4	Chlorine Required to Produce an Initial 25-mg/L Concentration in 100 ft (30.5 m) of Pipe by Diameter 9
Tables			
1	Weight of Calcium Hypochlorite Granules to Be Placed at Beginning of Main and at Each 500-ft (150-m) Interval 5	B.1	Amounts of Chemicals Required to Produce Various Chlorine Concentrations in 100,000 gal (378.5 m ³) of Water..... 25
2	Number of 5-g Calcium Hypochlorite Tablets Required for Dose of 25 mg/L 6	B.2	Amounts of Chemicals Required to Produce Chlorine Concentrations of 200 mL in Various Volumes of Water 25
3	Required Flow and Openings (Either Taps or Hydrants) to Flush Pipelines at 3.0 ft/sec (0.91 m/sec) (40 psi [276 kPa] Residual Pressure in Water Main) 7		

Foreword

This foreword is for information only and is not a part of ANSI/AWWA C651.

I. Introduction.

I.A. *Background.* This standard describes methods of disinfecting newly constructed potable water mains; mains that have been removed from service for planned repairs or for maintenance that exposes them to contamination; mains that have undergone emergency repairs because of physical failure; and mains that, under normal operation, continue to show the presence of coliform organisms. The disinfecting agents discussed in this standard are chlorine solutions that may be derived from liquid chlorine (Cl_2), calcium hypochlorite ($\text{Ca}(\text{OCl})_2$), or sodium hypochlorite (NaOCl). Combinations of free chlorine residual and contact time are provided. Chlorine dosage reference tables are provided as appendix B of this standard.

I.B. *History.* This standard was first approved on Sept. 30, 1947, by the AWWA Board of Directors and published as 7D.2-1948, A Procedure for Disinfecting Water Mains. Revisions were approved on Sept. 14, 1948; Mar. 6, 1953; May 27, 1954; June 2, 1968; and June 7, 1981. All were done under the designation [ANSI/AWWA C601](#), Standard for Disinfecting Water Mains. In 1986, the designation of the standard was changed to ANSI/AWWA C651, and the subsequent editions were approved on Jan. 26, 1986; June 18, 1992; June 20, 1999; and Jan. 16, 2005. This edition was approved on June 8, 2014.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the Water Research Foundation (formerly AwwaRF) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.[†] Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

† Persons outside the United States should contact the appropriate authority having jurisdiction.

effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF*: NSF/ANSI 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,[†] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 60. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdictions. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, “Toxicology Review and Evaluation Procedures,” to NSF/ANSI 60 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of “unregulated contaminants” are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

ANSI/AWWA C651 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements including applicable standards.
2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues.

II.A. *Information on Application of This Standard.* Generally, it is easier to disinfect a new main than one that has had emergency repairs in terms of access, sanitary control, and the time available for disinfection, sampling, and testing.

* NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105.

† Both publications available from National Academy of Sciences, 500 Fifth Street, NW, Washington, DC 20001.

For a new main, there is typically more time available for disinfection and testing since there is no immediate demand from customers. Given the often significant amount of time and materials involved in a new water main project, careful disinfection and testing of the main are reasonable and necessary to ensure public health protection.

Conditions for pipe repair projects vary tremendously in terms of the size of the repair, the sanitary conditions, and the time constraints resulting from immediate customer demands. It should be noted if the line is depressurized or opened to the environment prior to or during repair, the sanitary integrity of the pipe is compromised and it is critical to follow sanitary procedures throughout the repair—not just as it is being returned to service. Crews responsible for the repair of mains should be aware of the potential health hazards and be trained to carefully observe prescribed construction practices and disinfection procedures.

Because of the differences between initial installation and repair, the disinfection requirements for each situation are also different. The installation of new mains requires that two sets of samples for coliform analysis are collected at least 16 hr apart, or two sets collected 15 min apart after at least a 16-hr rest period. For repaired mains that are depressurized and/or wholly or partially dewatered, one set of samples may be required, and depending on the sanitary conditions, the line may be returned to service prior to the completion of bacteriological testing. For repaired mains that are maintained under pressurized conditions at all times, bacteriological testing is not required.

When required, samples are now specified to be collected at least 16 hr apart, or 15 min apart after a 16-hr rest period. The purpose of this change is to consider the balance between public health, improved test methods, and timely work completion. This timing is sufficient to allow bacterial regrowth within the line if there was a contamination problem and provides more flexibility in the scheduling of various work activities.

Bacteriological testing in accordance with Sec. 5.1 is used to verify the absence of coliform organisms and is generally accepted as verification that disinfection of the pipeline has been accomplished; and following sanitary practices for handling and installation of pipe, valves, fittings, and accessories, coupled with adequate flushing of the line before disinfection, is necessary to ensure the disinfected pipeline will be ready for connection to the water system. Failure to pass the bacteriological test requires that the flushing or disinfection process be repeated. It must be remembered that the final water quality test is not the primary means for certifying the sanitary condition of a main. The sanitary

handling of materials, the practices during construction, and the continual inspection of the work are the primary means for ensuring the sanitary condition of the water main.

Four methods of disinfecting newly constructed water mains are described in this standard: the tablet method, the continuous-feed method, the slug method, and the spray method. The utility should decide which of these methods is most suitable for a given situation. Factors to consider when choosing a method should include the length and diameter of the main, type of joints present, availability of materials, equipment required for disinfection, training of the personnel who will perform the disinfection, and safety concerns. For example, if gas chlorination is the chosen chemical when either continuous-feed or slug methods are being used, use only properly designed and constructed equipment; makeshift equipment is not acceptable when liquid chlorine (gas) cylinders are used.

Thorough consideration should be given to the impact of highly chlorinated water flushed into the environment. If there is any question that damage may be caused by chlorinated-waste discharge (to fish life, plant life, physical installations, or other downstream water uses of any type), then an adequate amount of reducing agent should be applied to water being disposed of in order to thoroughly neutralize the chlorine residual remaining in the water.

The tablet method cannot be used unless the main can be kept clean and dry. It cannot be used in large-diameter mains if it is necessary for a worker to enter the main to grout joints or perform inspection because the tablets may release toxic fumes after exposure to moist air. When using the tablet method, the chlorine concentration is not uniform throughout the main because the hypochlorite solution is dense and tends to concentrate at the bottom of the pipe. The use of the tablet method precludes preliminary flushing. The tablet method is convenient to use in mains having diameters up to 24 in. (600 mm), and it requires no special equipment.

The continuous-feed method is suitable for general application. Preliminary flushing removes light particulates from the main but not from the pipe-joint spaces. The chlorine concentration is uniform throughout the main.

The slug method is suitable for use in large-diameter mains where the volume of water makes the continuous-feed method impractical and difficult to achieve for short attachments. The slug method results in appreciable savings of chemicals used to disinfect long large-diameter mains. Also, this method reduces the volume of heavily chlorinated water to be flushed to waste.

The spray method is suitable for use in large-diameter transmission lines where spray equipment can be used to disinfect all surfaces of the pipe. This method reduces the volume of heavily chlorinated water to be flushed to waste.

The purpose of all four chlorination methods is to disinfect water lines, resulting in an absence of coliforms as confirmed by laboratory analysis. As noted above, the four methods attempt to provide flexibility in responding to specific situations. The tablet and continuous-feed methods both have initial chlorine concentrations of 25 mg/L and a minimum contact time of 24 hr. Because the tablet method cannot be flushed and cleaned prior to disinfection, the required free chlorine residual must be detectable (≥ 0.2 mg/L) after 24 hr. Because the continuous-feed method can be used to flush particles, a higher free chlorine residual of 10 mg/L is required after 24 hr. To meet the needs of situations requiring reduced contact times, the slug method allows only a 3-hr contact time but requires a 100-mg/L initial chlorine dosage. For larger transmission lines, spray disinfection using 200 mg/L free chlorine may be a suitable option, minimizing discharges of highly chlorinated water. While the contact times of the methods may not be identical, the end result, absence of coliforms, is the same for all four methods.

Disinfectants other than chlorine may be appropriate to use. Although this standard describes only the use of liquid chlorine (gas), sodium hypochlorite solutions, and calcium hypochlorite, the applicability of other disinfectants should be evaluated. Ozone and chemical cleaners have been used, and these warrant further investigation. Whichever disinfectant or method is selected, approval from the local regulatory agency may be required.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. Purchaser Options and Alternatives. This standard is written as though the disinfection work will be performed by the purchaser's personnel. Where the work is to be performed using a separate contract or as part of a contract for installing mains,* appropriate provisions should be included in the purchase documents to ensure that the constructor is specifically instructed as to its responsibilities. The following information should be provided by the purchaser.

* Refer to other AWWA standards and manuals for design criteria and installation procedures for various pipe materials.

1. Standard used— that is, ANSI/AWWA C651, Standard for Disinfection of Water Mains, of latest revision.
2. Approval requirements before use.
3. Those procedures included in the standard that are designated as optional, that are to be included in the purchase documents.
4. Whether compliance with NSF/ANSI 60, Drinking Water Chemicals—Health Effects, is required.
5. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required.
6. Details of other federal, state or provincial, and local requirements (Section 4).
7. Form of chlorine to be used (Sec. 4.1.1, 4.1.2, and 4.1.3).
8. Method of chlorination (Sec. 4.3, 4.4, 4.5, and 4.6).
9. Flushing locations, rates of flushing, and locations of drainage facilities (Sec. 4.4.2, 4.9.1, and 4.9.2).
10. Responsibility for tapping existing mains and connections to new mains (Sec. 4.4.3[1], 4.4.3[2], and 4.10).
11. The number and frequency of samples for bacteriological tests (Sec. 5.1.1, 5.1.2, and 5.2).
12. Method of taking samples (Sec. 5.1.3).

III.B. *Modification to Standard.* Any modification of the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. Major revisions made to the standard in this edition include the following:

1. Clarified differences in the requirements between new and repaired mains (foreword II.A, Sec. 1.1, and 4.11).
2. Changed the requirement for bacteriological sampling in new mains from two sets of samples 24 hr apart to add two options for two sets of samples: Option A samples are 16 hr apart, and Option B samples are 15 min apart after a 16-hr rest period (foreword II.A and Sec. 5.1).
3. The flushing rate of 2.5 ft/sec has been increased to 3.0 ft/sec for a scour flush based on testing performed under Water Research Foundation Project No. 4307, which indicates the threshold velocity of 2.5 to 3.0 ft/sec for successful flushing (2.5- to 3.0-log removal) of sand particles. Since this is a threshold velocity, 3.0 ft/sec was chosen for the standard (Sec. 4.4.2 and Table 3).
4. Added spray disinfection method for large transmission mains (Sec. 4.6).

5. Appendix C has been deleted, and instead, a reference to [ANSI/AWWA C655](#) is made for dechlorination (Sec. 4.7 and 4.9.2).

6. Developed a rationale for evaluating risk during pipe repairs and the level of disinfection and sampling needed under those conditions (Sec. 4.11).

V. Comments. If you have any comments or questions about this standard, please call the AWWA Engineering and Technical Services at 303.794.7711, FAX at 303.795.7603; write to the group at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email the group at standards@awwa.org.

This page intentionally blank.



**American Water Works
Association**

Dedicated to the World's Most Important Resource®

ANSI/AWWA C651-14
(Revision of [ANSI/AWWA C651-05](#))

AWWA Standard

Disinfecting Water Mains

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes essential procedures for the disinfection of new and repaired potable water mains. New water mains shall be disinfected before they are placed in service. Water mains taken out of service for inspection, repair, or other activities may or may not require disinfection and sampling, depending on the risk of contamination. This standard described the process for evaluating the risk under different conditions. This standard is meant to be used for water mains within public water systems and is not intended for premise plumbing systems in buildings. Premise plumbing components in building use a wide variety of materials, including some that may not be compatible with the chlorine concentrations in this standard.

Sec. 1.2 Purpose

The purpose of this standard is to define the minimum requirements for the disinfection of water mains, including the preparation of water mains, application of chlorine, and sampling and testing for the presence of coliform bacteria.

Sec. 1.3 Application

This standard can be referenced in the purchase documents for the disinfection of water mains and can be used as a guide for the preparation of water mains, application of chlorine, and sampling and testing for the presence of coliform bacteria. The stipulations of this standard apply when this document has been referenced and only to the disinfection of water mains.

SECTION 2: REFERENCES

This standard references the following documents. In their latest editions, they form a part of this standard to the extent specified within the standard. In any case of conflict, the requirements of this standard shall prevail.

ANSI*/AWWA B300—Hypochlorites.

ANSI/AWWA B301—Liquid Chlorine.

ANSI/AWWA C652—Disinfection of Water Storage Facilities.

ANSI/AWWA C655—Field Dechlorination.

APHA,[†] AWWA, and WEF.[‡] *Standard Methods for the Examination of Water and Wastewater*.

AWWA Manual M12, *Simplified Procedures for Water Examination*.

NSF/ANSI 61—Drinking Water System Components—Health Effects.

SECTION 3: DEFINITIONS

The following definitions shall apply in this standard:

1. *Available chlorine:* A measure of the amount of chlorine in chlorinated lime, hypochlorite compounds, chloramines, and other materials that are used for disinfection compared with the amount in elemental (liquid or gaseous) chlorine.
2. *Chlorine, combined:* The amount of chlorine combined with ammonia (NH₃) or other compounds in water.
3. *Chlorine, free:* Also called *free available chlorine*, the amount of chlorine available as dissolved gas (Cl₂), hypochlorous acid (HOCl), and hypochlorite (OCl⁻) that is not combined with ammonia (NH₃) or other compounds in water that is available for disinfection.
4. *Chlorine residual:* Concentration of chlorine species present in water after the oxidant demand has been satisfied.
5. *Chlorine, total:* A combination of free chlorine, combined chlorine, and organochlorine species.
6. *Constructor:* The party that provides the work and materials for placement or installation.

