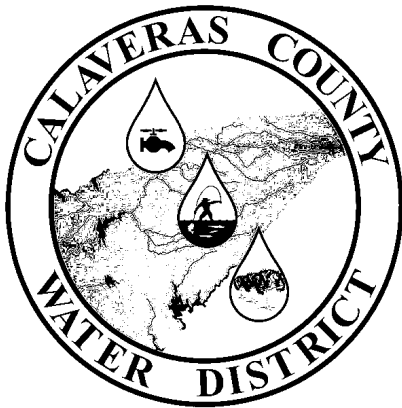


# PROJECT MANUAL

## EBBETTS PASS WATER SYSTEM REACH 1 PIPELINE REPLACEMENT PROJECT CCWD CIP No.11085

Issued for Public Bids  
October 30th, 2018



Proposals to be received at the office of:

Calaveras County Water District  
120 Toma Court  
San Andreas, California 95249  
Phone: (209) 754-3543



No Later Than 2:00 PM, Tuesday, December 18th, 2018

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**SECTION 00100  
ADVERTISEMENT FOR BIDS**

**CALAVERAS COUNTY WATER DISTRICT  
EBBETTS PASS WATER SYSTEM  
REACH 1 PIPELINE REPLACEMENT PROJECT  
CCWD CIP #11085**

Separate sealed Bids for the construction of the Ebbetts Pass Water System, Reach 1 Pipeline Replacement Project will be received at the office of the Calaveras County Water District at 120 Toma Court, San Andreas, CA 95249 **until 2:00 PM local time on December 18, 2018**, at which time Bids will be publically opened and read aloud.

The Ebbetts Pass Reach 1 project is located on the western slope of the Sierra Nevada foothills along State Route 4 (SR-4) in Calaveras County, CA. An existing steel 8-inch diameter pipeline originally installed in 1965 is being replaced due to age, poor condition and series of failures and repairs. The project consists of furnishing and installing approximately 24,000 feet of new 12-inch diameter pipeline including replacement of associated pressure reducing stations, fire hydrants, air relief valves, gate valves, and other appurtenances. The existing pipeline starts near the water plant at Hunter Dam Rd, continues westerly along the SR-4 highway through Hathaway Pines, Red Apple Ranch and ends approximately 6,000 feet downhill from the entrance of Forest Meadows (See Figure 1). Except for ± 1,100 foot section near Hunter Dam Rd, the existing alignment is within Caltrans SR-4 right-of-way (ROW) from approximately post mile PM 32.3 (West of Forest Meadow) to PM 37.0 (near Hunter Dam Rd, just west of Avery, CA). The replacement pipeline will also be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder. The existing steel pipeline operates at a relatively high pressure (250-psig) and is proposed to be replaced with ductile iron fully mechanically restrained with concrete thrust blocks at tie-in points to the existing system. Given the age and poor condition of the existing pipeline, caution must be taken when excavating or working in close proximity to it while it remains in service. An important challenge of the project is sequencing work to install the new pipeline while keeping the existing pipeline operational without causing service interruptions, maintaining adequate transmission flow, and following disinfection procedures to safeguard against bacteriological contamination. For some portions of the alignment, the Contractor is responsible for furnishing and installing temporary bypass piping to maintain continuous water service. Lastly, the project is subject to a Caltrans encroachment permit and traffic control requirements and numerous other permits and environmental conditions that must be adhered to during the course of work.

The Contract Documents may be examined at the following locations:

Calaveras County Water District  
120 Toma Ct. / P.O. Box 846 (for all U.S. Mail)  
San Andreas, CA 95249  
Contact: Alesia Danner / Phone: (209) 753-3181

Dodge Data & Analytics  
4300 Beltway Place, Suite 180  
Arlington TX, 76018  
Phone: (800) 393-6343 / support@construction.com

Sacramento Regional Builders Exchange  
5370 Elvas Avenue  
Sacramento, CA 95819  
Phone: (916) 442-8991

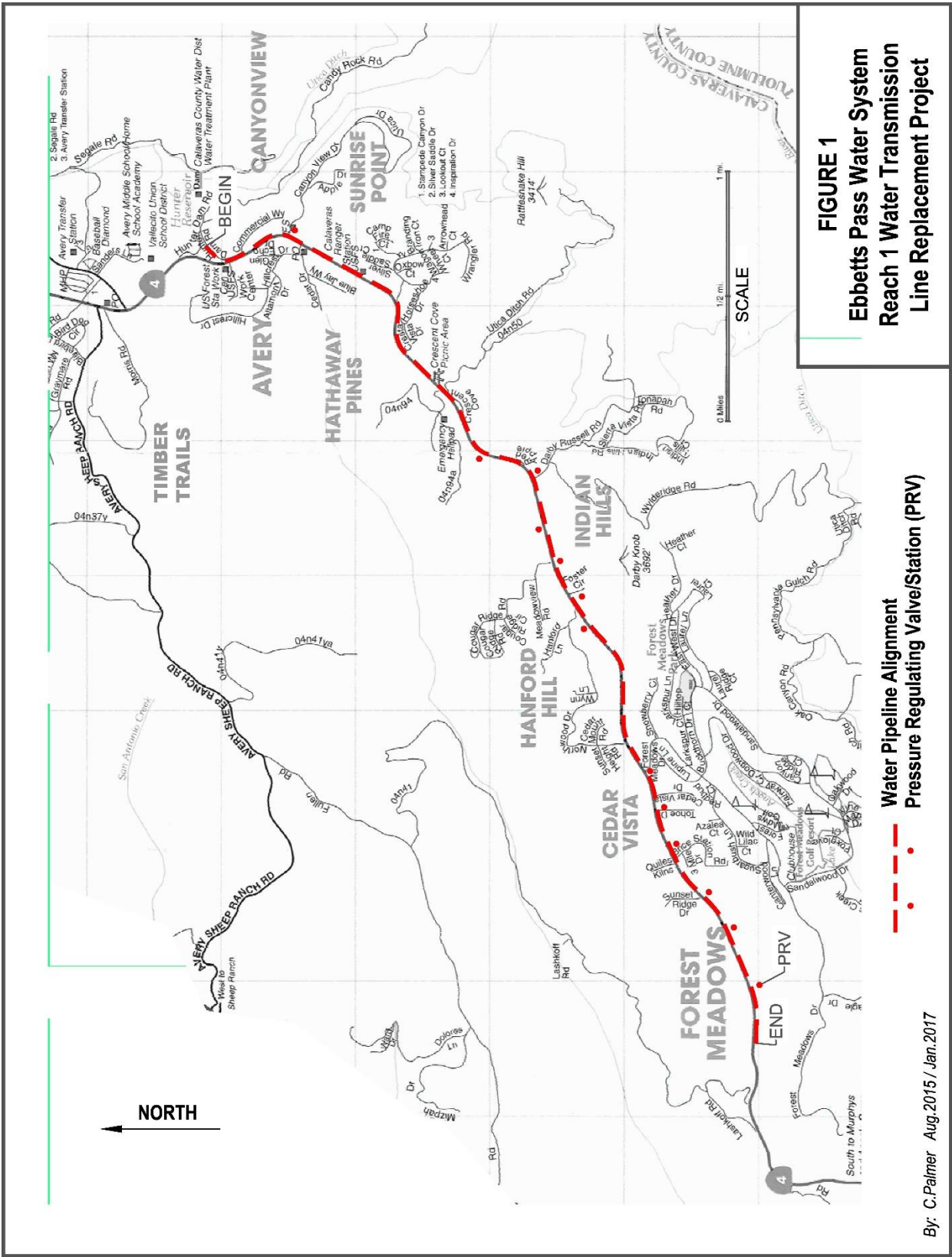
Placer County Builders Exchange  
10656 Industrial Ave, Suite 160  
Roseville, CA 95678  
Phone: (916) 771-7229

Builders' Exchange of Stockton  
4561 Quail Lakes Drive, Suite B-2  
Stockton, CA 95207  
Phone: (209) 478-1000

Bay Area Builders Exchange  
3055 Alvarado Street  
San Leandro, CA 94577  
Phone: (510) 483-8880

Valley Builders Exchange  
1118 Kansas Avenue  
Modesto, CA 95351  
Phone: (209) 522-9031

Central CA Builders Exchange  
1244 N Mariposa Street  
Fresno, CA 93703  
Phone: (559) 237-1831



Prospective Bidders shall hold a Class A General Engineering Contractor's licensed issued by the State of California and be skilled, experienced and regularly engaged in the type of work called for under this Contract. All bidders and subcontractors shall be registered with the California Department of Industrial Relations (DIR) pursuant to Labor Code Section 1725.5 to be qualified to bid on this project or to be listed as a subcontractor for this project pursuant to Public Contract Code Section 4104.