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

† American Public Health Association, 800 I Street NW, Washington, DC 20001.

‡ Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314.

7. *Liquid chlorine (gas)*: the commercially available form of liquefied elemental chlorine gas. (The term *liquid chlorine* is sometimes used to describe a hypochlorite solution. This use of the term is discouraged. See [ANSI/AWWA B300](#), Hypochlorites.)

8. *Manufacturer*: The party that manufactures, fabricates, or produces materials or products.

9. *Purchaser*: The person, company, or organization that purchases any materials or work to be performed.

10. *Supplier*: The party that supplies material or services. A supplier may or may not be the manufacturer.

11. *Organochlorine*: Any organic compound containing chlorine as a constituent. Organochlorine compounds can form when chlorine reacts with organic substances.

SECTION 4: REQUIREMENTS

Materials shall comply with the requirements of the Safe Drinking Water Act and other federal regulations for potable water, wastewater, and reclaimed water systems as applicable.

Sec. 4.1 Forms of Chlorine for Disinfection

The forms of chlorine that may be used in the water main disinfection operations are liquid chlorine (gas), sodium hypochlorite solution, and calcium hypochlorite granules or tablets.

4.1.1 *Liquid chlorine (gas)*. Liquid chlorine (gas) conforming to [ANSI/AWWA B301](#) contains 100 percent available chlorine and is packaged in steel containers usually of 100-lb, 150-lb, or 1-ton (45.4-kg, 68.0-kg, or 907.2-kg) net chlorine weight. Liquid chlorine (gas) shall be used only (1) in combination with appropriate gas-flow chlorinators and ejectors to provide a controlled high-concentration solution feed to the water to be chlorinated; (2) under the direct supervision of someone familiar with the biological, chemical, and physical properties of liquid chlorine (gas) and who is trained and equipped to handle any emergency that may arise; and (3) when appropriate safety practices are observed to protect working personnel and the public. Makeshift equipment is not acceptable when liquid chlorine (gas) cylinders are used.

4.1.2 *Sodium hypochlorite.* Sodium hypochlorite conforming to [ANSI/AWWA B300](#) is available in liquid form in glass, rubber-lined, or plastic containers typically ranging in size from 1 qt (0.95 L) to 5 gal (18.92 L). Containers of 30 gal (113.6 L) or larger may be available in some areas. Sodium hypochlorite contains approximately 5 percent to 15 percent available chlorine, and the storage conditions and time must be controlled to minimize its deterioration. (Available chlorine is expressed as a percent of weight when the concentration is 5 percent or less, and usually as a percent of volume for higher concentrations. Percent $\times$ 10 = grams of available chlorine per liter of hypochlorite.)

4.1.3 *Calcium hypochlorite.* Calcium hypochlorite conforming to [ANSI/AWWA B300](#) is available in granular form or in 5-g tablets and must contain approximately 65 percent available chlorine by weight. The material should be stored in a cool, dry, and dark environment to minimize its deterioration.

CAUTION: Tablets dissolve in approximately 7 hr and must be given adequate contact time. Do not use calcium hypochlorite intended for swimming pool disinfection, as this material has been sequestered and is extremely difficult to eliminate from the pipe after the desired contact time has been achieved.

Sec. 4.2 General Considerations for All Methods of Chlorination

4.2.1 *General.* Four methods of chlorination are explained in this section: tablet, continuous feed, slug, and spray. The tablet method gives an initial chlorine dose of 25 mg/L; the continuous-feed method gives a 24-hr chlorine residual of not less than 10 mg/L; the slug method gives a 3-hr exposure of not less than 50 mg/L free chlorine; and the spray method gives a 30-min exposure of not less than 200 mg/L free chlorine. Caution should be used with highly chlorinated water when conducting hydrostatic pressure testing and with high-volume flushing of water.

4.2.2 *Flushing.* Potable water shall be used for disinfection, hydrostatic pressure testing, and flushing. Drainage should take place away from the construction or work area. Adequate drainage must be provided during flushing. If applicable, the valve(s) isolating the main from existing system should be locked out and tagged out to prevent unintentional release of the elevated chlorine residual water used for disinfection.

4.2.3 *Dechlorination.* When dechlorination is required, it is recommended that any high-velocity flushing be completed prior to disinfection. Dechlorination equipment may not be capable of handling high flows with high levels of chlorine.

Table 1 Weight of calcium hypochlorite granules to be placed at beginning of main and at each 500-ft (150-m) interval

Pipe Diameter (d)		Calcium Hypochlorite Granules	
<i>in.</i>	<i>(mm)</i>	<i>oz</i>	<i>(g)</i>
4	(100)	1.7	(48)
6	(150)	3.8	(108)
8	(200)	6.7	(190)
10	(250)	10.5	(298)
12	(300)	15.1	(428)
14 and larger	(350 and larger)	$D^2 \times 15.1$	$D^2 \times 428$

Where D is the inside pipe diameter, in feet $D = d/12$

Sec. 4.3 Tablet/Granule Method of Chlorination

4.3.1 Tablet method. The tablet method consists of placing calcium hypochlorite granules or tablets in the water main during installation and then filling the main with potable water to create a chlorine solution. This method may be used only if the pipes and appurtenances are kept clean and dry during construction.

WARNING: This procedure must not be used on solvent-welded plastic or on screwed-joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.

4.3.2 Placement of calcium hypochlorite granules during construction. Calcium hypochlorite granules shall be placed at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500-ft (150-m) intervals. The quantity of granules at each location shall be as shown in Table 1.

4.3.3 Placement of calcium hypochlorite tablets during construction. Calcium hypochlorite tablets (5-grams) shall be placed in the upstream end of each section of pipe to be disinfected, including branch lines. Also, at least one tablet shall be placed in each hydrant branch and in other appurtenances. The number of 5-g tablets required for each pipe section shall be $0.0012 d^2 L$ rounded to the next higher integer, where d is the inside pipe diameter, in inches, and L is the length of the pipe section, in feet. Table 2 shows the number of tablets required for commonly used sizes of pipe. Calcium hypochlorite tablets shall be attached by an adhesive meeting the requirements of NSF/ANSI 61. There shall be adhesive only on the broadside of the tablet attached to the surface of the pipe. Attach tablets inside and at the top of the main. If the tablets are attached before the pipe section is placed in

Table 2 Number of 5-g calcium hypochlorite tablets required for dose of 25 mg/L*

Pipe Diameter		Length of Pipe Section, <i>ft (m)</i>				
		13 (4.0) or less	18 (5.5)	20 (6.1)	30 (9.1)	40 (12.2)
<i>in.</i>	<i>(mm)</i>	Number of 5-g Calcium Hypochlorite Tablets				
4	(100)	1	1	1	1	1
6	(150)	1	1	1	2	2
8	(200)	1	2	2	3	4
10	(250)	2	3	3	4	5
12	(300)	3	4	4	6	7
16	(400)	4	6	7	10	13

*Based on 3.25-g available chlorine per tablet

the trench, their positions shall be marked on the pipe exterior to indicate that the pipe has been installed with the tablets at the top.

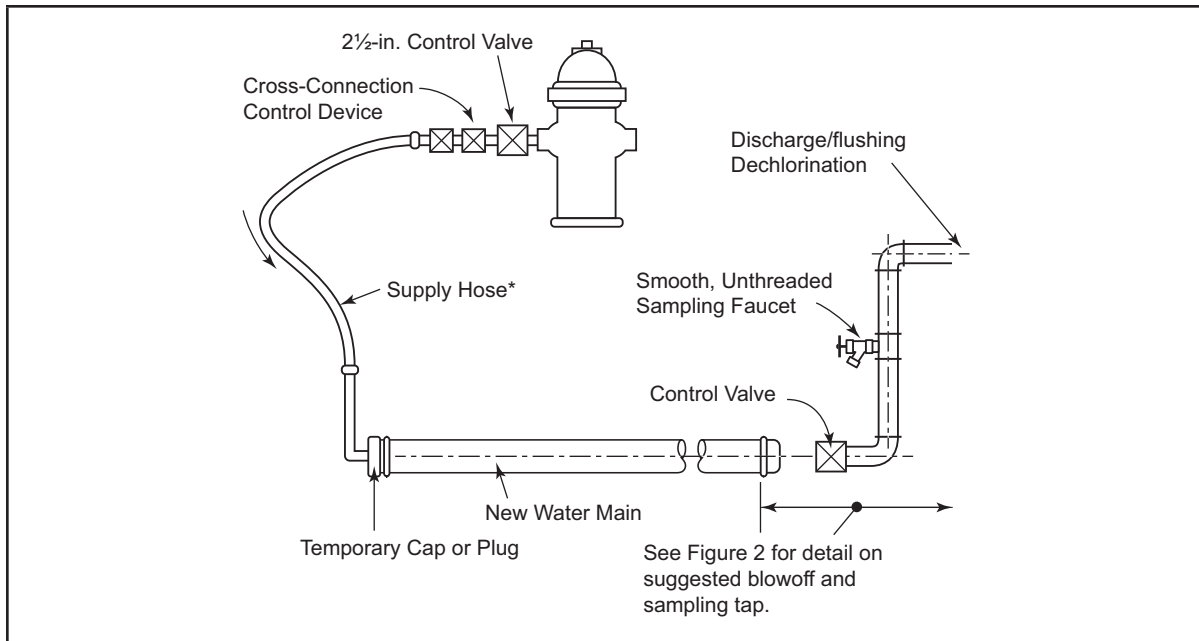
4.3.4 Filling and contact time. When installation has been completed, the main shall be filled with water such that the full pipe velocity is no greater than 1 ft/sec (0.3 m/sec). Fill rate must be carefully controlled to ensure tablets do not come loose from pipe. Precautions shall be taken to ensure that air pockets are eliminated. As an optional procedure, if required by the purchaser, water used to fill the new main shall be supplied through a temporary connection that shall include an appropriate cross-connection control device, consistent with the degree of hazard, for backflow protection of the active distribution system (see Figure 1).

The chlorinated water shall remain in the pipe for at least 24 hr. If the water temperature is less than 41°F (5°C), the water shall remain in the pipe for at least 48 hr. A detectable free chlorine residual (≥ 0.2 mg/L) shall be found at each sampling point after the 24- or 48-hr period.

Sec. 4.4 Continuous-Feed Method of Chlorination

4.4.1 Continuous-feed method. The continuous-feed method consists of completely filling the main with potable water, removing air pockets, then flushing the completed main to remove particulates, and refilling the main with potable water that has been chlorinated to 25 mg/L. After a 24-hr holding period in the main there shall be a free chlorine residual of not less than 10 mg/L.

4.4.2 Preliminary flushing. Before the main is chlorinated, it shall be filled with potable water to eliminate air pockets and flushed to remove particulates. The flushing velocity in the main shall not be less than 3.0 ft/sec (0.91 m/sec) unless



NOTE: Figure 1 applies to pipes with diameters 4 in. (100 mm) through 12 in. (300 mm). Larger sizes must be handled on a case-by-case basis.

*Clean potable-water hose only. Size and number of taps per Table 3. This hose must be removed during the hydrostatic pressure test.

Figure 1 Suggested temporary flushing/testing connection

Table 3 Required flow and openings (either taps or hydrants) to flush pipelines at 3.0 ft/sec (0.91 m/sec) (40 psi [276 kPa] residual pressure in water main)*

Pipe Diameter		Flow Required to Produce 3.0 ft/sec (approx.) Velocity in Main		Size of Tap Used, in. (mm)			Number of Hydrant Outlets	
				1 (25)	1½ (38)	2 (51)		
in.	(mm)	gpm	(L/sec)	Number of Taps Required on Pipe†			2½-in. (64-mm)	4½-in. (114 mm)
4	(100)	120	(7.4)	1	—	—	1	1
6	(150)	260	(16.7)	—	1	—	1	1
8	(200)	470	(29.7)	—	2	—	1	1
10	(250)	730	(46.3)	—	3	2	1	1
12	(300)	1,060	(66.7)	—	—	3	2	1
16	(400)	1,880	(118.6)	—	—	5	2	1

*With a 40-psi (276-kPa) pressure in the main with the hydrant flowing to atmosphere, a 2½-in. (64-mm) hydrant outlet will discharge approximately 1,000 gpm (63.1 L/sec); and a 4½-in. (114-mm) hydrant outlet will discharge approximately 2,500 gpm (160 L/sec).

†Number of taps on pipe based on 3.0-ft/sec discharge through 5 ft (1.5 m) of galvanized iron (GI) pipe with one 90° elbow.

the purchaser determines that conditions do not permit the required flow to be discharged to waste. Table 3 shows the rates of flow required to produce a velocity of 3.0 ft/sec (0.91 m/sec) in commonly used sizes of pipe. (NOTE: flushing is no substitute for preventive measures during construction. Certain contaminants, such as caked deposits, resist flushing at any feasible velocity, and pigging of the main, or other suitable method acceptable to the purchaser, may be required.) Where such flow rates are not possible, flushing at the maximum expected flow rate for the line for 2–3 volumes may be acceptable. For larger mains, pigging (or other suitable method acceptable to the purchaser) is an option in place of high velocity flushing.

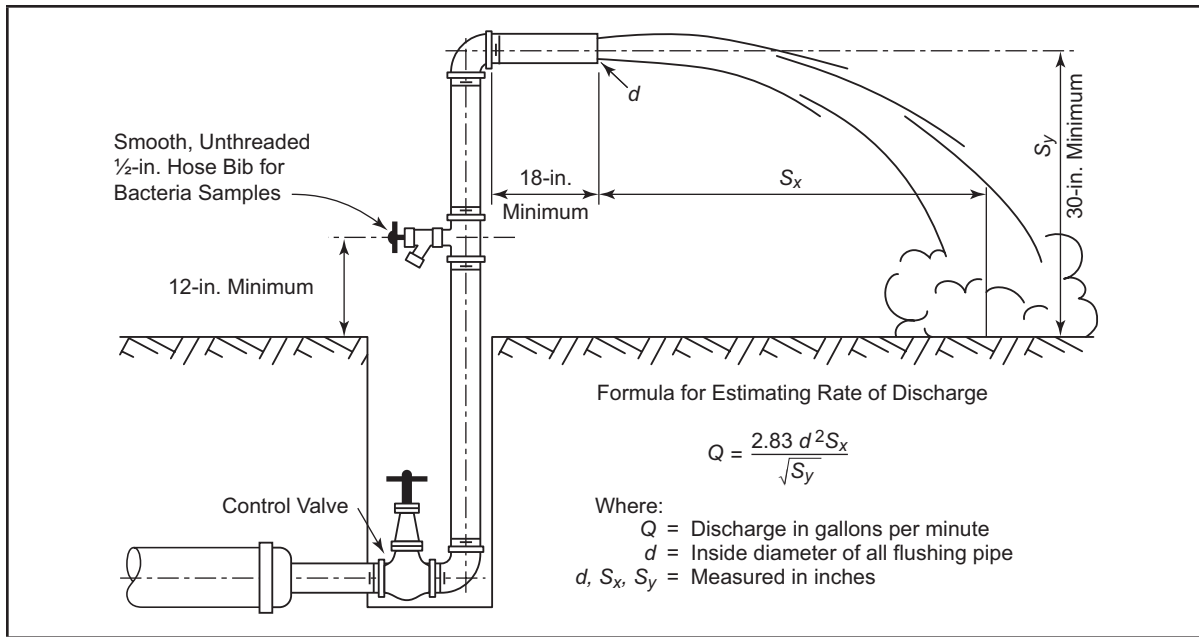
For 24-in. (600-mm) or larger diameter mains, an acceptable alternative to flushing is to broom-sweep the main, carefully removing sweepings prior to filling and chlorinating the main. WARNING: OSHA requirements for confined space need to be addressed before entering a pipeline.

4.4.3 Procedure for chlorinating the main.

1. Potable water may be supplied from a temporary backflow-protected connection to the existing distribution system or other supply source approved by the purchaser. The cross-connection control device shall be consistent with the degree of hazard for backflow protection of the active distribution system (see Figure 1). The flow shall be at a constant, measured rate into the newly installed water main. In the absence of a meter, the rate may be approximated using a Pitot gauge in the discharge, measuring the time to fill a container of known volume, or measuring the trajectory of the discharge and using the formula shown in Figure 2. The main should undergo hydrostatic testing prior to disinfection.

2. At a point not more than 10 ft (3 m) downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. To ensure that an appropriate concentration is achieved, the free chlorine concentration shall be measured at regular time intervals in accordance with the procedures described in *Standard Methods for the Examination of Water and Wastewater* or [AWWA Manual M12](#), or using appropriate chlorine test kit (see appendix A).

Table 4 gives the amount of chlorine required for each 100 ft (30.5 m) of pipe for various pipe diameters. Solutions with a minimum 1 percent chlorine concentration may be prepared with sodium hypochlorite or calcium hypochlorite. The latter solution requires 1 lb (454 g) of calcium hypochlorite in 8 gal (30.3 L) of water.



NOTE: This figure applies to pipes up to and including 8-in. (200-mm) diameter.

Figure 2 Suggested combination blowoff and sampling tap

Table 4 Chlorine required to produce an initial 25-mg/L concentration in 100 ft (30.5 m) of pipe by diameter

Pipe Diameter		100% Chlorine		1% Chlorine Solution	
<i>in.</i>	<i>(mm)</i>	<i>lb</i>	<i>(g)</i>	<i>gal</i>	<i>(L)</i>
4	(100)	0.013	(5.9)	0.16	(0.6)
6	(150)	0.030	(13.6)	0.36	(1.4)
8	(200)	0.054	(24.5)	0.65	(2.5)
10	(250)	0.085	(38.6)	1.02	(3.9)
12	(300)	0.120	(54.4)	1.44	(5.4)
16	(400)	0.217	(98.4)	2.60	(9.8)

3. Chlorine application shall not cease until the entire main is filled with chlorinated water. The chlorinated water shall be retained in the main for at least 24 hr, during which time valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances. At the end of this 24-hr period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L of free chlorine.

4. Direct-feed chlorinators, which operate solely from gas pressure in a chlorine cylinder, shall not be used for the application of liquid chlorine (gas). (The

danger of using direct-feed chlorinators is that water pressure in the main can exceed gas pressure in the chlorine cylinder. This allows backflow of water into the cylinder, resulting in severe cylinder corrosion and the escape of chlorine gas.)

The preferred equipment for applying liquid chlorine (gas) is a solution-feed, vacuum-operated chlorinator and a booster pump. The vacuum-operated chlorinator mixes the chlorine gas in solution water; the booster pump then injects the chlorine solution into the main to be disinfected. Hypochlorite solutions may be applied to the water main with a chemical-feed pump designed for feeding chlorine solutions. Feed lines shall be made of material capable of withstanding the corrosion caused by the concentrated chlorine solutions and the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the solution is applied to the main.

Sec. 4.5 Slug Method of Chlorination

4.5.1 *Slug method.* The slug method consists of completely filling the main to eliminate air pockets; flushing the main to remove particulates; then slowly flowing through the main a slug of water dosed with chlorine to a concentration of 100 mg/L. The slow rate of flow ensures that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hr.

4.5.2 *Preliminary flushing.* Same as Sec. 4.4.2.

4.5.3 *Procedure for chlorinating the main.*

1. Potable water may be supplied from a temporary backflow-protected connection to the existing distribution system or other supply source approved by the purchaser. The cross-connection control device shall be consistent with the degree of hazard for backflow protection of the active distribution system (see Figure 1). The flow shall be at a constant, measured rate into the newly installed water main. In the absence of a meter, the rate may be approximated using a Pitot gauge in the discharge, measuring the time to fill a container of known volume, or measuring the trajectory of the discharge and using the formula shown in Figure 2. The main should undergo hydrostatic testing prior to disinfection.

2. At a point not more than 10 ft (3 m) downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 100 mg/L free chlorine. To ensure that this concentration is achieved, the free chlorine concentration shall be measured at regular time intervals sufficient to guide the completion of the successful loading of the target chlorine concentration. The chlorine shall be applied

continuously and for a sufficient period to develop a solid column, or slug, of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hr.

3. The free chlorine residual shall be measured in the slug as it moves through the main. If at any time it drops below 50 mg/L, the flow shall be stopped; chlorination equipment shall be relocated at the head of the slug; and, as flow resumes, chlorine shall be applied to restore the free chlorine in the slug to not less than 100 mg/L.

4. As chlorinated water flows past fittings and valves, related valves and hydrants shall be operated so as to disinfect appurtenances and pipe branches.

Sec. 4.6 Spray Disinfection for Large Transmission Lines

For very large transmission mains (where personnel or equipment may safely enter the pipe), spray disinfection may be an appropriate and efficient means of achieving disinfection. For this method, refer to [ANSI/AWWA C652](#), Sec. 4.3.2 (Disinfection of Water Storage Facilities; Chlorination Method 2). In general, once pipe is cleaned, spray a 200-mg/L free chlorine solution on all surfaces. After 30 min, fill line and sample as described in Sec. 5.1.

Sec. 4.7 Basic Disinfection Procedure for New Mains

The basic disinfection procedure consists of

1. Inspecting materials to be used to ensure their integrity.
2. Preventing contaminating materials from entering the water main during storage, construction, or repair and noting potential contamination at the construction site.
3. Removing, by flushing or other means, those materials that may have entered the water main or appurtenances.
4. Preventing contamination of existing mains from cross-connection during flushing, pressure testing, and disinfection.
5. Pressure testing the water main to ensure the main meets the purchaser's allowable leakage rate. Hydrostatic pressure tests should be conducted with potable water.
6. Chlorinating and adequately documenting the process used for disinfection.
7. Flushing the chlorinated water from the main. Refer to [ANSI/AWWA C655](#) Field Dechlorination for dechlorination procedures, if dechlorination is required.

8. Determining the bacteriological quality of water samples collected from the pipe by laboratory test after disinfection.

9. Final connecting of the newly disinfected water main to the active distribution system without sacrificing sanitary practices and conditions.

Sec. 4.8 Preventive and Corrective Measures During New Construction

4.8.1 *General.* Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing these organisms. Therefore, the procedures of this section must be observed to ensure that a water main and its appurtenances have been thoroughly cleaned for the final disinfection by chlorination. Also, any connection of a new water main to the active distribution system before the receipt of satisfactory bacteriological samples may constitute a cross-connection. Therefore, the new main must be isolated until bacteriological tests described in Section 5 of this standard are satisfactorily completed.

4.8.2 *Keeping pipe clean and dry.* The interiors of pipes, fittings, and valves shall be protected from contamination.

4.8.2.1 *Openings.* Openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods. Rodent-proof plugs may be used when watertight plugs are not practicable and when thorough cleaning will be performed by flushing or other means.

4.8.2.2 *Stringing pipe.* Pipe delivered for construction shall be strung to minimize the entrance of foreign material.

4.8.2.3 *Delays.* Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the lower the risk of contamination.

4.8.3 *Joints.* Joints of pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is free of standing water and mud that may enter the pipe.

4.8.4 *Packing materials.* Yarning or packing material shall consist of molded or tubular rubber rings, rope of treated paper, or other approved materials. Materials such as jute or hemp shall not be used. Packing material shall be handled in a manner that avoids contamination.

4.8.5 *Sealing materials.* No contaminated material or any material capable of supporting growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in

potable water meeting the requirements of NSF/ANSI 61 and shall not contribute odors. It shall be delivered to the job in closed containers and shall be kept clean and applied with dedicated clean applicators.

4.8.6 *Cleaning and swabbing.* If dirt enters the pipe, it shall be removed and the interior pipe surface swabbed with a minimum 1 percent free chlorine disinfecting solution. If, in the opinion of the purchaser, the dirt remaining in the pipe will not be removed using the flushing operation, the interior of the pipe shall be cleaned using mechanical means, such as a hydraulically propelled foam pig (or other suitable device acceptable to the purchaser) in conjunction with the application of a minimum 1 percent free chlorine disinfecting solution. The cleaning method used shall not force mud or debris into the interior pipe-joint spaces and shall be acceptable to the purchaser.

4.8.7 *Wet-trench construction.* If it is not possible to keep the pipe and fittings dry during installation, a scour flush at 3.0 ft/sec (0.91 m/sec) or greater for a minimum of three pipe volumes (see Table 3) followed by slug or continuous-feed chlorination and bacteria testing before release is required. For larger mains, pigging or other suitable method acceptable to the purchaser is an option in place of high-velocity flushing.

4.8.8 *Flooding by storm or accident during construction.* If the main is flooded during construction, it shall be cleared of the floodwater by draining and flushing with potable water until the main is clean. The section exposed to the floodwater shall then be filled with a chlorinated potable water that, at the end of a 24-hr holding period, will have a free chlorine residual of not less than 25 mg/L. The chlorinated water may then be drained or flushed from the main. If chemical contamination occurs, such as a hydraulic oil leak or petroleum product spill, the pipe sections exposed to the contamination should be replaced and not reused for potable water applications. After construction is completed, the main shall be disinfected using the continuous-feed, slug, or spray methods.

4.8.9 *Backflow protection (optional).** As an optional procedure (if required by the purchaser), the new water main shall be kept isolated from the active distribution system using a physical separation (see Figure 1) until satisfactory bacteriological testing has been completed and the disinfection water flushed out.

Water required to fill the new main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the

* Optional Sec. 4.8.9 is not included as part of the standard unless required by the purchaser.

distribution system and the new main or other supply source approved by the purchaser. The temporary connection shall include an appropriate cross-connection control device consistent with the degree of hazard (a double check valve assembly or a reduced pressure zone assembly) and shall be disconnected (physically separated) from the new main during the hydrostatic pressure test. It will be necessary to reestablish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new main to the distribution system. NOTE: Exposure to high levels of chlorine or high pH can cause severe irritation to customers. Also, the chlorinated water can be high in disinfection by-products.

Sec. 4.9 Final Flushing for New Mains

4.9.1 *Clearing the main of heavily chlorinated water.* After the applicable retention period, heavily chlorinated water should not remain in prolonged contact with pipe. In order to prevent damage to the pipe lining or to prevent corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main fittings, valves, and branches until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the distribution system or that is acceptable for domestic use.

4.9.2 *Disposing of heavily chlorinated water.* The environment to which the chlorinated water is to be discharged shall be inspected. If there is any possibility that the chlorinated discharge will cause damage to the environment, a neutralizing chemical shall be applied to the water to be wasted to thoroughly neutralize the residual chlorine (see [ANSI/AWWA C655](#) for neutralizing chemicals). Where necessary, federal, state, local, or provincial regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

Sec. 4.10 Final Connections to Existing Mains

Water mains and appurtenances must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system. Sanitary construction practices must be followed during installation of the final connection so that there is no contamination of the new or existing water main with foreign material or groundwater.