Copies of the Contract Documents will be available starting **October 30, 2018** and may be obtained at the office of the Calaveras County Water District located at address listed below and upon payment of **\$100.00** (non-refundable) for each set. Recipient shall pay all charges for postage, FedEx, UPS, etc.

For further information or questions concerning these documents should be directed to:

Calaveras County Water District  
120 Toma Court  
P.O. Box 846 (*for all U.S. Mail*)  
San Andreas, CA 95249  
Phone (209) 754-3181 / Fax (209) 754-9620  
Attn: Alesia Danner

A non-mandatory pre-bid meeting will be held on **November 15, 2018 at 10:00 A.M.** at CCWD's main office at 120 Toma Ct., San Andreas, CA. Bidders are required to inspect the site of work prior to submitting a bid; vehicle access is restricted in some areas of the project along the State Route 4 right-of-way.

Date of Initial Advertisement: **October 18, 2018**

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**SECTION 00200  
INSTRUCTIONS TO BIDDERS**

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Article 11 - Substitute and "Or-Equal" Items  
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Article 18 - Bids to Remain Subject to Acceptance  
Article 19 - Evaluation of Bids and Award of Contract  
Article 20 - Contract Security and Insurance  
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Article 22 - Sales and Use Taxes  
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Article 25 - Registration with Department of Industrial Relations  
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**ARTICLE 1 - DEFINED TERMS**

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

**ARTICLE 2 - COPIES OF BIDDING DOCUMENTS**

- 2.01 Complete sets of the Bidding Documents in the number and for the sum, if any, stated in the Advertisement for Bids may be obtained from the Issuing Office. The cost of the Bidding Documents is non-refundable.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

### **ARTICLE 3 - QUALIFICATIONS OF BIDDERS**

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

The Bidder and his subcontractors are required to have a valid, active license issued by the California, Contractors State License Board. The Bidder shall have a Class A, General Engineering Contractor. Bidders shall also have experience with at least three (3) projects of similar size and complexity (each at least 7,500 feet in length) within the past five (5) years.

### **ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE**

#### 4.01 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

#### 4.02 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

#### 4.03 Hazardous Environmental Condition

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

- 4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the

Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to locating of excavation and utility.

4.06 Additional Owner Provided Information

A. Reference is made to the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

B. Paragraph 9.12.B of the General Conditions states that if an Owner Safety program exists it will be noted in the Supplementary Conditions.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. Examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;

B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. Become familiar with and satisfy Bidder as to all Federal, State, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. Carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions at the Site which have been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions;

E. Obtain and carefully study (or accept consequences of not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

- H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
  - I. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
  - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

#### **ARTICLE 5 - PRE-BID CONFERENCE**

- 5.01 A non-mandatory pre-bid conference will be held on **November 15, 2018 at 10:00 A.M. local time** at the Calaveras County Water District's main office at 120 Toma Court, San Andreas, CA 95249. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

#### **ARTICLE 6 - SITE AND OTHER AREAS**

- 6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

#### **ARTICLE 7 - INTERPRETATIONS AND ADDENDA**

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than five days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

## **ARTICLE 8 - BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount not less than 5 percent of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid Bond (EJCDC No. C-430, 2013 Edition) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

## **ARTICLE 9 - CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

## **ARTICLE 10 - LIQUIDATED DAMAGES**

- 10.01 Provisions for liquidated damages are set forth in the Agreement.

## **ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS**

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or "or-equal" materials and equipment as described in paragraph 6.05 of the General Conditions, or those substitute materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or "or-equal" item. Request for Engineer's clarification of materials and equipment considered "or-equal" prior to the Effective Date of Agreement must be received by the Engineer at least 10 days prior to the date for receipt of Bids. No item of material or equipment will be considered by Engineer as a substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

## **ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 12.01 Each bidder must submit bids identifying all subcontractors according to the Subcontractor Listing Law Section 4104 of the California Public Contract Code; nothing in this Article shall be deemed to supersede those requirements.
- 12.02 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the

apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

- 12.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 12.04 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 12.05 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.06.

#### **ARTICLE 13 - PREPARATION OF BID**

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer.
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be provided on the Bid Form.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be provided on the Bid Form.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder's name and business address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be provided on the Bid Form.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid Form.

- 13.10 The postal and email addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state or locality where the Project is located or Bidder shall covenant in writing to obtain such qualification prior to award of the Contract and attach such covenant to the Bid Form. Bidder's state contractor license number shall also be shown on the Bid Form.

#### **ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS**

##### 14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all bid prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. The bid total will be used to determine whose bid is the lowest price, as provided in Section 19. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

##### 14.02 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with paragraph 11.02.B of the General Conditions.

#### **ARTICLE 15 - SUBMITTAL OF BID**

- 15.01 The Bid Form (Section 00410) is to be completed and submitted with all of the attachments outlined in Article 7 of the Bid Form (Section 00410).
- 15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement for Bids and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." When using the mail or other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to the time indicated in the Advertisement for Bid. A mailed Bid shall be addressed to Owner at the address in Article 1.01 of the Bid Form.

#### **ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID**

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 After the date and time for the opening of Bids, Bids may only be withdrawn as provided in Public Contract Code Section 510 et seq.

## **ARTICLE 17 - OPENING OF BIDS**

- 17.01 Bids will be opened at the time and place indicated in the Advertisement for Bids and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the Bids and alternates, if any, will be made available to Bidders after the opening of Bids.

## **ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, at its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## **ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT**

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the responsible Bidder whose Bid, conforming with all the material terms and conditions of the Instructions to Bidders, is lowest, price and other factors considered. If detailed in the Bid Form, factors such as discounts, transportation costs, and life cycle costs may be used to determine which bidder, if any, is to be offered the award.

## **ARTICLE 20 - CONTRACT SECURITY AND INSURANCE**

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.



## **ARTICLE 21 - SIGNING OF AGREEMENT**

21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

## **ARTICLE 22 - SALES AND USE TAXES**

22.01 Contractor shall pay all sales, use and other taxes as specified in Paragraph 6.10 of the General Conditions.

## **ARTICLE 23 – AGENCY REQUIREMENTS**

26.01 Not Used

26.02 Payment and retainage will comply with the contract agreement section 6.02 “Progress Payments; Retainage.” Bidders are notified that this contract does not permit retainage to be placed in escrow nor to be invested for the benefit of the contractor.

26.03 Bidders are notified that this contract does not provide for substitution of securities for any monies withheld by the Owner to ensure performance under the contract.

26.04 Bidders are notified of the requirement for affirmative action to ensure equal employment opportunity (Executive Order No. 11246) as set forth in the Equal Opportunity Requirements found in paragraph 18.10 of the General Conditions.

## **ARTICLE 24 – WAGE RATE REQUIREMENTS**

24.01 Prevailing Wages: Notice is hereby given that, pursuant to Section 1773 of the Labor Code of the State of California, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holidays and overtime work for each craft, classification, or type of worker required to execute the Contract. A copy of said prevailing rate of per diem wages is on file in the principal office of the Owner, to which reference is hereby made for further particulars. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at each job site.

24.02 Statutory Penalty for Failure to Pay Minimum Wages: In accordance with Section 1775 (a) through (c) of the California Labor Code, the Contractor shall as a penalty to the State of political subdivision on whose behalf a Contract is made or awarded, forfeit not more than two hundred dollars (\$200.00) for each calendar day or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the contractor or, except as provided in subdivision 1775 (b), by any subcontractor under the contractor.