4.10.1 *Connections equal to or less than one pipe length (generally ≤ 20 ft [6 m]).* The new pipe, fittings, and valve(s) required for the connection may be spray disinfected or swabbed with a minimum 1 percent solution of chlorine just

before being installed, if the total length of the connection from the end of a new main to the existing main is equal to or less than 20 ft (6 m).

4.10.2 *Connections greater than one pipe length (generally >20 ft [6 m]).* The pipe required for the connection must be set up aboveground, disinfected, and bacteriological samples taken, as described in Section 5, if the total length of the connection from the end of a new main to the existing main is greater than 20 ft (6 m). After satisfactory bacteriological sample results have been received for the predisinfected pipe, the pipe can be used in connecting the new main to the active distribution system. Between the time the satisfactory bacteriological sample results are received and the time that the connection piping is installed, the ends of the piping must be sealed with plastic wraps, watertight plugs, or caps.

Sec. 4.11 Disinfection Procedures When Cutting Into or Repairing Existing Pipe

4.11.1 *General.* The planned, unplanned, or emergency repair of a water main or appurtenance (e.g., valve) is time sensitive—an important goal is to minimize the disruption of water service to customers. Nonetheless, the repair work needs to be accomplished using sanitary and safe procedures by well-trained crews with proper supervision and guidance. Refer to preventive and corrective measures described previously in Sec. 4.8.2, 4.8.3, 4.8.4, and 4.8.5. Follow all personal protection precautions when working with chlorine solutions.

4.11.2 *Basic disinfection.* Work should follow basic disinfection and contamination prevention procedures:

1. Preventing contaminants from entering the existing pipe during the repair such as by maintaining positive pressure in the leaking pipe until the repair site on the pipe is fully exposed, by maintaining a dewatered trench, and by keeping all pipe materials being used in the repair in a clean and sanitary condition.
2. Inspecting and cleaning, followed by disinfection of spraying or swabbing with a minimum 1 percent chlorine solution:

- Exposed portions of existing pipe interior surfaces
- Pipe materials used in the repair
- Handheld materials and tools used to make the repair

3. As appropriate, advising affected customers to adequately flush their service lines upon return to service.

4.11.3 *Selection of disinfection procedure.* The disinfection procedure selected should be determined by the conditions and severity of the main break. Many leaks or breaks can be repaired under controlled conditions without depressurizing the water main, such as when applying a clamp to a small crack or hole,

thus preventing contaminants from entering the water system. In most other situations, the water main can be maintained pressurized until the break site is secured and the pipe is fully exposed. Some circumstances (e.g., severe erosion of the local environment or icing of the roadway) that impact public safety may require that water pressure be substantially reduced prior to exposing the pipe in the area of the leak. In some cases, situations become catastrophic where there is a pipe blow-out and a loss of water pressure prior to shutdown, requiring disinfection procedures equivalent to those of a new main installation. The procedures described in Sec. 4.11.3.1 through 4.11.3.3 describe the contamination risks and the associated disinfection and sampling requirements for different scenarios of pipeline repair. Specific situations not captured below need to be evaluated and the appropriate disinfection and sampling methods followed.

Note that the procedures explained in Sec. 4.11.3.1, 4.11.3.2, and 4.11.3.3 for distribution mains may need to be modified for large transmission mains. Large mains may need additional work (such as having a valve replaced or requiring a special order on a connection), may be out of service for more than a day, or may not be able to accommodate a scour flush. These modifications need to be made on a case-by-case basis but should still take into account the procedures outlined in ANSI/AWWA C651.

4.11.3.1 Controlled pipe repair without depressurization. In this situation, activities are well controlled and a full shutdown is not needed, thus maintaining positive pressure to the area of shutdown and around the break site at all times. The repair site is exposed and the trench is adequately dewatered so that the repair site can be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. The water main is then returned to service with flushing to obtain three volumes of water turnover, making sure that the flushed water is visually clear. No bacteriological testing is necessary. It is advisable to check for a typical system chlorine residual, and if not found, to continue flushing until residuals are restored to levels maintained in the distribution system by the water utility—if the system operates with a disinfectant residual.

4.11.3.2 Controlled pipe repair with depressurization after shutdown. In this situation, after the repair site has been exposed and secured from trench soil/water contamination, the water main is depressurized by a shutdown to complete the repair. The repair site should be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. The water main is then returned to service with flushing to scour the pipe and obtain three volumes of water turn-

over, making sure that the flushed water is visually clear. It is advisable to check for a typical system chlorine residual, and if not found, to continue flushing until residuals are restored to levels maintained in the distribution system by the water utility—if the system operates with a disinfectant residual.

When the existing pipe has to be opened and the interior surfaces of the water system exposed to the environment, additional procedures need to be followed. The existing pipe should be inspected and cleaned with the help of flushing water into the trench, where possible, until the flush water runs visually clear. The repair site should be accessible and the trench adequately dewatered so that the repair site can be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. Additionally, any accessible upstream and downstream interior of the existing pipe should be disinfected by swabbing or spraying with a minimum 1 percent chlorine solution. If the repair requires a full pipe section replacement, the new pipe should be inspected, cleaned, and disinfected from both ends by swabbing with a minimum 1 percent chlorine solution. The water main may then be returned to service after flushing to scour the pipe and obtain three volumes of water turnover. The flushed water should run visually clear, have a measurable chlorine residual if the system operates with a residual, and be checked with bacteriological testing. The pipeline may be returned to service prior to obtaining bacteriological results.

4.11.3.3 Uncontrolled pipe break with a likelihood of water contamination or loss of sanitary conditions during repair. In situations in which the existing main to be repaired could not be protected and kept free of contamination and there are obvious signs of contamination (e.g., muddy trench water flowing into the broken pipe and a leaking sewer pipe in the trench, or catastrophic pipe failure where pipe is open and there is a likelihood that contamination was drawn into the active system) or when a controlled repair situation turns into a situation in which the internal pipe and water have become contaminated, the procedures outlined in Sec. 4.3, 4.4, 4.5, or 4.6 should be followed where practical. These methods specify chlorine doses of 25–300 mg/L; however, such levels may present greater harm if the line or services cannot be reliably isolated or shut down and exposure of customers to high concentrations of chlorine cannot be controlled. Free chlorine residuals up to 4 mg/L (based on annual averages) are allowed by federal drinking water regulations; therefore this level is suggested as a minimum to be maintained for at least 16 hr in conjunction with flushing, coliform sampling, and associated customer education. Such situations require careful review and need to balance the public health risks of the pipeline failure as well as the repair process.

Where practical and appropriate considering the risks of public exposure to high concentrations of chlorine, in addition to the procedures previously described in this standard, the section of pipe in which the break is located shall be isolated, all service connections shut off, and the section flushed and disinfected. If the slug chlorination method is employed, the dose may be increased to as much as 300 mg/L and the contact time reduced to as little as 15 min. After chlorination and repair, perform scour flushing at 3.0 ft/sec (0.91 m/sec) or greater for a minimum of three pipe volumes and continue until discolored water is not observed and the chlorine residual is restored to the levels maintained in the distribution system by the water utility.

For larger-diameter pipe (12 in. and greater), if a water velocity of 3.0 ft/sec (0.91 m/sec) cannot be achieved, it is desirable to flush at the maximum flow for the main until three pipe volumes have been displaced before returning the main to service. The flushed water should run visually clear, and have typical system chlorine residual (if the system operates with a disinfectant residual).

For very-large-diameter pipe (where personnel may safely enter the pipe), in lieu of flushing following disinfection, the interior of the pipe at the repair site may be cleaned by sweeping or high pressure wash using potable water before disinfection. Standing water and debris from the cleaning must be removed from the pipe prior to disinfection. The affected pipe shall be disinfected by swabbing or spraying with a minimum 1 percent chlorine solution.

After following the appropriate methods above, prior to returning the pipe to service, the efficacy of the disinfection procedure shall be verified by testing for the absence of coliform bacteria. If allowed by local regulations, the pipeline may be returned to limited service prior to obtaining bacteriological results with proper notification of the affected customers.

4.11.4 Temporary service lines. Temporary water service lines to customers during main repair activities shall be disinfected prior to use. Materials shall meet the NSF/ANSI 61 certification for potable water use. Disinfection should be accomplished by the procedures in Sec. 4.4 or 4.5 followed by scour flushing at 3.0 ft/sec (0.91 m/sec) or greater for a minimum of three pipe volumes (see Table 3), or until the water runs visually clear and preferably a measurable chlorine residual is restored.

SECTION 5: VERIFICATION

Sec. 5.1 Bacteriological Tests

5.1.1 *Standard conditions for new mains.* It should be recognized that the primary means of ensuring the sanitary integrity of a main are the sanitary handling of materials, the practices during construction, and continual inspection of work. After disinfection and final flushing such that typical system chlorine residuals are present, if the system operates with a residual, samples shall be collected as follows:

5.1.1.1 For new mains, the purchaser has two options for the bacteriological testing for total coliform analysis.

Option A: Before approving a main for release, take an initial set of samples and then resample again after a minimum of 16 hr using the sampling site procedures outlined. Both sets of samples must pass for the main to be approved for release.

Option B: Before approving a main for release, let it sit for a minimum of 16 hr without any water use. Then collect, using the sampling site procedures outlined and without flushing the main, two sets of samples a minimum of 15 min apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release.

A set of samples includes all samples collected along the length of the pipeline, as described in Sec. 5.1.1.2.

5.1.1.2 For new mains, sets of samples shall be collected every 1,200 ft (370 m) of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length.

5.1.1.3 If trench water has entered the new main during construction or if, in the opinion of the purchaser, excessive quantities of dirt or debris have entered the new main, bacteriological samples shall be taken at intervals of approximately 200 ft (61 m), and the sampling location shall be identified (see Sec. 5.1.3 for sampling location details). Samples shall be taken of water that has stood in the new main for at least 16 hr after final flushing has been completed.

5.1.1.4 A standard heterotrophic plate count (HPC) test may be required at the option of the purchaser because new mains do not typically contain coliform bacteria but often contain HPC bacteria. If sample results show HPC greater than 500 CFU/mL, flushing should resume and another set of HPC and coliform samples collected until no coliform are present and the HPC is less than 500 CFU/mL.

5.1.2 *Standard conditions for repaired mains.* It should be recognized that the primary means of ensuring the sanitary integrity of a main are the sanitary handling of materials, the practices during repair work, and continual inspection of work. After disinfection and final flushing, samples shall be collected as follows:

5.1.2.1 For repaired mains that were depressurized and/or wholly or partially dewatered, one set of samples may be required, and depending upon the sanitary conditions, the line may be reactivated prior to the completion of bacteriological testing. Samples shall be collected downstream of the repair site and at intervals of approximately 200 ft (61 m) within the length of pipe that was shut down. If direction of flow is not known, samples shall be collected on either side of the repair site. Refer to Sec. 4.11.

5.1.2.2 For repaired mains that were maintained under pressurized conditions at all times, disinfection and/or testing may not be required. Refer to Sec. 4.11.3.

5.1.2.3 However, under either main repair scenario, it is advisable where possible to provide a scour flush to clear before the release of the repaired section.

5.1.3 *Sampling procedure.* Samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate, in accordance with Section 9060—Samples of *Standard Methods for the Examination of Water and Wastewater*. Hoses and fire hydrants are not recommended for the collection of samples that will be used to make decisions on the bacteriological quality of drinking water. However, if no sampling port is available, cleaned fire hydrants that have been cleared of standing water and/or other sanitized sampling apparatus (i.e., sanitized tubing, hose, gooseneck, spigot) may be used with the understanding that they do not represent optimum access to the water main for bacteriological sampling. A suggested combination blowoff and sampling tap used for mains up to and including 8-in. (200-mm) diameter is shown in Figure 2. There should be no water in the trench up to the connection for sampling. The sampling pipe must be dedicated and clean and disinfected and flushed prior to sampling. A corporation cock may be installed in the main with a copper-tube gooseneck assembly. After samples have been collected, the gooseneck assembly may be removed and retained for future use and the corporation cock should be capped or taped for future reuse. If corporation cocks are placed at the 12 o'clock position, they may be struck more easily during future excavations.

5.1.4 *Sample results.* Samples shall be tested for bacteriological quality in accordance with *Standard Methods for the Examination of Water and Wastewater* and shall show the absence of coliform bacteria.

In addition, it is recommended that samples be tested for acceptable aesthetic quality (e.g., chlorine residual, pH, alkalinity, specific conductance, turbidity). Levels should be as expected or typical for the water system. For new mains, a standard heterotrophic plate count test may be required at the option of the purchaser because new mains do not typically contain coliform bacteria but often contain HPC bacteria. If sample results show HPC greater than 500 CFU/mL, flushing should resume and another set of HPC and coliform samples collected until no coliform are present and the HPC is less than 500 CFU/mL.

5.1.5 *Record of compliance.* The record of compliance shall be the bacteriological test results certifying that the water sampled is free of coliform bacteria contamination.

5.1.6 *Redisinfection.* If the initial disinfection fails to produce satisfactory bacteriological results, or if other results indicate unacceptable water quality, the main may be reflushed and shall be resampled. If check samples fail to produce acceptable results, the main shall be rechlorinated by the continuous-feed or slug method until satisfactory results are obtained—that being acceptable samples taken as described in Sec. 5.1.1.1.

NOTE: In the case of new mains, high velocities in the adjacent existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, it is advisable to sample water entering the new main to determine if excessive turbidity is present that could be interfering with results.