24.03 Statutory Penalty for Unauthorized Overtime Work: In accordance with Section 1813 of the California Labor Code, the Contractor shall as a penalty to the State or political subdivision on whose behalf the Contract is made or awarded, forfeit twenty-five dollars (\$25.00) for each worker employed in the execution of the Contract by the respective contractor or subcontractor for each calendar day during which said worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of provisions of Sections 1810-1815 of the California Labor Code.

- 24.04 Apprenticeship Requirements: Contractor agrees to comply with Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime contractor for all apprenticeship occupations. Under these sections of the law, Contractors and Subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one apprentice hour for each five journeymen hours (unless an exemption is granted in accordance with 1777.5) and Contractors and Subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in 3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least 16 years of age, who are in training under apprenticeship standards and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.
- 24.05 Payroll Records: Contractor shall keep accurate payroll records in format specified by the Division of Labor Standards Enforcement. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual per diem wages paid to each journeyman, apprentice, or worker employed by the Contractor. Copies of such record shall be made available for inspection at all reasonable hours, and a copy shall be made available to employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Contractor and subcontractors shall furnish and submit electronic certified payroll records directly to the Labor Commissioner, and duplicate copies available to Owner.

## **ARTICLE 25 – REGISTRATION WITH DEPARTMENT OF INDUSTRIAL RELATIONS**

- 25.01 This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code Section 1771.1(a)]. No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5.
- 25.02 This bid is subject to Labor Code Section 1771.1 (a) through (d) as follows:
- (a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.
  - (b) Notice of the requirement described in subdivision (a) shall be included in all bid invitations and public works contracts, and a bid shall not be accepted nor any contract or subcontract entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Section 1725.5.
  - (c) An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that any of the following apply: (1) The subcontractor is registered prior to the bid opening, (2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5., (3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.

- (d) Failure by a subcontractor to be registered to perform public work as required by subdivision (a) shall be grounds under Section 4107 of the Public Contract Code for the contractor, with the consent of the awarding authority, to substitute a subcontractor who is registered to perform public work pursuant to Section 1725.5 in place of the unregistered subcontractor.

#### **ARTICLE 26 – SUBCONTRACTOR LISTING LAW**

- 26.01 In accordance with Section 4104 of the California Public Contract Code, each bidder, in his or her bid, shall set forth the name and the location of the place of business of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the prime contractor's total bid.
- 26.02 In accordance with Section 4107 of the California Public Contract Code, no contractor whose bid is accepted shall without consent of the owner either: (a) substitute a person as a subcontractor in place of the subcontractor listed in the original bid; or (b) permit a subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the original bid; or (c) sublet or subcontract any portion of the work in excess of one-half of one percent of the prime contractor's total bid as to which his or her original bid did not designate a subcontractor.
- 26.03 Penalties for failure to comply with the foregoing sections of the California Public Contract Code are set forth in Sections 4106, 4110, and 4111 of the Public Contract Code. A prime contractor violating this law violates his or her contract and the awarding authority may exercise the option, in its own discretion, of (1) canceling his or her contract or (2) assessing the prime contractor a penalty in an amount of not more than 10 percent of the amount of the subcontract involved, and this penalty shall be deposited in the fund out of which the prime contract is awarded. In any proceedings under this section the prime contractor shall be entitled to a public hearing and to five day's notice of the time and place thereof.

END OF SECTION

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**SECTION 00410  
BID FORM**

TABLE OF ARTICLES

- Article 1 - Bid Recipient
- Article 2 - Bidder's Acknowledgments
- Article 3 - Bidder's Representations
- Article 4 - Bidder's Certification
- Article 5 - Basis of Bid
- Article 6 - Time of Completion
- Article 7 - Attachments to Bid
- Article 8 - Defined Terms
- Article 9 - Bid Submittal
- Bid Schedule
- Descriptions of Bid Items

**ARTICLE 1- BID RECIPIENT**

- 1.01 This Bid is submitted to: Calaveras County Water District at the main office located at 120 Toma Court, San Andreas, California 95249, no later than 2:00 pm, Tuesday, December 18, 2018.
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2- BIDDER'S ACKNOWLEDGEMENTS**

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

**ARTICLE 3- BIDDER'S REPRESENTATIONS**

- 3.01 In submitting this Bid, Bidder represents that:
  - A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

- C. Bidder is familiar with and is satisfied as to all Federal, State and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in SC-4.02, and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable “technical data.”
- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder’s safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that any further examinations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of the Work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- J. Bidder will submit written evidence of its authority to do business in the State or other jurisdiction where the Project is located not later than the date of its execution of the Agreement.

#### **ARTICLE 4- BIDDER’S CERTIFICATION**

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. “Corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

2. “fraudulent practice” means an intentional misrepresentation of facts made to (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### **ARTICLE 5- BASIS OF BID**

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) provided in the attached bid schedule (at the end of this section).
- 5.02 Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions
- 5.03 Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.
- 5.04 Bid Prices are for work that has been furnished and installed by the Contractor and is fully completed. The bid items as described and provided are for bidding and payment purposes and do not in any way limit the Contractor’s responsibility to perform all work that may be reasonably inferred from the plans, specifications and other bid documents to produce the intended result.
- 5.05 All specified cash allowances are included in the price(s) set forth above and have been computed in accordance with Paragraph 11.02 of the General Conditions.
- 5.06 If “additive” or “deductive” Bid Items are included in the Bid- clearly identify the method for applying the alternates and the basis for award of the contract.

#### **ARTICLE 6- TIME OF COMPLETION**

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

#### **ARTICLE 7- ATTACHMENTS TO THIS BID**

- 7.01 The following documents are attached to and made a condition of this Bid:
  - A. Non-Collusion Affidavit (**Section 00420**);
  - B. Required Bid security in the form of a Bid Bond (**Section 00430**) or Certified Check;
  - C. List of Subcontractors (**Section 00470**);

**ARTICLE 8- DEFINED TERMS**

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders (Section 00200), General Conditions (Section 00700), Supplementary Conditions (Section 00800), and Engineer’s Supplemental Conditions (Section 00900).

**ARTICLE 9- BID SUBMITTAL**

9.01 This Bid is submitted by: \_\_\_\_\_  
Bidder’s Business address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_ Facsimile: \_\_\_\_\_  
Submitted on \_\_\_\_\_, \_\_\_\_\_.  
State Contractor License No. \_\_\_\_\_  
DIR Registration No. \_\_\_\_\_  
Employer’s Tax ID No. \_\_\_\_\_

If Bidder is:

**An Individual**

Name (typed or printed): \_\_\_\_\_  
By: \_\_\_\_\_  
*(Individual’s signature)*  
Doing business as: \_\_\_\_\_

**A Partnership**

Partnership Name: \_\_\_\_\_ (SEAL)  
By: \_\_\_\_\_  
*(Signature of general partner – attach evidence of authority to sign)*  
Name (typed or printed): \_\_\_\_\_



**A Corporation**

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Attest: \_\_\_\_\_  
*(Signature of Corporate Secretary)*

Date of Qualification to do business is \_\_\_\_\\_\_\_\_\\_\_\_\_.

**A Joint Venture**

Name of Joint Venturer: \_\_\_\_\_

First Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of first joint venture partner – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Second Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of second joint venture partner – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

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## BID SCHEDULE

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>BID PRICE</u>
1	Mobilization/Demobilization				
2	Encroachments & Traffic Controls				
3	SWPPP/BMP's				
4	Sheeting, Shoring & Bracing				
5	Environmental Mitigation Measures				
6	Westland/Streambeds Permit Requirements				
7	Clearing and Grubbing				
8	Boring & Receiving Pits <i>(Each Set/Group)</i>				
9	Bore & Jack / Casing and Carrier Pipe				
10	Pressure Regulating Stations <i>(New / Replacement)</i>				
11	3" Combination Air Valves				
12	Fire Hydrant (without PRV)				
13	Fire Hydrant (with PRV)				

To obtain copy of this bid schedule, please contact Calaveras County Water District to get on the official Planholders List.

Contact: Alesia Danner  
Phone: (209) 754-3181  
Email: [Alesiad@ccwd.org](mailto:Alesiad@ccwd.org)

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>BID PRICE</u>
14	Blow Off Valves				
15	12" Gate Valves				
16	8" Gate Valves				
17	6" Gate Valves				
18	12" Water Main / Open Cut				
19	8" Water Main / Open cut				
20	1" Water Services				
21	2" Water Service				
22	2" Water Services Installed by Horizontal Directional Drilling Methods				
23	PRV Station Piping (extra bends for vertical offsets)				
24	Asphaltic Concrete Paving				
25	Minor Concrete & Thrust Blocks				
26	Crushed Rock, Gravel & Unstable Subgrade				
27	Controlled Density Fill / Slurry				

To obtain copy of this bid schedule, please contact Calaveras County Water District to get on the official Planholders List.

Contact: Alesia Danner  
Phone: (209) 754-3181  
Email: [Alesiad@ccwd.org](mailto:Alesiad@ccwd.org)

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>UNIT PRICE</u>	<u>BID PRICE</u>
28a	Temporary 8" Water Main Bypass Piping/Footage				
28b	Temporary Bypass Piping/End Connections				
29	Miscellaneous Points of Connection to Replacement Pipeline				
30	Remove Existing 8" Steel Water Main				
<b>TOTAL BID AMOUNT ALL ITEMS (1 to ___)</b> <b>(NUMERICAL)</b>				\$	

**DOLLARS**

**TOTAL BID AMOUNT (WRITTEN)**

**(1) Contingency Bid Item**

Above unit prices shall include all costs for performing the entire contract as shown on the plans and included in these specifications and shall include but not be limited to all labor, materials, tools, equipment, mobilization, tree preservation, temporary fencing, protective barriers, profit, overhead, insurance, bonds and the like required to finish the various forms of work.

Contractor shall include pricing of pipe fittings and bend in cost estimates for pipe lengths furnished and installed. See following supplemental fitting schedule for additional fittings as required for field conditions not shown on the Plans.

Above unit prices for Bore and jack and Horizontal Directional Drilling shall include all costs for performing the entire contract.

## **DESCRIPTIONS OF BID ITEMS**

*Note: Bid items listed herein for bidding and payment purposes do not limit Contractor's responsibility to perform all work required under this contract, on drawings, in specifications, or reasonably inferred or interpreted to be necessary to complete the work.*

### **BID ITEM NO.1 – MOBILIZATION / DEMOBILIZATION**

This item consist of preparatory work and operations, including, but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; securing bonds and insurance, establishing a field office (if applicable) and staging areas; preparing schedules and sequencing plans, submitting shop drawings; and for all other work and operations to be performed, or costs incurred, prior to beginning the Work. Contractor shall provide and maintain portable toilet(s) on-site for use by employees. Demobilization shall include, but not limited to, removal of all waste materials, debris, final cleanup of construction and staging areas, and issuance of maintenance bond. *(Note: This bid item not to exceed five percent (5%) of the total Contract Sum.)*

### **BID ITEM NO.2 – ENCROACHMENT PERMITS & TRAFFIC CONTROLS**

As necessary to complete all work within highway and road right-of-ways, the Contractor shall provide all labor, equipment and materials and perform all work and coordination to implement and comply with encroachment permits as issued by Caltrans and on file with County Public Works. The District will submit preliminary permit applications to respective agencies as "Owner" and pay all fees directly invoiced by Caltrans and County. The Contractor shall prepare and file all paperwork to complete Contractor's part of the encroachment permits and must comply with all requirements and conditions as listed "Contractor" under these permits. Also, refer to the Caltrans Encroachment Manual for supplemental information relating to the permitting process. The Contractor shall prepare/submit specific traffic control plans meeting requirements and approval of the permitting agencies, and shall fully support and implement traffic control plans including all signage, flaggers, barricades, k-rail, safety devices, etc. Temporary traffic control plans shall be designed and implemented in accordance with California Manual on Uniform Traffic Control Devices (MUTCD) 2014, Revision 3 and, as applicable, State Standard Plans, 2015 Edition for Temporary Facilities. Contractor shall schedule and notify Caltrans and County of all highway and road lane closures and other encroachments within the right of way. For permitted activities within the highway, Contractor shall notify Caltrans permit officer two weeks in advance of work, obtain closure numbers and report daily status via Transportation Management Center (TMC) at (209) 948-7556 both at beginning of traffic control and again when done at end of day; if lane closure is scheduled but not used, Contractor is obligated to call in to the TMC and cancel it for each day.

### **BID ITEM NO.3 – STORM WATER POLLUTION PREVENTION (SWPPP/BMP'S)**

This item includes all labor, materials, equipment for preparing, furnishing, installing and maintaining a project specific Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMP's) to comply with the Construction General Permit 2009-0009-DWQ (amended by 2010-0014-DWQ and 2012-0006-DWQ). SWPPP shall be filed electronically with State's Storm Water Monitoring and Report Tracking System (SMARTS), prepared by a Qualified SWPPP Developer (QSD) and implemented under direction of a Qualified SWPPP Practitioner (QSP) licensed by the California Stormwater Quality Association (CASQA). All work shall be according to the Caltrans Stormwater Quality Handbooks, Project Planning and Design Guide, SWPPP/WPCP Preparation Manual (CTSW-RT-11-255.08.01/CTSW-TM-11-255.08.02) and Construction Site BMP Manual (CTSW-RT-17-314.18.1). All work shall conform to the SWPPP prepared for this Project and shall include the furnishing, installation and removal of silt fencing, combination fencing and temporary fencing as shown on the drawings. BMP's shall be provided for run-on control, soil stabilization, erosion control, sediment control, tracking control, wind erosion, material pollution prevention/control and waste management. Each day if trenching, excavating and/or tracking dirt onto roads/highways, all trench spoils and excess waste excavated materials shall be removed and area mechanically swept by regenerative air sweeper to thoroughly clean all pavement surfaces. Contractor's operations shall preserve existing vegetation not in the immediate construction zone and shall not be conducted in a method/manner that allows trench spoil or backfill materials to directly enter into any creeks, stream, drainage or roadside ditch (except in compliance with §404/401/1602 permits). All existing drainages shall be cleaned of all trench spoil, debris and returned to free flowing, functional pre-construction condition. As work progresses along the alignment and portions of the pipeline are completed, the corresponding disturbed soil areas shall be stabilized by appropriate BMP's as soon as possible so each completed area can be closed out and removed from the SWPPP permit with the goal of limiting further monitoring and reporting in completed areas. After demobilization, Contractor's responsibility shall continue during guarantee period until a Notice of Termination (NOT) is filed and accepted by the Regional Board.

#### **BID ITEM NO.4 – SHEETING, SHORING & BRACING**

In accordance with California Labor Code and Department of Industrial Relations requirements, the Contractor shall furnish and install sheeting, shoring and bracing for all excavations and trenches five (5) feet or deeper into which a person is required to descend; safety plan(s) shall meet minimum requirements of the Construction Safety Orders, Sections 1539 to 1543. For different soil types, refer to geotechnical reports in the Appendix of this Project Manual.