Sec. 5.2 Optional Sampling and Testing

If a pipeline is not promptly returned to service, the situation should be evaluated to determine if the water quality may have been impacted and if additional testing is warranted. Test results should confirm that the water quality is appropriate for distribution. Although this assessment is unique for each system, parameters considered for testing include disinfectant residual, total coliform bacteria, HPC, turbidity, pH, alkalinity, total chlorine, odor, and specific conductance.

SECTION 6: DELIVERY

This standard has no applicable information for this section.

This page intentionally blank.

APPENDIX A

Chlorine Residual Testing

This appendix is for information only and is not a part of ANSI/AWWA C651.

SECTION A.1: DPD DROP DILUTION METHOD (FOR FIELD TEST)

The N, N-diethyl-p-phenylenediamine (DPD) drop dilution method of approximating total residual chlorine is suitable for concentrations above 10 mg/L, such as those applied in the disinfection of water mains or tanks.

Sec. A.1.1 Apparatus

1. A graduated cylinder for measuring distilled water.
2. An automatic or safety pipette.
3. Two dropping pipettes that deliver a 1-mL sample in 20 drops. One pipette is for dispensing the water sample, and the other is for dispensing the DPD and buffer solutions. The pipettes should not be interchanged.
4. A comparator kit containing a suitable range of standards.

Sec. A.1.2 Reagents

1. DPD indicator solution. Prepare as prescribed in *Standard Methods for the Examination of Water and Wastewater*.

Sec. A.1.3 Procedure

1. Add 10 drops of DPD solution and 10 drops of buffer solution (or 20 drops of combined DPD-buffer solution) to a comparator cell.
2. Fill the comparator cell to the 10-mL mark with distilled water.
3. With a dropping pipette, add the water sample one drop at a time; mix until a red color is formed that matches one of the color standards.
4. Record the total number of drops used and the final chlorine reading obtained (that is, the chlorine reading of the matched standard).
5. Calculate the milligrams per liter of free residual chlorine as follows:

$$\text{mg/L chlorine} = \frac{\text{reading} \times 200}{\text{drops of sample}}$$

SECTION A.2: HIGH-RANGE CHLORINE TEST KITS

Several manufacturers produce high-range chlorine test kits that are inexpensive, easy to use, and satisfactory for the precision required.

APPENDIX B

Chlorine Dosages

This appendix is for information only and is not a part of ANSI/AWWA C651.

Table B.1 Amounts of chemicals required to produce various chlorine concentrations in 100,000 gal (378.5 m³) of water*

Desired Chlorine Concentration in Water <i>mg/L</i>	Liquid Chlorine Required <i>lb</i> <i>(kg)</i>		Sodium Hypochlorite Required						Calcium Hypochlorite Required	
			5% Available Chlorine		10% Available Chlorine		15% Available Chlorine		65% Available Chlorine	
			<i>gal</i>	<i>(L)</i>	<i>gal</i>	<i>(L)</i>	<i>gal</i>	<i>(L)</i>	<i>lb</i>	<i>(kg)</i>
	2	1.7	(0.77)	3.9	(14.7)	2.0	(7.6)	1.3	(4.9)	2.6
10	8.3	(3.76)	19.4	(73.4)	9.9	(37.5)	6.7	(25.4)	12.8	(5.81)
50	42.0	(19.05)	97.0	(367.2)	49.6	(187.8)	33.4	(126.4)	64.0	(29.03)

*Amounts of sodium hypochlorite are based on concentrations of available chlorine by volume. For either sodium hypochlorite or calcium hypochlorite, extended or improper storage of chemicals may have caused a loss of available chlorine.

Table B.2 Amounts of chemicals required to produce chlorine concentration of 200 mg/L in various volumes of water*

Volume of Water <i>gal L</i>		Liquid Chlorine Required <i>lb (g)</i>		Sodium Hypochlorite Required								Calcium Hypochlorite Required	
				5% Available Chlorine				10% Available Chlorine				65% Available Chlorine	
				<i>gal</i>	<i>(L)</i>	<i>gal</i>	<i>(L)</i>	<i>gal</i>	<i>(L)</i>	<i>gal</i>	<i>(L)</i>	<i>lb</i>	<i>(g)</i>
10	(37.9)	0.02	(9.1)	0.04	(0.15)	0.02	(0.08)	0.02	(0.08)	0.03	(13.6)		
50	(189.3)	0.10	(45.4)	0.20	(0.76)	0.10	(0.38)	0.07	(0.26)	0.15	(68.0)		
100	(378.5)	0.20	(90.7)	0.40	(1.51)	0.20	(0.76)	0.15	(0.57)	0.30	(136.1)		
200	(757.1)	0.40	(181.4)	0.80	(3.03)	0.40	(1.51)	0.30	(1.14)	0.60	(272.2)		

*Amounts of sodium hypochlorite are based on concentrations of available chlorine by volume. For either sodium hypochlorite or calcium hypochlorite, extended or improper storage of chemicals may have caused a loss of available chlorine.



American Water Works Association

6666 West Quincy Avenue
Denver, CO 80235-3098
T 800.926.7337
www.awwa.org

Dedicated to the world's most important resource, AWWA sets the standard for water knowledge, management, and informed public policy. AWWA members provide solutions to improve public health, protect the environment, strengthen the economy, and enhance our quality of life.



1P-2M 43651-2015 (01/15) IW

Printed on Recycled Paper

ISBN 978-1-62576-046-3



9 781625 760463

WATER SYSTEM CONNECTION DISINFECTION AND TESTING GUIDE



Contents

Page

I.	<i>Introduction</i>	3
II.	<i>Procedure</i>	3
III.	<i>Initial Tie In</i>	3
IV.	<i>Leak Testing</i>	3
V.	<i>Disinfection</i>	4
VI.	<i>Bacteriological Testing</i>	5
VII.	<i>Final Connection</i>	6

Definitions

<i>District:</i>	South Tahoe Public Utility District
<i>Owner:</i>	The party (private or public) for which a Contractor is performing work on the District's water system
<i>Contractor:</i>	A Contractor licensed by the State of California to perform the type of work proposed on the District's water system on behalf of the Owner.
<i>Chlorine Residual:</i>	Concentration of chlorine species present in water after the oxidant demand has been satisfied.
<i>Sodium hypochlorite:</i>	Sodium hypochlorite contains approximately 5 percent to 15 percent available chlorine

I. Introduction

This Disinfection and Testing Guide has been developed to instruct Contractors in the minimum accepted methods by which new water connections to the existing public water system are tested and disinfected for acceptance. The methods that will be presented are from the latest edition of the American Water Works Association (A.W.W.A) Disinfection Procedures C651, and the District's Standard Specifications. The Contractor shall not deviate from any of the requirements of this Guide without written District consent. At no time shall a new portion of pipeline be connected to the District's existing Water System until the new pipeline has been properly disinfected and has passed all bacteriological tests.

II. Procedure

Prior to beginning work Owner or Contractor shall develop and provide to the District a written Disinfection Procedure incorporating the requirements below. Only liquid chlorine, Sodium Hypochlorite is allowed to be used for disinfection. Potable water may be supplied from a temporary backflow-protected connection to the existing distribution system or other supply source approved by the District. The backflow assembly shall be a District tested and Approved Reduced Pressure Principle backflow assembly (**see Figure 1**).

III. Initial Tie In Connection

Tie in to the existing District's Water System will be conducted by Hot Tap or Cut In method.

Cut-In Method

Cut In method may be performed by the Contractor, and must be closely coordinated with District Staff to notify affected Customers and to facilitate the shut-down of the District's Water System at the Tie in point. **At no time is the Contractor or any other non-District personnel allowed to operate existing valves on the District's Water System.** The installation work must be conducted in a safe and sanitary condition. The pipe trench shall be continuously dewatered to maintain the water level well below the open pipe ends. All new materials to be installed, tools, and all exposed surfaces of the existing pipe shall be kept clean and sanitary by spraying and swabbing with sodium hypochlorite.

Hot Tap Method

If a Hot Tap is selected, the work to tap the main will be performed by the District, with advance notice. The saddle and valve are to be provided and installed on the main by the Owner's Contractor. Scheduling with District for Hot Tap or Shut Down shall be in writing a minimum of 2 working days. Following the hot tap, disinfection and bacteriological tests will be conducted by trained District personnel from a nearby sampling location on the existing system.

IV. Leak Testing

Assembled piping and appurtenances from the point of tie in at the existing District Water System to the terminus point of the new pipeline (generally defined by a service valve or backflow protection device), shall be tested for leaks. The method of leak testing shall be determined based on the assembled length of the new piping and appurtenances (fittings and valves).

Assembled Length of 20 linear feet or less

Assembled piping of 20 linear feet (lf) or less shall be visually inspected for leaks by District personnel after it has been assembled, disinfected, installed, and charged. To facilitate inspection, the Contractor shall not backfill the trench until

after the new piping is charged to system pressure, and District personnel have completed the visual inspection. For safety, the Contractor is required to restrain and/or brace the exposed piping to District satisfaction before the line is charged by the District. **At no time is the Contractor or any other non-District personnel allowed to operate existing valves on the District's Water System.**

Assembled Length of greater than 20lf

Assembled piping of greater than 20lf shall be hydrostatically pressure-tested prior to being disinfected and connected to the District's Water System, for a minimum of 2 hours at the rated pressure for the assembled piping (typically 150 psi), as measured at the lowest point in the line. To test, accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period. Successful completion of the pressure test with maximum leakage allowance shall have been achieved when the observed leakage during the test period is equal or less than the allowable leakage and no damage to piping and appurtenances has occurred. Calculate the allowable leakage by the following formula.

$$L = \frac{(S * D * \sqrt{P})}{133,200}$$

Wherein the terms shall mean:

L = Allowable leakage in gallons per hour.

S = Length of the test section in feet.

D = Nominal diameter of the piping in inches.

P = Average observed test pressure in pounds per square inches, gauge, at the lowest point of the test section, corrected for elevation of the pressure gauge.

V. Disinfection

New tie-in fittings and valves shall not be connected to the District's Water System until they have been disinfected. New piping shall not be connected to the tie-in fittings and valves until it has been disinfected, flushed (if necessary) and tested. The method of disinfection shall be determined based on the assembled length of the new piping and appurtenances (fittings and valves), from the point of tie in at the existing District Water System to the terminus point of the new pipeline (generally defined by a service valve or backflow protection device).

Assembled Length of 20 linear feet or less

Pipeline installations of 20 linear feet (lf) or less shall be spray disinfected and swabbed with sodium hypochlorite immediately before being installed. Because the entire interior of the assembled piping is visible, it shall be inspected for particulate contamination and re-swabbed, if necessary, prior to installation; flushing is not required.

Assembled Length of greater than 20lf

Pipeline installations of greater than 20lf shall be protected from contaminating materials from entering the pipe and appurtenances during storage, construction, or repair and noting potential contamination at the construction site. Upon completion of installation and successful hydrostatic testing as required by District, remove particulate materials that may have entered the water main or appurtenances by flushing or other means, prior to proceeding with disinfection. The flushing velocity in the main shall not be less than 3.0 ft/sec. **Table 1** shows the rates of flow required to produce a velocity of 3.0ft/sec. in commonly used sizes of pipe. (NOTE: flushing is no substitute for preventive measures during construction. Certain contaminants, such as caked deposits, resist flushing at any feasible velocity, and

pigging of the main, or other suitable method acceptable to the District, may be required.) Where such flow rates are not possible, flushing at the maximum expected flow rate for the line for 2-3 volumes may be allowed with approval from the District.

To disinfect, at a point not more than 5 ft downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25mg/L free chlorine. To ensure that an appropriate concentration is achieved, the free chlorine concentration shall be measured at regular time intervals in accordance with the procedures described. **Table 2** gives the amount of chlorine required for each 100 ft of pipe for various pipe diameters. Solutions with a minimum 1 percent chlorine concentration may be prepared with sodium hypochlorite. Chlorine application shall not cease until the entire main is filled with chlorinated water. The chlorinated water shall be retained in the main for at least 24 hr., during which time valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances. At the end of this 24-hr period, the treated water in all portions of the main shall have a residual of not less than 10 mg/L of free chlorine as determined by District Lab personnel. After the applicable retention period, heavily chlorinated water should not remain in prolonged contact with pipe. In order to prevent damage to the pipe lining or to prevent corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main fittings, valves, and branches until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the distribution system or that is acceptable for domestic use. Chlorinated water shall be disposed of appropriately, and shall not be discharged to the District's Sewer System without prior written consent. After disinfection, the chlorinated water in the new pipe shall be replaced with water at background chlorine level, prior to collecting samples for bacteriological testing.

VI. Bacteriological Testing

Bacteriological Testing will be performed on all assembled piping.

Assembled Length of 20 lf or less

Samples will be collected by District personnel from a nearby sampling port on the existing system after the new piping has been connected to the system.

Assembled Length of greater than 20lf

Prior to connection of the new piping to the existing system, District staff will collect samples for every 1,200ft of the new pipeline and appurtenances, plus one set from the end of the line and at least one from each branch greater than one pipe length, for a minimum of three test sites per 1200 feet of new assembled piping. The sample ports shall be installed by the Contractor (see **Figure 2**). The District has two options for the bacteriological testing for total coliform analysis.

Option A: Before approving a main for release, take an initial set of samples and then resample again after a minimum of 16 hr. using the sampling site procedures outlined. Both sets of samples must pass for the main to be approved by the District's lab for release.