#### **BID ITEM NO.5 – ENVIRONMENTAL MITIGATION MEASURES**

The Contractor shall provide all labor, equipment and materials and conduct work in compliance with requirements stipulated by the Mitigation Monitoring and Reporting Plan (MMRP) and adopted Initial Study and Mitigated Negative Declaration (IS/MND), which are herein incorporated by reference. The MMRP adopted for this Project is appended to this Project Manual. The District will retain a bird specialist, biologist, archeologist, cultural resources monitor and wetlands scientist to support and conduct specialized environmental surveys and monitoring activities. Mitigation measures are briefly described as follows:

- **AQ-1 / Air Quality:** Mitigation of construction related fugitive dust emissions including preparing/submitting a dust control plan for approval by the Calaveras County Air Pollution Control District (CCAPCD).
- **AQ-2 / Air Quality:** Mitigation of air emissions from construction related heavy equipment and vehicle exhaust.
- **BIO-1 / Biological:** Mitigation to establish construction buffer and install environmentally sensitive area (ESA) fencing between construction activities and rare plant populations to assure impact avoidance.
- **BIO-2 / Biological:** During nesting season (February 1<sup>st</sup> through August 31<sup>st</sup>), conduct pre-construction nesting bird survey and mitigate for nesting birds by monitoring and establishing species specific no-disturbance buffers around any active nests until young have fledged and are independent of the nest/tree.
- **BIO-3 / Biological:** Conduct a pre-construction clearance survey for special-status bats and, upon consultation with CDFW, implement appropriate mitigation measures (e.g. monitoring, roost exclusion, buffer, etc.).
- **BIO-4 / Biological:** Comply with U.S. Army Corps of Engineers, Clean Water Act (CWA) §404 permit relating to impacts to jurisdictional waters of the U.S. delineated on the project including impacts by construction to intermittent drainages (ID-2, 3 & 4), ephemeral drainages (ED-1, 2, 3a, 3b, 4, 5, 6 & 7), ditches (Ditch-1, 2, 3 & 4), , seasonal wetland swales (SWS-2), and seeps (Seep-1 & 2).
- **BIO-5 / Biological:** In coordination with BIO-4, comply with CWA §401 Water Quality Certification issued by the RWQCB relating to water quality impacts to jurisdictional waters including monitoring requirements, discharge limits and prohibitions for turbidity, settleable material, visible construction related pollutants, etc.
- **BIO-6 / Biological:** Comply with California Department of Fish and Wildlife, Section 1602, Lake or Streambed Alteration Notification/Agreement relating to impacts to jurisdictional waters delineated on the project including impacts by construction to intermittent and ephemeral drainages, ditches, seasonal wetland swales, and seeps and associated fish and wildlife habitats.
- **BIO-7 / Biological:** Implement best management practices relating to trees on the project: A) limit removal of healthy native Tan, Canyon Live and Blue Oaks, B) protect root zone of trees, C) within drip zone use pruning saw to cut away large roots obstructing work and do not rip or pull out with heavy equipment, D) remove trees deemed by Caltrans to be compromised posing a safety or hazardous condition to roadway users.
- **CUL-1 / Cultural Resources:** Comply with required protocols in the event of an unanticipated discovery of subsurface deposits potentially cultural or human in origin are uncovered by ground disturbing activities.
- **CUL-2 / Cultural Resources:** Comply with required protocols in the event that human remains are uncovered by ground disturbing activities that are potentially Native American.
- **HHM-1 / Fire Safety Plan:** Prepare and implement a fire safety plan for construction operations and, pursuant to Public Resources Code 4442, use construction equipment with fire prevention devices, e.g. spark arresters, and identify and make ready suppression measure for emergency use in the event of accidental fire.
- **NO-1 / Noise:** Maintain noise control mufflers on heavy equipment, restrict work hours, minimize simultaneous operations, and implement additional measures to limit construction related noise.
- **NO-2 / Noise:** Prior to scheduled construction activities upon mobilizing, advancing and moving work into each new area of the project, the Contractor shall identify nearby residences and possible noise-sensitive receptors and make written notification of the type, duration and frequency of construction operations.
- **P-1 / Fossils:** Comply with protocols in the event of unanticipated discovery of paleontological resources, e.g. fossils, during construction ground disturbing activities.
- **TRA-1: Traffic Management Plan:** Prepare Traffic Management Plan in coordination with CCWD, Caltrans and Calaveras County.

**BID ITEM NO.6 – WETLAND / STREAMBED PERMIT REQUIREMENTS**

The project crosses and is located in near proximity to wetlands and streambeds as shown on drawings and environmental maps. The Contractor shall be cognizant of and minimize impacts to these environmentally sensitive areas. Work within or near wetlands is allowed only by permit herein incorporated by reference: 1) U.S. Army Corps of Engineers (USACE) Section 404, NWP 12 – Utility Line Activities , 2) Regional Board, Section 401, Water Quality Certification, and 3) California Department of Fish and Wildlife, Section 1600, Streambed Alteration. Copies of permits are available at the District’s office at 120 Toma Ct., San Andreas, CA 95249. Contractor shall provide all laborer, equipment and materials to implement mandatory plans and comply with all terms and conditions of each permit. The District may stop work, if Contractor fails to submit a required plan, to make notifications, to reserve/restore wetlands topsoil and vegetation/grasses, fails to implement a streambed dewatering plan, meet allowable turbidity limits, or to restore the streambed. Contractor shall prepare and submit mandatory plans for USACE review and approval at least 30-days prior to work including: a) plan for disposal and stockpile of materials excavated from wetlands and b) plan for dewatering streambed work area of standing or flowing waters. The District will pay permit all fees directly charged by regulatory agencies. Payment shall be lump sum for preparing, submitting and implementing mandatory plans, making notifications and complying with terms and conditions of subject permits.

The permit requirements that apply to wetland and streambed crossings are at the following locations:

<b>DESCRIPTION</b>	<b>ACRES</b>	<b>BEGIN STA</b>	<b>END STA</b>	<b>SHEETS</b>
DITCH-1	0.008	8+15	11+25	4, 5
ED-5 ( <i>ephemeral drainage</i> )	0.003	14+10	14+50	5
ID-3 ( <i>intermittent drainage</i> )	0.001	15+25	15+50	5
ED-1 ( <i>ephemeral drainage</i> )	0.004	46+60	46+80	12
SEEP-2	0.032	76+05	76+90	18
SEEP-1	0.029	77+90	78+75	18
ED-4 ( <i>ephemeral drainage</i> )	0.001	111+30	111+45	25
DITCH-2	0.010	132+85	134+45	29
SWS-1 ( <i>seasonal wetland swale</i> )	0.045	137+20	138+75	30
DITCH-5	0.019	138+75	141+10	30, 31
DITCH-4	0.003	141+25	141+75	31
ED-3b ( <i>ephemeral drainage</i> )	0.014	145+00	146+60	31, 32
DITCH-3	0.005	176+00	176+80	38
ED-6 ( <i>ephemeral drainage</i> )	0.001	199+75	199+95	42
ID-2 ( <i>intermittent drainage</i> )	0.002	236+40	236+75	50
ED-7 ( <i>ephemeral drainage</i> )	0.001	236+75	237+00	50
ID-4 ( <i>intermittent drainage</i> )	0.011	245+40	245+75	51

**BID ITEM NO.7 – CLEARING AND GRUBBING**

This item includes providing all labor, equipment and materials to complete clearing and removing existing rubbish, vegetation and obstructions along the Reach 1 Pipeline alignment, including clearing, removal and disposal of trees, shrubs , brush, limbs, surface vegetation and tree roots as specified in Section 02150. Tree size (dbh) and species to be removed, are itemized in Section 02150. Voids left by the removal of trees, root balls and other underground structures shall be over-excavated, backfilled and compacted as specified in Section 02200.



**BID ITEM NO.8 – BORING & RECEIVING PITS (BORE & JACK)**

This item includes jacking and receiving pits suitable for construction and installation of steel casing and carrier pipe. Contractor shall provide all labor, equipment, and materials needed to mobilize, excavate, construct, dewater and utilize pits of appropriate size for staging and operating bore & jack equipment used for construction of casing and carrier pipes as specified and shown on project drawings. Contractor shall provide sheeting, shoring and bracing for pits to comply with California Labor Code and Department of Industrial Relations requirements and Construction Safety Orders, Section 1539 to 1543. Upon completion, all pits shall be returned to original grade with a suitable backfill material, moisture conditioned and compacted to approximately 90% relative compaction; bedding and pipe zone backfill to be Class 2 AB. Existing utilities crossing through or located near or within the area of pits shall be supported and protected from damage. Trenchless work within/adjacent to State Route 4 shall conform to issued permit conditions and Caltrans Encroachments Permits Manual. Payment shall be made for each group or set of combined jacking/receiving pits completed and backfilled in accordance with the permit and contract requirements.

**BID ITEM NO.9 – BORE AND JACK CASING/CARRIER PIPE (BORE & JACK)**

Contractor shall provide all labor, equipment and materials to complete trenchless sections as tabulated below and performed in accordance with specifications Section 02400 and as shown on project drawings Sheets 60, 61, 62, 63 and 64 and Detail G10. Contractor shall provide 14” and 16” diameters steel casing 0.25” thick wall with minimum 36-ksi yield strength. All casing joints shall be fully butt welded along full circumference. Casing shall be sized to accommodate carrier pipe bells and insulators while still allowing clearance for filling void space. Carrier pipe shall be 6” and 8” ductile iron restrained joint pipe (same type as furnished throughout project) and casing insulators skids provided at required intervals to properly support, center and restrain carrier pipe inside the casing. Soak carrier pipe for 24-hrs and then pressure test to 250-psig by AWWA standard procedures to verify zero leakage. Contractor shall provide surface monitoring points along length of all bores to check that road surface does not displace, drop, subside, or heave due to or during trenchless operations. Trenchless work within/adjacent to State Route 4 shall be performed according to issued permit and Caltrans Encroachment Permits Manual. Payment shall be for each linear foot of casing with carrier furnished, installed, tested and accepted by District.

<u>STA</u>	<u>Carrier</u>	<u>Casing</u>	<u>Length</u>
<u>72+72</u>	<u>6”</u>	<u>14”</u>	<u>65’</u>
<u>108+10</u>	<u>6”</u>	<u>14”</u>	<u>60’</u>
<u>125+53</u>	<u>8”</u>	<u>16”</u>	<u>60’</u>
<u>221+32</u>	<u>8”</u>	<u>16”</u>	<u>60’</u>
<u>235+70</u>	<u>8”</u>	<u>16”</u>	<u>50’</u>

**BID ITEM NO.10 – PRESSURE REGULATING STATIONS (NEW / REPLACEMENT)**

This item includes PRV2 (17+91), PRV3 (33+75), PRV4 (45+25), PRV5 (50+89), PRV7 (72+72), PRV8 (108+10), PRV72 (116+57), PRV9 (125+41), PRV16 (143+86), and PRV20 (221+32). This item includes providing all labor, equipment and materials required to furnish and install new pressure regulating (PRV) stations per CCWD Detail, shown on Sheet 67, Specifications, Section 15114 and on Sheets 53, 54, 55, 56, 57, 58, 59 of the Project drawings. Each PRV station shall be provided with precast concrete vault, traffic rated cover, resilient wedge gate valves, gauges, pipe supports and accessories including drain pipes and other appurtenances shown on CCWD Detail, Sheet 67, discharge box per Detail W14 and on Sheets 53, 54, 55, 56, 57, 58, 59 of the Project Drawings. Backfill materials shall be Class 2 AB. The Contractor shall perform other items of work including: A) providing all new upstream and downstream piping and reconnecting to existing downstream services, B) demolition and removal of existing PRV station vaults and backfilling/compacting to 90% relative compaction, C) demolition and removal of existing PRV station piping and capping and concrete plugging abandoned, inactive portions of water mains and services. Hydrostatic tests shall be performed before making final downstream tie-in connections to existing system, and Contractor shall clean, disinfect, flush and hydrostatic test each PRV station. After testing, Contractor shall set/adjust final operating pressure settings for the 6” or 8” main, 2” bypass and 2” relief valves for service conditions; relief valve shall be set first before making tie-in to avoid over pressurizing and damaging downstream water system. Payment shall be for each PRV station furnished and installed, disinfected, tested and placed into service by Contractor, as accepted by District, and completing demolition and other items of work. (Notes: This Bid Item does not include fire hydrants furnished and installed with Bid Item No.13 or bore & jack with Bid Item No. 8 & 9).

**BID ITEM NO.11 – 3” COMBINATION AIR VALVES (CAV)**

Contractor shall provide all labor, equipment and materials for furnishing and installing 3” combination air valves per CCWD Standard Detail W05. Air valves shall have four functions: 1) air vent upon filling, 2) vacuum vent upon draining, 3) air-release in operation, and 4) anti-surge in operation. Valve body shall be Class 150 flanged, fusion bonded epoxy coated ductile iron with 275-psi working pressure. The air valve shall be of a compact single chamber design with solid cylindrical high density polyethylene (HDPE) control floats housed in a tubular ductile cast iron body and secured by means of Type 316 stainless steel fasteners. Payment shall be for each air valve assembly furnished and installed per detail, tested, disinfected, placed in service by Contractor and accepted by District. *(Note: Air valves located at high points along the alignment at approximately: STA 14+18, 23+00, 37+97, 74+46, 80+56, 90+02, 103+19, 109+30, 112+30, 131+44, 137+13, 155+28, 163+30, B4+19, 184+03, 189+52, 210+21, 224+00 and 241+07).*

**BID ITEM NO.12 – FIRE HYDRANT (WITHOUT PRV)**

Contractor shall provide all labor, equipment and materials and install complete and in place fire hydrant assembly without PRV including removing existing fire hydrant assembly, installing new hydrant, main line tee, 6” ductile iron branch line piping, 6” gate valve, valve box, snow poles, tracer wire, polyethylene wrap, and other items per CCWD Standard Details W04 and W04A and Specification Section 15118. Contractor shall provide all associated trenching, backfill, and compaction according to CCWD Standard Detail G05, Trench Section. Fire hydrants to be AWWA C502, dry-barrel type rated 250-psig working pressure and 500-psig factory test. Hydrants shall be placed in a location approved by and acceptable to Caltrans in highway right-of-way, Public Works along County roads, and otherwise as directed by District. Payment shall be for each hydrant assembly furnished, installed, tested, disinfected, flushed and placed into service according to the project specifications, drawings and applicable details. *(Note: Location of hydrants may be field adjusted as directed by District).*

**BID ITEM NO.13 – FIRE HYDRANT (WITH PRV)**

Contractor shall provide all labor, equipment and materials for new fire hydrant assemblies installed with PRV including removing existing fire hydrant assembly installing new hydrant, main line tee, 6” ductile iron flanged spools and branch line piping, 6” gate valve, valve box, tracer wire, polyethylene wrap, and other items per CCWD Standard Details W04A and W04B and Specification Section 15118. Contractor shall provide all associated trenching, backfill and compaction per CCWD Standard Detail G05 and specifications. Fire hydrants to be AWWA C502 dry-barrel rated 250-psig working pressure and 500-psig factory test. Hydrant and vault shall be placed in a location approved by and acceptable to Caltrans in highway right-of-way, Public Works along County roads, and otherwise as directed by District. Payment shall be for each hydrant assembly furnished with pressure reducing valve station, installed, tested, disinfected, flushed and placed into service according to specifications, drawings and applicable details. *(Note: Location of hydrants may be field adjusted as directed by District. Refer also to Bid Item No. 10).*

**BID ITEM NO.14 – BLOW OFF VALVES**

Contractor shall provide all labor, equipment and materials for blow off assemblies per Detail W06A constructed of AWWA ductile iron pipe, fittings and gate valves and having a working pressure rating of 350-psig. Payment shall be for each blow off assembly furnished and installed per CCWD Detail W06A & G05, tested, disinfected, placed in service by Contractor and accepted by the District. Unless otherwise directed by the Engineer, blowoff's shall be at the following approximate locations: *STA 14+92.2, 24+58.6, 38+18.2, 77+25.4, A1+38.2, 101+19, 107+56.7, 111+94, 114+50.1, 133+00, 137+33.7, 161+15, 164+03.1, 184+81.4, 221+74.1, and 248+17.7.*

**BID ITEM NO.15 – 12” GATE VALVES**

Contractor shall provide all labor, equipment and materials for 12” resilient wedge AWWA iron body gate valves per specification Section 15109 as shown on project drawings and CCWD Details W03, W01, G05. Payment shall be for each valve furnished, installed, disinfected, tested, placed in service and accepted by District.

**BID ITEM NO.16 – 8” GATE VALVES**

Contractor shall provide all labor, equipment and materials for 8” resilient wedge AWWA iron body gate valves per specification Section 15109 as shown on project drawings and CCWD Details W03, W01, G05. Payment shall be for each valve furnished, installed, disinfected, tested, placed in service and accepted by District.