Option B: Before approving a main for release, let it sit for a minimum of 16 hr. without any water use. Then collect, using the sampling site procedures outlined and without flushing the main, two sets of samples a minimum of 15 min apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release. A standard Heterotrophic Plate Count (HPC) test may be required at the option of the District because new mains do not typically contain coliform bacteria but often contain HPC bacteria. If sample results show HPC greater than 500 CFU/mL,

flushing should resume and another set of HPC and coliform samples collected until no coliform are present and the HPC is less than 500 CFU/mL. If the initial disinfection fails to produce satisfactory bacteriological results, or if other results indicate unacceptable water quality, the main may be reflashed and shall be resampled. If check samples fail to produce acceptable results, the main shall be rechlorinated until satisfactory results are obtained.

VII. Final Connection

Assembled Length of greater than 20lf

Water mains and appurtenances must be completely assembled, flushed (when required), disinfected, and satisfactory bacteriological sample results received (when required) prior to permanent connections being made to the active distribution system. Sanitary construction practices must be followed during installation of the final connection so that there is no contamination of the new or existing water main with foreign material or groundwater.

Comments

If you have any questions about this Guide please call the South Tahoe public Utility District Engineering Department at 530.544.6474.

Figure 1
Suggested temporary flushing/testing connection

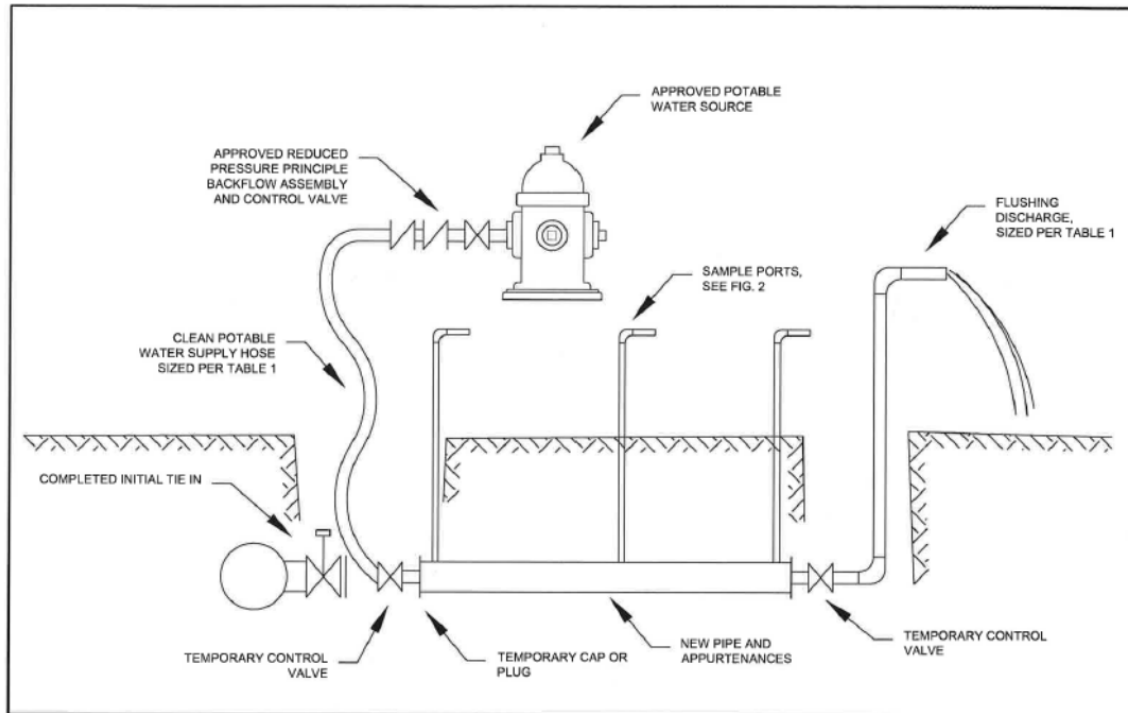


Figure 2
Typical Sample Port

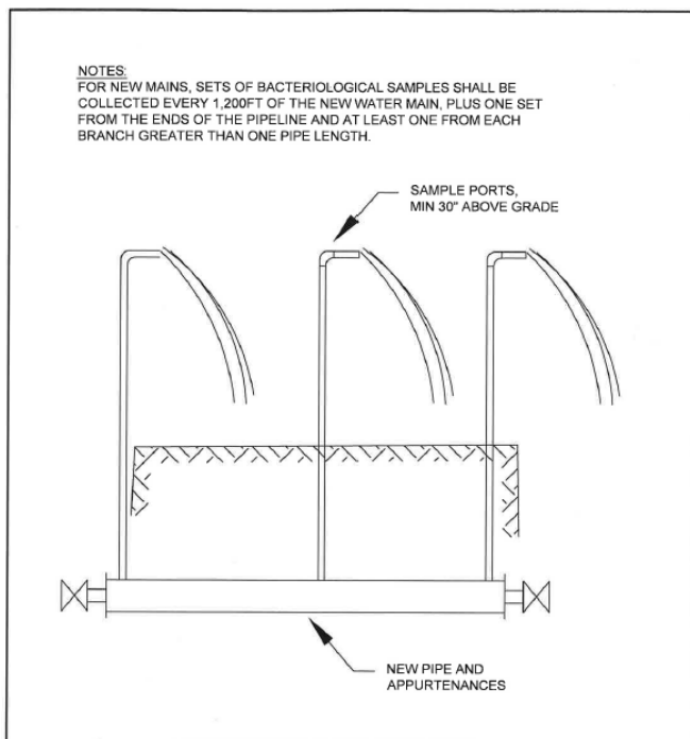


Table 1

Required flow and openings to flush pipelines at 3.0ft/sec

New Pipe Diameter	GPM Flow Required to Produce 3.0ft/sec.	Size of Supply	Size of FH Supply	Size of Discharge Flushing
4"	120	2"	2½"	2"
6"	260	2"	2½"	2"
8"	470	Two 2"	2½"	4"
10"	730	Two 2"	2½"	4"
12"	1,060	Three 2"	4½"	6"

Table 2

Chlorine required to produce an initial 25mg/L concentration in 100ft of pipe by diameter

New Pipe Diameter	100% Chlorine	1% Chlorine
4"	0.013lb	0.16gal
6"	0.030lb	0.36gal
8"	0.054lb	0.65gal
10"	0.085lb	1.02gal
12"	0.120lb	1.44gal

SECTION 33 14 16

WATER DISTRIBUTION VALVES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: resilient-seat gate valves, butterfly valves and appurtenances.
- B. Related Sections:
 - 1. 33 11 13 Water Distribution Piping
 - 2. 33 12 13 Water Service Connections
 - 3. 33 13 00 Water Pipeline Testing and Disinfection

1.02 REFERENCES

- A. American Water Works Association (AWWA)
 - 1. C504 Rubber Seated Butterfly Valves
 - 2. C509 Resilient-Seated Gate Valves for Water Supply Service
 - 3. C515 Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
 - 4. C550 Protective Epoxy Interior Coatings for Valves and Hydrants
 - 5. C600 Installation of Ductile Iron Water Mains and Their Appurtenances
- B. American Society of Testing and Materials (ASTM)
 - 1. A48 Gray Iron Castings
 - 2. A126 Gray Iron Castings for Valves, Flanges and Pipe Fittings
 - 3. A276 Stainless Steel Bars and Shapes
 - 4. A536 Ductile Iron Castings
 - 5. D429 Rubber Property – Adhesion to Rigid Substrates

1.03 SUBMITTALS

- A. The Contractor shall submit the following information in accordance with Section 01 33 00 Submittals Process:
 - 1. Valve type, size, pressure rating and coating system.
 - 2. Complete information, including size, type and orientation.
 - 3. Assembly drawings showing part nomenclature, materials, dimension, weights and relationships of valve actuators.

PART 2 PRODUCTS

2.01 GENERAL

- A. All brass components used in the water distribution system shall be “lead-free” in compliance with California law (AB 1953).

- B. The Contractor shall furnish all labor, materials, and equipment necessary to install the valves complete in place at the locations indicated on the Plans in accordance with the details and these Specifications.
- C. The Contractor shall furnish all incidental materials necessary for installation of the valves such as flange gaskets, flange bolts and nuts, valve boxes and covers, and all other materials required for the complete installation.
- D. The Contractor shall provide the necessary concrete bases and blocking to support the valves.
- E. All buried valves shall have a concrete valve box with a cast iron cover marked *WATER*. The boxes shall be adjustable to grade.
 - 1. Christy G5
 - 2. Or approved equal.

2.02 GATE VALVES

- A. Gate valves for buried installation shall be iron body, resilient-seat, nonrising stem, conforming to AWWA C509 or C515.
 - 1. The stem, stem nuts, glands and bushings shall be of bronze with double O-ring stem seal.
 - 2. Valves shall open counter clockwise.
 - 3. Valve ends shall be flanged conforming to AWWA C509 Section 4.5.1 with 2" square operating nuts (except where a different operator is called for on the Plans).
 - 4. The valves shall be rated for a working pressure of 200 psig.
 - 5. The valve body, bonnet and disc shall be of cast iron or ductile iron and the disc or body shall be rubber-coated.
 - 6. For valves conforming to C509, the body and bonnet wall thickness shall be equal to or greater than the minimum wall thickness as listed in Table 2 of AWWA C509.
 - 7. For valves conforming to C515, the body and bonnet wall thickness shall be equal to or greater than the minimum wall thickness as listed in Table 1 of AWWA C515.

2.03 BUTTERFLY VALVES

- A. Butterfly Valves for Buried Installation: All butterfly valves shall be manufactured in accordance with the latest revision of AWWA C504 for Class 150B service and comply with the following details:
 - 1. Valve Bodies shall be constructed of cast iron ASTM A-126 Class B and conform to AWWA C504 in terms of laying lengths and minimum body shell thickness. End connections shall be as specified on the Plans.
 - 2. Valve Discs shall also be made from cast iron ASTM A-126 Class B or ASTM A-48 Class 40 in sizes 24" and smaller. Sizes 30" and larger shall be built from ductile iron in conformance to ASTM A-536. Discs shall be furnished with a nickel-chrome or stainless steel seating edge to mate with the rubber seat on the body.

3. Valve Seat shall be Buna-N rubber located on the valve body. In sizes 20" and smaller, valves shall have bonded seats that meet test procedures outlined in ASTM D-429 Method B. Sizes 24" and larger shall be retained in the valve body by mechanical means without use of metal retainers or other devices located in the flow stream.
4. Valve Shafts shall be 18-8 type 304 stainless steel conforming to ASTM A-276. Shaft seals shall be standard split V packing and be provided where the shaft projects through the valve body. Shaft seals shall be of a design allowing replacement without removing the valve shaft.
5. Valve Bearings shall be sleeve type that are corrosion resistant and self lubricating.
6. Valve Actuators shall be fully grease packed and have stops in the open/close position. The actuator shall have a mechanical stop which will withstand an input torque of 450 ft. lbs. against the stop. The traveling nut shall engage alignment grooves in the housing. The actuators shall have a built in packing leak bypass to eliminate possible packing leakage into the actuator housing with 2" square operating nut. Acceptable manufacturers: De Zurik, Henry Pratt Company or approved equal.
7. All internal and/or external surfaces shall be covered with a polyamide cured epoxy coating applied over a sand blasted "new white metal surface" per SSPC-SP10 to a minimum of 6 mils in compliance with AWWA C550.

PART 3 EXECUTION

3.01 GENERAL

- A. Valves, actuating units, stem extensions, valve boxes and accessories shall be installed in accordance with the Manufacturer's written instructions, AWWA C600 and these Specifications. Valves shall be laid in sequence with adjacent pipe and fittings, at the locations shown on the Contract Drawings.
- B. Valve boxes shall be installed perpendicularly, centered with a centering ring and covering the upper portions of the valve or valve operator in accordance with the Project Details. The box shall not be supported in any manner by the valve, valve operator, or the pipe. The top of each valve box shall be placed 1/4 to 1/2 inch below finish grade unless otherwise directed by the Engineer.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 33 14 18
COMMON WORK RESULTS FOR VALVES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: Basic requirements for valves.

1.02 REFERENCES

- A. American Water Works Association (AWWA):
 - C111/A21.11 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe Fittings.
- B. ASTM International (ASTM):
 - A126 - Standard Specification for Gray Iron Casting for Valves, Flanges, and Pipe Fittings.
 - A167 - Standard Specification for Stainless and Heat-Resisting Chromium- Nickel Steel Plate, Sheet, and Strip.
 - A536 - Standard Specification for Ductile Iron Castings.
- C. NSF International (NSF):
 - 61 - Drinking Water System Components - Health Effects.
- D. Society for Protective Coatings (SSPC):
 - SP7 - Brush-Off Blast Cleaning.
 - SP10 - Near-White Blast Cleaning.

1.03 DESIGN REQUIREMENTS

- A. Pressure rating:
 - Suitable for service under minimum working pressures of 150 pounds per square inch gauge.
- B. Valve to piping connections:
 - Valves 2.5 inches nominal size and larger: Flanged ends.

1.04 SUBMITTALS

- A. Submit as specified in Section 01 33 00.
- B. Product data:
 - Submit the following information for each valve:
 - Valve type, size, pressure rating, Cv factor.
 - Coatings.
 - Manual valve actuators:

- Information on valve actuator including size, manufacturer, model number.

Certified drawings with description of component parts, dimensions, weights, and materials of construction.

Certifications of reference standard compliance:

- Submit certification that the valves and coatings are suitable in potable water applications in accordance with NSF 61.

Clearly mark submittal information to show specific items, materials, and accessories or options being furnished.

Factory test data.

- C. Provide vendor operation and maintenance manual as specified in Section 01 33 00.
Furnish bound sets of installation, operation, and maintenance instructions for each type of manual valve 4 inches in nominal size and larger, and all non-manual valves. Include information on valve operators.
- D. Provide Manufacturer's Certificate of Source Testing.
- E. Provide Manufacturer's Certificate of Installation and Functionality Compliance.

1.05 QUALITY ASSURANCE

- A. Manufacturer qualifications:
Valves manufactured by manufacturers whose valves have had successful operational experience in comparable service.

1.06 DELIVERY STORAGE AND HANDLING

- A. Protect valves and protective coatings from damage during handling and installation; repair coating where damaged.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Stainless steel: In accordance with ASTM A167, Type 316, or Type 304, UNS Alloy S31600 or S30400.
- B. Valve and operator bolts and nuts:
 - I. Fabricated of stainless steel for the following installation conditions:
 - II. Submerged in sewage or water.
 - III. In an enclosed space above sewage or water.
 - IV. In structures containing sewage or water, below top of walls.
 - V. At openings in concrete or metal decks.
 - VI. Where dissimilar metals are being bolted, use stainless steel bolts with isolation bushings and washers.

Underground bolts: Low-alloy steel in accordance with AWWA C111/A21.11.

- C. Bronze and brass alloys: Use bronze and brass alloys with not more than 6 percent zinc and not more than 2 percent aluminum in the manufacture of valve parts; UNS Alloy C83600 or C92200 unless specified otherwise.
- D. Valve bodies: Cast iron in accordance with ASTM A126, Class 30 minimum or ductile iron in accordance with ASTM A536, Grade 65-45-12 minimum unless specified otherwise.

2.02 INTERIOR PROTECTIVE LINING

- A. When specified in the particular valve specification, provide valves with type of protective lining specified in the particular valve Specification.
- B. Apply protective lining to interior, non-working surfaces, except stainless steel surfaces.

- C. Lining type:

Fusion bonded epoxy:

Manufacturers: The following or equal:

- 3-M Company, ScotchKote 134; certified to NSF 61 for drinking water use.

Clean surfaces in accordance with SSPC SP 7 or SP 10, as recommended by epoxy manufacturer.

Apply in accordance with manufacturer's published instructions.

Lining thickness: 0.010 to 0.012-inch, except that:

- Lining thickness in grooves for gaskets: 0.005-inch.
 - Do not coat seat grooves in valves with bonded seat.

Quality control:

- Lining thickness: Measured with a non-destructive magnetic type thickness gauge.
 - Verify lining integrity with a wet sponge-testing unit operating at approximately 60 volts, or as recommended by the lining manufacturer.
 - Consider tests successful when lining thickness meets specified requirements and when no pinholes are found.
 - Correct defective lining disclosed by unsuccessful tests, and repeat test.
 - Repair pinholes with liquid epoxy recommended by manufacturer of the epoxy used for lining.

2.03 VALVE OPERATORS

- A. Valve operator "Open" direction: Open counterclockwise.

- B. Provide valves located below operating level or deck with extensions for key operation or floor stands and handwheels.
- C. Provide manually operated valves located not more than 6 feet above the operating level with tee handles, wrenches, or handwheels.
 - Make the valve operator more conveniently accessible by rolling valves, located more than 5 feet but less than 6 feet above the operating level, toward the operating side.
 - Secure tee handles and wrenches to the valve head or stem, except where a handle or wrench so secured constitutes a hazard to personnel; in which case, stow handle or wrench immediately adjacent to the valve on or in a suitable hanger, bracket, or receptacle.
- D. Fit valves located more than 6 feet above operating level with chain operated handles or valve wheels.
 - Chains: Sufficient length to reach approximately 4 feet above the operating level.
 - Where chains constitute a nuisance or hazard to operating personnel, provide holdbacks or other means for keeping the chains out of the way.
- E. Provide an operator shaft extension from valve or valve operator to finished grade or deck level when buried valves, and other valves located below the operating deck or level, are specified or indicated on the Drawings to be key operated; provide 2 inches square AWWA operating nut, and box and cover as specified, or a cover where a box is not required.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Preparation prior to installation:
 - Install valves after the required submittal on installation has been accepted.
 - Determine after flanged valves and flanged check valves are selected, the face-to-face dimensions of flanged valves and flanged check valves.
- B. Fabricate piping to lengths taking into account the dimensions of flanged valves and flanged check valves.

3.02 INSTALLATION

- A. Provide incidental work and materials necessary for installation of valves including flange gaskets, flange bolts and nuts, valve boxes and covers, concrete bases, blocking, and protective coating.
- B. Where needed, furnish and install additional valves for proper operation and maintenance of equipment and plant facilities under the following circumstances:

- Where such additional valves are required for operation and maintenance of the particular equipment furnished by Contractor.
 - Where such additional valves are required as a result of a substitution or change initiated by Contractor.
- C. Install valves with their stems in vertical position above the pipe, except as follows:
- Butterfly valves, gate valves aboveground, globe valves, ball valves, and angle valves may be installed with their stems in the horizontal position.
 - Install buried plug valves with geared operators with their stems in a horizontal position.
- D. Install valves so that handles clear obstructions when the valves are operated from fully open to fully closed.
- E. Valves with threaded connections:
- I. Install valves by applying wrench on end of valve nearest the joint to prevent distortion of the valve body.
 - II. Apply pipe joint compound or Teflon tape on external (male) threads to prevent forcing compound into valve seat area.
- F. Valves with flanged connections:
- I. Align flanges and gasket carefully before tightening flange bolts.
 - II. When flanges are aligned, install bolts and hand tighten.
 - III. Tighten nuts opposite each other with equal tension before moving to next pair of nuts.
- G. Valves with soldered connections:
- I. Do not overheat connection to prevent damage to resilient seats and metal seat rings.
 - II. Position valves in full open position before starting soldering procedure.
 - III. Apply heat to piping rather than to valve body.

3.03 FIELD APPLIED COATING OF VALVE EXTERIOR

- A. Match color and be compatible with manufacturer's coating system.
- I. When shop applied finish coating matches field applied coating on adjacent piping, touch up shop coating in damaged areas in accordance with instructions recommended by the paint manufacturer.
 - II. When shop applied coating does not match field coating on adjacent piping, or when damage has occurred to the shop applied coating that requires more than touchup, blast clean valve surfaces or utilize other surface preparation recommended by the manufacturer of the coating material and apply the coating system used for coating adjacent piping.

3.04 COMMISSIONING

- A. Manufacturer services from each manufacturer for all valves supplied:
- Provide Manufacturer's Certificate of Source Testing.
 - Provide Manufacturer's Certificate of Installation and Functionality Compliance.

B. As specified elsewhere for specific valve types, sizes or actuators.

Source testing.

Manufacturers on site services for Owner Training, Installation Testing, Functional Testing, and during the Process Operational Period.

END OF SECTION

•

THIS PAGE LEFT INTENTIONALLY BLANK

SECTION 33 14 19

FIRE HYDRANTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: fire hydrant installations in accordance with these specifications.
- B. Related Sections:
 - 1. 01 60 00 Product Requirements
 - 2. 33 13 00 Pipeline Test and Disinfection
 - 3. 33 14 13 Water Distribution Piping
 - 4. 33 14 16 Water Distribution Valves

1.02 REFERENCES

- A. American Water Works Association (AWWA)
 - 1. AWWA C 502 – Standard for Dry Barrel Fire Hydrants
 - 2. AWWA C 600 – Installation of Ductile-Iron Mains and Their Appurtenances
 - 3. AWWA Manual M17 – Installation, Field Testing, and Maintenance of Fire Hydrants

1.03 SUBMITTALS

- A. The Contractor shall submit the following information in accordance with Section 01 33 00 Submittals Process:
 - 1. Fire hydrant manufacturer submittal sheet containing; product description, material type, model number, dimensions, and rated working pressure.

PART 2 PRODUCTS

2.01 GENERAL

- A. The Fire Hydrant products selected for installation shall conform to the approved products identified in Section 01 60 00 2.04 C.1 of these specifications. Any fire hydrant not listed in Section 01 60 00 2.04 C.1 of these specifications shall not be installed and will not be considered for substitution of approved products unless the Contractor can satisfactorily prove inability to procure approved products. Consideration of an alternative product will be at the sole discretion of the District Engineer or District Project Manager.
- B. Approved fire hydrants per Section 01 60 00 2.04 C.1 are as follows:

1. Mueller Centurian model A423
2. American Waterous model WB67-250-DDP
3. AVK Series 27 Nostalgic Style Fire Hydrants

- C. All piping and appurtenances specified and/or required to properly connect the fire hydrant to the distribution main shall conform to the contract drawings, specifically the fire hydrant detail.
- D. The Contractor shall furnish all labor, materials, and equipment necessary to install the fire hydrants complete in place at the locations indicated on the Plans in accordance with the details and these Specifications.
- E. The Contractor shall furnish all incidental materials necessary for complete installation of the fire hydrants.

PART 3 EXECUTION

3.01 GENERAL

- A. Fire hydrants and accessories shall be installed in accordance with the Manufacturer's written instructions, project plans and details, AWWA C 502, AWWA C600, and AWWA M17. Fire hydrants shall be installed with adjacent pipe and fittings, at the locations shown on the Contract Drawings.

END OF SECTION

SECTION 33 14 20
PRESSURE REDUCING VALVES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: Pressure reducing valves, equipment and instrumentation for water service.
- B. As specified in Section 33 14 18 - Common Work Results for Valves.

1.02 INSTRUMENTATION SCOPE OF WORK

- A. All PRVs:
 - 1. RTU Panel: A new Cla-Val based RTU or approved equal.
 - a. Provided, installed, and commissioned by contractor.
 - b. Control Programming by STPUD.
 - 2. Power Requirements:
 - a. 120V AC utility power source
 - 3. Communications:
 - a. Cellular modem
 - b. SIM Card and cellular service provided and maintained by STPUD.
 - 4. Site Instrumentation:
 - a. New instrumentation provided and installed by contractor as described in this section.

1.03 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
- B. ASTM International (ASTM):
 - 1. A48 - Standard Specification for Gray Iron Castings.
 - 2. A536 - Standard Specification for Ductile Iron Castings.
- C. Underwriters Laboratories, Inc. (UL).

1.04 SUBMITTALS

- A. Submit as specified in Section 01 33 00.
- B. Product data: As specified in Section 33 14 18 - Common Work Results for Valves.

- C. Commissioning submittals:
 - 1. Provide Manufacturer's Certificate of Installation and Functionality Compliance.
- D. Provide a control panel hardware submittal for each control panel and enclosure being provided on this project, including but not limited to:
 - 1. Product data:
 - a. Enclosure construction details and NEMA type.
 - b. Manufacturer's literature and specification data sheets for each type of equipment to be installed within or on the panel or enclosure.
 - 2. Shop drawings:
 - a. Scaled, detailed exterior panel (front and side views) and interior panel layout showing equipment arrangement and dimensional information:
 - 1) Provide draft for review and approval by Engineer. The Engineer has the authority to substantially alter initial panel layouts.
 - b. Complete nameplate engraving schedule.
 - c. Structural details of fabricated panels.

1.05 WARRANTY

- A. Provide warranty as specified in Section 01 60 00.

PART 2 – PRODUCTS

2.01 WATER PRESSURE REDUCING VALVES

- A. Water pressure reducing valves:
 - 1. Manufacturers: One of the following or equal:
 - a. 2-INCH: Cla-Val Model 90-01 - BCDMPYKCX
 - b. 8-INCH: Cla-Val Model 90-01 - BCDMPSYKC
 - 2. Direct operated, single seat type pressure reducing valve.
 - 3. Materials:
 - a. Body and spring cover: Bronze.
 - b. Valve seat: Series 300 stainless steel.
 - c. Diaphragm: Buna Nitrile or EPDM.
 - d. Disk: Buna Nitrile or EPDM.
- B. Valve Instrumentation, Controller and Accessories:
 - 1. Manufacturers: One of the following, or equal:
 - a. Pressure Transducer:
 - 1) Cla-Val Model X141-PT.
 - b. Valve Position Transmitter:
 - 1) Cla-Val Model X117D.
 - c. Valve Controller

- 1) Cla-Val Model VC-22D.

2.02 VAULT FLOOD SWITCH

- A. Vault Flood Switch shall meet the following requirements:
 1. Contact System: Microswitch
 2. Output: Form C Type Contacts
 3. Max Load: 20 VA, N.C.
 4. Stem and Mounting: 316 S.S.
 5. Float: Buna N
 6. Operating Temp: -40°F to +140 °F
 7. Cable: Neoprene with Waterproof Connection
 8. Mercury: No
- B. Manufacturers: One of the following, or approved equal:
 1. Gems LS-270 Series

2.03 BATTERIES

- A. Battery Bank. Battery storage capacity shall meet the following requirements, whichever is greater:
 1. Greater than or equal to the amp-hours required to maintain RTU equipment for a continuous period of 7-days with no power at 80% depth of discharge at 32 deg F.
 2. 12VDC batteries connected in series for 24VDC output.
 3. Average daily depth of discharge no greater than 50% at 32 deg F.
- B. Valve regulated, compact, sealed, maintenance-free lead acid, rechargeable storage batteries or equivalent.
- C. Battery cables:
 1. Equal length cables (+/- 0.125 inches) for series battery connection.
 2. Size all cables to exceed NEC requirements for stall current of the actuator.
 3. Use crimped solid copper ring terminals covered with adhesive-lined heat shrink tubing.
- D. Tamperproof, Lockable, NEMA 4 battery enclosure with shelves for accessibility and quick-connectors for easy battery replacement, with any required venting.