**BID ITEM NO.17 – 6” GATE VALVES**

Contractor shall provide all labor, equipment and materials for 6” resilient wedge AWWA iron body gate valves per specification Section 15109 as shown on project drawings and CCWD Details W03, W01, G05. Payment shall be for each valve furnished, installed, disinfected, tested, placed in service and accepted by District.

*(Note: This bid item specifically excludes 6” gate valves installed inside PRV station vaults to be furnished per Bid Item No.10 and excludes 6” gate valves to be furnished with fire hydrant assemblies per Bid Items No.12 and No.13. Bid items No.10, 12 and 13 shall separately include 6” gate valves for those assemblies.)*

**BID ITEM NO.18 – 12” WATER MAIN / OPEN-CUT**

This item includes providing all labor, equipment and materials for construction of 12” diameter fully mechanically restrained Class 350 ductile iron water main (pipe, fittings, flanged adaptors, restraint glands, and other accessories) 350 psi rated, by open-cut trench method according to project specifications and drawings. The work includes utility marking/potholing, trench excavation, rock excavation/ hammering, removal and disposal of waste excavated material, installation of pipe, fittings, reducers and accessories, placement/compaction of bedding, backfill, road base and temporary cut back/cold patch; providing polyethylene wrap, locator wire and caution tape; scheduling shutdowns, coordinating construction sequences; disinfection, flushing, testing and placing pipeline into service; making public notifications and other related activities as described in Contract Documents. All piping, fittings, reducers and accessories shall be working pressure rated and hydrostatic tested to 350-psig. Payment shall be made per lineal feet of 12” diameter pipe (measured at ground surface) installed, tested, disinfected, placed into service and approved/accepted by District. *(Notes: This item includes tie-ins to existing water mains including reducers.)*

**BID ITEM NO.19 – 8” WATER MAIN/OPEN CUT**

This item includes providing all labor, equipment and materials for construction of 8” diameter fully mechanically restrained Class 350 ductile iron water main (pipe, fittings, flanged adaptors, restraint glands, and other accessories) 350 psi rated, by open-cut trench method according to project specifications and drawings. The work includes utility marking/potholing, trench excavation, rock excavation/ hammering, removal and disposal of waste excavated material, installation of pipe, fittings, reducers and accessories, placement/compaction of bedding, backfill, road base and temporary cut back/cold patch; providing polyethylene wrap, locator wire and caution tape; scheduling shutdowns, coordinating construction sequences; disinfection, flushing, testing and placing pipeline into service; making public notifications and other related activities as described in Contract Documents. All piping, fittings, reducers and accessories shall be working pressure rated and hydrostatic tested to 350-psig. Payment shall be made per lineal feet of 8” diameter pipe (measured at ground surface) installed, tested, disinfected and placed into service and approved/accepted by District. *(Notes: This item includes tie-ins to existing water mains including reducers.)*

**BID ITEM NO.20 – 1” WATER SERVICES**

This item includes all labor, equipment and materials for new 1” water services per CCWD Standard Details W07, W07C and W07D. Contractor shall extend new 1” water services to existing meter locations and reconnect services. Contractor to connect new water services to replacement water main. Bedding, backfill and compaction effort shall be according to CCWD Standard Detail G05, Trench Section. Contractor shall provide all new materials PE tubing, service saddle, corp. stop, meter valves, meter box, and other items shown in CCWD Standard Detail W07. Payment shall be for each new 1” service furnished, installed, disinfected, tested and placed into service by Contractor and accepted by District.

**BID ITEM NO.21 – 2” WATER SERVICE**

This item includes all labor, equipment and materials for removing existing and providing new 2” water service per CCWD Standard Detail W07A. Furnish and install trench bedding, backfill and compaction according to CCWD Standard Detail G05. Contractor shall provide all new materials PE tubing, stainless steel insert stiffeners, service saddle, corp. stop, new meter valves and all other items per CCWD Standard Detail W07A. The 2” PE tubing shall be one continuous coil length without splices. Payment shall be per each new 2” water service, disinfected, tested and placed into service by Contractor and accepted by District.

**BID ITEM NO.22 - 2" WATER SERVICES INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING METHODS**

This item includes providing all labor, equipment and materials to complete trenchless crossings of State Route 4 at three (3) locations at approximately Station 15+37, Station 17+66 and Station 45+15. Contractor shall provide 4 inch diameter 200 psi rated HDPE casing pipe as specified in Specification Section 02450 and 2 inch diameter PE tubing per CCWD Standards. Contractor to furnish horizontal direction drilling, reaming, pulling and locating equipment and drilling fluid mixing and handling equipment. This item to include furnishing and installing valves and valve boxes at connections to replacement water main and reconnection of existing service as shown on the Project drawings. HDD work within / adjacent to State Route 4 shall be performed according to issued permit and Caltrans Encroachment Permit Manual. Payment shall be made for "each" of three locations including 2 inch water service carrier and 4 inch diameter casing pipe furnished, installed, tested and disinfected by the Contractor and accepted by the District.

**BID ITEM NO.23 – PRV STATION PIPING (EXTRA BENDS FOR VERTICAL OFFSETS)**

This bid item provides extra/additional bends for making vertical offsets and other horizontal/vertical field adjustments not otherwise shown on PRV station details. Project details included for the PRV stations may not make allowances for, or incorporate, sufficient fittings for making vertical offsets or other horizontal field adjustments. Bends to be mechanical joint with restraint glands; 11.25°, 22.5° and/or 45° to suite field conditions as approved/directed by the Engineer. Payment shall be for each PRV Station. *(Note: All fittings already shown on the PRV station details are to be included with Bid Item No.10; this bid item is for extra bends that are specifically "not shown" on the PRV details or included in Bid Item No. 10).*

**BID ITEM NO.24– ASPHALTIC CONCRETE PAVING**

Paving materials, equipment, spreading and compacting procedures shall conform to Section 39, Caltrans Standard Specifications. The Contractor shall provide all labor, equipment and materials for saw-cutting, grinding, removal, disposal of existing pavement and replacement with new hot mix asphaltic concrete paving within highways, streets, driveways, parking lots, and other paved areas. In paved areas, work shall be as directed and approved by the County Public Works and Caltrans inspectors, accordingly. A clean, straight saw cut shall be made along all edges between new and existing pavement and grind out transitions and overlays. All water and slurry generated during saw cutting work shall be immediately vacuumed and removed to prevent migration off the pavement and stop it from entering storm drains, drainages, etc. Joints and overlay areas shall be treated/primed/sprayed with a tack coat of asphalt emulsion prior to placement of adjacent hot mix asphalt. Final pavement shall be placed with a paver machine and compacted to the compaction level intended by the mix design. Contractor shall repaint fog, limit, center lines and all other traffic/pavement markings. Final paving thickness shall be determined in the field by CCWD and Calaveras County; minimum thickness of placed and compacted AC paving shall be 3-inches on driveways and thickness shall match existing in County public roads and Caltrans highway pavement unless otherwise directed by CCWD. Payment shall be for weight of hot mix AC paving delivered (submit daily truck tags) and placed and meeting quality standards; finished surface shall be thoroughly compacted, smooth and free from ruts, humps, depressions or irregularities. *(Note: For any load, District may deduct if a significant amount of hot mix is wasted/unusable and not incorporated into work).*

**BID ITEM NO.25– MINOR CONCRETE & THRUST BLOCKS**

Minor concrete shall include encasements per Detail G11 for stream/creek crossings, all thrust blocks, abandoned pipeline plugging, pads and other miscellaneous concrete as directed by the Engineer. Unless otherwise approved, all concrete shall be Class 3 conforming to Section 03300, Concrete and Reinforcing Steel of the Project Specifications. Small quantities of concrete can be job site mixed provided material is accurately measure and reported in daily field reports submitted to the District's inspector. Payment shall be for each cubic yard (or fraction thereof) of the actual quantity of concrete delivered to job site, meeting requirements of Section 03300, and incorporated into the work; delivery tags and invoices to be provided as backup documentation for progress payment requests. *(Note: This Bid Item does not include controlled density fill slurry included in Bid Item No. 27).*

**BID ITEM NO.26 – CRUSHED ROCK, GRAVEL & UNSTABLE SUBGRADE**

Use of imported gravel, crushed rock, and drain rock is required per Detail G11 for Detail G05A for trenching within wetlands. Furnish and install imported crushed rock, drain rock and other rock to stabilize subgrade in trenches and excavations, leveling courses under vaults and other areas of the Project with unstable or highly saturated/wet subsurface conditions. This work includes providing all labor, equipment and materials required for dewatering and over-excavation; removal and disposal of waste excavated material; furnishing and placement of crushed rock, gravel and filter fabric to stabilize subgrade. Contractor shall be paid based on actual weight of imported crushed rock/gravel material per ton incorporated into the work, as directed by District. Contractor shall provide daily scale weight tags upon delivery to job site and copies of invoices; excess material not incorporated into work or unnecessarily wasted/used may be subtracted from quantities and payments.

**BID ITEM NO.27 – CONTROLLED DENSITY FILL / SLURRY**

Controlled density fill (CDF) shall be transit mix of two (2) sack or 188 lbs/cy Type II Portland cement, 55 to 58 gal/cy clean water, maximum 1.5% air and 2,900 lbs/cy fine aggregate. The fine aggregate quality and grading shall conform to State Standard Specification, Section 90 for Portland Cement Concrete. Payment shall be for each cubic yard delivered and placed at job site in locations shown on project drawings or as otherwise directed by District; provide truck tags for each delivery.

**BID ITEM 28a -TEMPORARY BYPASS PIPING / FOOTAGE**

The temporary bypass pipeline is necessary in areas of the project that a parallel trench cannot be excavated and new pipeline construction cannot occur without conflict or risk to the existing transmission main. A temporary bypass allows segments of the existing 8-inch steel pipeline to be shutdown, excavated, removed/demolished and then the new pipeline to be installed and placed in the same or relatively close proximity to the original location and alignment of the existing 8-inch steel pipeline. This item includes providing all labor, equipment and materials to furnish and install 8-inch diameter temporary bypass water main fully mechanically restrained consisting of either fusion welded HDPE and/or ductile iron pipe including all pipe, fitting, reducers, flanged adapters, restraint glands and other accessories. A typical detail is shown on Sheet 65. All pipe materials to be pressure rated for 350-psi, except HDPE shall have a pressure rating of 333 psi. Bypass piping shall include 8 inch gate valves and valve boxes furnished and installed at each end of the bypass piping connection, construction of graded pad for placing temporary piping at grade, temporary protective fencing and/or K-rail as shown on Project drawings, Sheet 65. Bypass piping item shall include removal of temporary piping, protective fencing and/or K-rail after replacement water pipeline has been installed, tested and disinfected by the Contractor and accepted by the District. Payment shall be made for each linear foot of temporary bypass piping furnished, installed, tested, disinfected by the Contractor and accepted by the District.

The temporary bypass piping is proposed to be utilized at the following locations:

START STA	END STA	FOOTAGE
8+21	14+30	609'
38+19	42+20	401'
93+00	98+00	500'
105+00	109+30	430'
160+38 B 1+00	165+94 B 5+21	977'
184+81	194+25	944'
199+50	202+61	311'
211+50	219+00	750'
237+40	248+18	1078'

**BID ITEM 28b - TEMPORARY BYPASS PIPING / END CONNECTIONS**

This item includes providing tie-in connections at the starting and terminating ends of the temporary bypass piping segments. The final locations shall be as directed in the field by the Engineer but are approximately as tabulated in Bid Item 28A above. These end connections include both temporary components that facilitate construction of the temporary bypass piping as well as permanent features that facilitate the new construction and get incorporated into the finished construction of the new 12-inch water main. The tie-in connections shall be made to the new pipeline (Case 1) or existing pipeline (Case 2) as shown Sheet 65, Detail 2. The tie-in end connections are to be made at transition points where the new and existing pipelines transition into relatively the same alignment or in very close proximity to the same alignment (versus parallel alignments with adequate separation outside the trench zone). Tie-in connections shall be ductile iron water main (pipe, spools, fittings, reducers, flanged adapters, restraint glands and other accessories) with a pressure rating of 350 psi. For Case 1, all bypass tie-in connections shall have a 12"x12"x8" ductile iron tee, 12" gate valve and 8" gate valve that shall be permanently incorporated into the new 12' water main construction. For Case 2, installation is only temporary when cutting into the existing 8" steel pipeline and subsequently property capped, plugged and abandoned. Payment shall be for each tie-in end connection furnished, installed, tested and disinfected and placed into service including all temporary and permanent components and upon completion of work removing all temporary items and finishing, completing all permanent items with standard boxes and covers to be functional and accessible for future operations.

**BID ITEM 29 – MISCELLANEOUS POINTS OF CONNECTION TO REPLACEMENT PIPELINE**

This item includes providing all labor, equipment and materials to complete points of connection with existing water branch mains as shown on the Project drawings at approximately Station 62+27, Station 72+04, Station 140+28, Station 143+86, Station 146+36, Station 148+83, Station 160+38, Station 184+63, Station 197+31, Station 204+76, Station 224+43 and Station 229+45, as shown in CCWD Standard Details. Payment shall be made for each connection to the replacement pipeline and shall include flanged tee, bedding, backfill and compaction effort according to CCWD Standard Detail G05. Payment shall be made for each miscellaneous point of connection furnished, installed, tested, disinfected and placed into service by Contractor and accepted by District. *(Note: This item does not include 1 inch or 2 inch water services included in Bid Items No. 20 and 21).*

**BID ITEM 30 – REMOVE EXISTING 8" STEEL WATER MAIN**

This item includes providing all labor, equipment and materials to remove and properly dispose of offsite existing 8 inch diameter steel pipeline. Removal of existing 8 inch steel pipeline shall be required within the limits of temporary bypass piping itemized under Bid Item 28b and where removal is necessary, to properly furnish, install and backfill the replacement water main piping. Typically, removal of the existing 8 inch steel pipeline is required where the existing piping is located within 3 feet (measured horizontally, center to center) of the replacement pipeline or as otherwise directed by the District. At points where removal of the existing pipeline is terminated, the cut ends shall be abandoned by plugging with concrete. At locations where existing and new pipelines are diverging away from each other and transitioning from removing the existing pipeline to abandoning it, the existing 8 inch steel pipeline shall not be allowed to impede into the new pipeline trench and must be cut away and removed from the trench line. Payment shall be made for each linear foot of existing 8 inch steel pipeline removed, hauled away and properly disposed of.

**SECTION 00420  
NON-COLLUSION AFFIDAVIT**

NON-COLLUSION DECLARATION TO BE EXECUTED  
BY  
BIDDER AND SUBMITTED WITH BID  
(Public Contract Code Section 7106)

State of California  
County of \_\_\_\_\_

The undersigned declares:

I am the \_\_\_\_\_ of \_\_\_\_\_, the party making the foregoing bid.

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

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

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed:

By \_\_\_\_\_

Subscribed and sworn to before me on \_\_\_\_\_  
(date)

\_\_\_\_\_  
(Notary Public)

(SEAL)

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**SECTION 00430  
BID BOND**

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

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BIDDER (*Name and Address*):

SURETY (*Name and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name and Include Location*):

BOND

Bond Number:

Date (*Not earlier than Bid due date*):

Penal sum

\_\_\_\_\_ \$ \_\_\_\_\_  
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

**BIDDER**

**SURETY**

\_\_\_\_\_  
Bidder's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

**SECTION 00470**  
**LIST OF SUBCONTRACTORS**

*Note: In accordance with Section 4104 of the California Public Contracts Code, each Bidder shall complete the attached form and submit with their bid a complete list of all subcontractors performing work in an amount in excess of one-half of one percent of their total bid.*

BIDDER: \_\_\_\_\_

Work to be Performed	Percent of Total Contract Price	Subcontractor's Name, Location of Place of Business, Contractors License, and DIR Registration Number

(ADD ADDITIONAL SHEETS IF NECESSARY)

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**SECTION 00500  