2.04 CONTROL PANEL AND ELECTRICAL COMPONENTS

- A. Grounding Equipment:
 1. Description

- a. Provide bonding jumpers and wire, grounding bushings, clamps and appurtenances required for complete grounding system to bond equipment and raceways to equipment grounding conductors.
 - b. The ground system resistance (electrode to ground) of the completed installation shall be 1 ohm or less.
- 2. Manufacturers: One of the following, or equal:
 - a. Compression connectors:
 - 1) FCI Burndy.
 - 2) Thomas & Betts.
 - b. Ground rods:
 - 1) Erico.
 - 2) Harger.
 - 3) Conex.
 - c. Ground cable:
 - 1) Nehring.
 - 2) Harger.
 - 3) Southwire.
- 3. Materials:
 - a. Ground rod:
 - 1) Minimum: 3/4-inch diameter, 10 feet long.
 - 2) Uniform 10 mil covering of electrolytic copper metallically bonded to a rigid steel core:
 - a) The copper-to-steel bond shall be corrosion resistant.
 - 3) In accordance with UL 467.
 - 4) Sectional type joined by threaded copper alloy couplings.
 - 5) Fit the top of the rod with a threaded coupling and steel-driving stud.
 - b. Ground cable:
 - 1) Requirements:
 - a) Soft drawn (annealed).
 - b) Concentric lay, coarse stranded in accordance with ASTM B8.
 - c) Bare copper in accordance with ASTM B3.
 - 2) Size is as indicated on the Drawings, but not less than required by the NEC.
 - c. Compression connectors:
 - 1) Manufactured of high copper alloy specifically for the particular grounding application.
 - 2) Suitable for direct burial in earth and concrete.
 - 3) Identifying compression die number inscription to be impressed on compression fitting.

B. Wire and Cables:

1. Manufacturers: One of the following, or equal:
 - a. 600 volt class wire and cable, type THWN:
 - 1) General Cable.
 - 2) Okonite Co.
 - 3) Southwire Co.
 - 4) Service Wire.
 - b. Instrumentation class wire and cable:
 - 1) Alpha Wire Co.
 - 2) Belden CDT.
 - 3) General Cable.
 - 4) Okonite Co.
 - 5) Rockbestos Surprenant Cable Corp.
 - c. Network cables:
 - 1) Belden CDT.
 - 2) General Cable.
 - 3) CommScope.

C. Conduits:

1. Definitions:
 - a. PCS: Polyvinyl chloride (PVC) coated rigid steel conduit.
 - b. PVC: Polyvinyl chloride rigid nonmetallic conduit.
 - c. SLT: Sealtight-liquidtight flexible conduit.
2. Manufacturers: One of the following, or equal.
 - a. PVC-coated rigid steel conduit:
 - 1) One of the following or equal:
 - a) Robroy Ind.
 - b) Ocal, Inc.
 - c) Calbond.
 - b. Rigid nonmetallic PVC conduit:
 - 1) One of the following or equal:
 - a) Carlon
 - b) Cantex.
 - c) Triangle Conduit and Cable.
 - c. Sealtight-liquidtight flexible conduit:
 - 1) One of the following or equal:
 - a) Southwire.
 - b) AFC Cable Systems.
 - c) Electri-Flex Co.
 - d) Anaconda.
 - d. Conduit bodies:

- 1) One of the following or equal:
 - a) Crouse-Hinds.
 - b) Appleton.
 - c) O-Z/Gedney.
 - d) Ocal, Inc.
 - e) Robroy Ind.
 - f) Calbond.
 - g) Carlon.
- e. PVC-coated rigid steel conduit expansion fittings:
 - 1) One of the following or equal:
 - a) Ocal, Inc.
 - b) Robroy Ind.
- f. Conduit through wall and floor seals:
 - 1) The following or equal:
 - a) O-Z/Gedney:
 - (1) Type "WSK."
 - b) Type "CSM."

D. Control Panels and components:

1. Manufacturers: One of the following, or equal:
 - a. NEMA Type 4X, Type 316 stainless steel, Panels/enclosures:
 - 1) Rittal.
 - 2) Pentair (formerly Hoffman Engineering).
 - 3) Saginaw Control & Engineering.
 - b. 50 Watt, 24 VDC Power Supplies:
 - 1) Allen-Bradley, 1606-XLP-50E
 - 2) Phoenix Contact, Quint-PS-100-240AC / 24DC / 2,5
 - c. Fuses:
 - 1) Ferraz Shawmut.
 - 2) Littelfuse.
 - 3) Bussmann.
 - d. Fuses Holders:
 - 1) Phoenix Contact.
 - 2) Allen-Bradley, 1492-FB Series B.
 - e. Terminal Blocks:
 - 1) Phoenix Contact, UT4 Series.
 - 2) Allen-Bradley, 1492 Series.
 - f. General:
 - 1) NEMA 4 enclosures shall be stainless steel, unless specifically noted.
 - 2) NEMA 3R enclosures shall be steel, coated with ANSI 61 grey paint.

- 3) All cabinets, support members, pedestals, and backpanels shall be painted as noted on the plans.

2. Materials:

a. Fuse holders:

- 1) Modular type:
 - a) DIN rail mounting on 35-millimeter rail.
 - b) Touch-safe design: All connection terminals to be protected against accidental touch.
 - c) Incorporates blown-fuse indicator.
 - d) Plug-in style fuse terminals and fuse plugs are not acceptable.
- 2) Provide nameplate identifying each fuse:
 - a) Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium-plated steel, or stainless steel, screwed into inserts or tapped holes, as required. Engraved characters shall be block style, with no characters smaller than 1/8-inch in height.

b. Conductors and cables:

- 1) Power and control wiring:
 - a) Materials: Stranded, soft annealed copper.
 - b) Insulation (Power): 600Volts, type THWN
 - c) Insulation (Control): 600 volts type MTW.
 - d) Minimum sizes:
 - (1) Primary power distribution: 12 AWG.
 - (2) Secondary power distribution: 14 AWG.
 - (3) Control: 16 AWG.
 - e) Color:
 - (1) DC power and control (ungrounded): Blue.
 - (2) DC power and control (grounded): White with Blue stripe.
 - (3) Ground: Green.

c. Signal cables:

- 1) Materials: Stranded, soft annealed copper.
- 2) Insulation: 600 volts, PVC outer jacket.
- 3) Minimum size: 18 AWG paired triad.
- 4) Overall aluminum shield (tape).
- 5) Copper drain wire.
- 6) Color:
 - a) 2-Conductor:
 - (1) Positive (+): Black.

- (2) Negative (-): White and red.
- b) 3-Conductor:
 - (1) Positive (+): Black.
 - (2) Negative (-): Red.
 - (3) Signal: White.
- 7) Insulate the foil shielding and exposed drain wire for each signal cable with heat-shrink tubing.
- d. Conductor identification:
 - 1) Identify each conductor and cable with unique wire numbers.
 - 2) Readily identified without twisting the conductor.
 - 3) Conductor and equipment identification devices shall be heat-shrink plastic tubing with machine printing. Lettering shall read from left to right and shall face toward the front of the panel
- e. General wiring requirements:
 - 1) Wiring methods: Wiring methods and materials for panels shall be in accordance with the NEC requirements for General Purpose (no open wiring) unless otherwise specified.
 - 2) Install all components in accordance with the manufacturer's instructions included in the listing and labeling.
 - 3) Provide a nameplate on the cover of the control panel identifying all sources of power supply and foreign voltages within the control panel.
 - 4) Provide non-metallic ducts for routing and organization of conductors and cables:
 - a) Provide wiring separation plan.
 - b) Size ducts for ultimate build-out of the panel, or for 20-percent spare, whichever is greater.
 - 5) Cables shall be fastened with cable-mounting clamps or with cable ties supported by any of the following methods:
 - a) Screw-on cable tie mounts.
 - b) Hammer-on cable-tie mounting clips.
 - c) Fingers of the nonmetallic duct.
 - 6) Wire ties:
 - a) No wire ties inside wire duct.
 - b) Use Panduit Cable tie installation tool, with tension control/cutoff.
 - c) Verify cut ends are cut flush filed smooth after installed.
 - 7) Provide supports at the ends of cables to prevent mechanical stresses at the termination of conductors.
 - 8) Support panel conductors where necessary to keep them in place.
 - 9) Wiring to rear terminals on panel-mount instruments shall be run in nonmetallic duct secured to horizontal brackets run adjacent to the instruments.
 - 10) Conductors and cables shall be run from terminal to terminal without splice or joints.
- f. Terminal blocks:
 - 1) DIN rail mounting on 35-millimeter rail.

- 2) Suitable for specified AWG wire.
- 3) Rated for 15 amperes at 600 volts.
- 4) Screw terminal type.
- 5) Provide mechanism to prevent wire connection from loosening in environments where vibration is present. This mechanism shall not cause permanent deformation to the metal body.
- 6) Finger-safe protection for all terminals for conductors.
- 7) Construction: Polyamide insulation material capable of withstanding temperature extremes from - 40 to 105 degrees Celsius.
- 8) Terminals: Plainly identified to correspond with markings on the diagrams:
 - a) Permanent machine-printed terminal identification.
- 9) Provide minimum 25-percent spare terminals.
- g. Wire duct:
 - 1) Provide flame retardant plastic wiring duct, slotted with dust cover.
 - 2) Type:
 - a) Wide slot.
 - 3) Panduit.
- h. Din rail:
 - 1) Perforated steel.
 - 2) 35 mm width.
 - 3) 15 mm deep.
- i. Provide nameplate to each panel as indicated on the Drawings:

E. Wireless Communication:

1. Manufacturers: One of the following, or equal:
 - a. Cellular Modem:
 - 1) Cradlepoint COR Series IBR600C-PE
 - b. Antenna:
 - 1) Cradlepoint Part # 170668-000
 - c. Mounting accessories:
 - 1) Provide all required mounting accessories required for pole mounting, such as clamps, brackets adapters, and related hardware for a complete installation.
 - d. Surge Protector:
 - 1) Andrews:
 - a) T Series Surge Arrestors.
 - b) Gas Tube Surge Arrestors.
 - 2) Phoenix Contact, Trabtech Series.
 - e. Transmission Cables:
 - 1) JEFA Tech LL400 cable with N Male, SMA Male connectors.
2. General:

- a. The wireless cellular system comprises the following:
 - 1) Cellular modem with built-in SIM card.
 - 2) Omni antenna.
 - 3) Software/Documentation and other accessories as specified in the Accessories article.
 - b. Performance requirements:
 - 1) Cellular modem and omni antenna to operate in quad-band range: 850/900/1,800/1,900 MHz.
 - 2) Operating temperature range: -20 to 60 degrees Celsius.
 - c. Provide certificate for approval of cellular modem by the suggested cellular network service provider/carrier.
 - d. Preferred cellular network Provider: Verizon Wireless.
3. Cellular modem:
- a. LPE enabled cellular modem.
 - b. Transmission power:
 - 1) 1 W at 850 MHz.
 - 2) 2 W at 1,900 MHz.
 - c. Provide 1 built-in SIM card for each cellular modem.
 - d. Communication with equipment to be monitored:
 - 1) Ethernet.
 - e. Power supply: 9-33 VDC.
 - f. LED indication for status and alarm.
 - g. Mounting: DIN rail.
 - h. Housing: ABS (acrylonitrile butadiene styrene).
 - i. Enclosure: IEC IP20.
 - j. Shall be capable of connecting an antenna with SMA type connector.
4. Antenna:
- a. Omni-directional type antenna.
 - b. GPRS enabled.
 - c. Pole mounting.
5. Cable between cellular modem and antenna: Manufacturer's standard.
6. Software and documentation: Manufacturer's standard.
7. Communications shall be compatible with Link2Valves by Cla-Val Company

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install as specified in Section 33 14 18 - Common Work Results for Valves.

3.02 FIELD APPLIED COATING OF VALVE EXTERIOR

- A. Match color and be compatible with manufacturer's coating system:

1. When shop applied finish coating matches field applied coating on adjacent piping, touch up shop coating in damaged areas in accordance with instructions recommended by the paint manufacturer.
2. When shop applied coating does not match field coating on adjacent piping, or when damage has occurred to the shop applied coating that requires more than touchup, blast clean valve surfaces or utilize other surface preparation recommended by the manufacturer of the coating material and apply the coating system used for coating adjacent piping.

3.03 COMMISSIONING

A. Manufacturer services:

1. Provide certificates:
 - a. Manufacturer's Certificate of Installation and Functionality Compliance.

B. Functional testing:

1. Valves:
 - a. Test witnessing: Witnessed.
 - b. Conduct pressure and leak test as specified in Section 33 14 18 – Common Work Results for Valves.
2. Valve Controls and Control Panels:
 - a. A direct factory representative shall be made available by the equipment supplier for start-up service, inspection and necessary adjustments.
 - b. Confirm the Cla-Val position analog transducer matches current valve position;
 - c. Confirm the pressure analog transducers are active and credible.
 - d. Confirm the Cla-Val control set point solenoids can be changed from the VC-22D Controller;
 - e. Confirm the Cla-Val VC-22D Controller is programmed correctly for the application and is functioning properly;
 - f. Confirm the Cellular Modem is connected to the Cla-Val VC-22D Controller and proper data is transmitted to the SCADA system.
 - 1) Verify proper communication between the Cla-Val VC-22D Controller and the Cellular Modem.
 - 2) Work with District staff to confirm data is transmitted to the SCADA system

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK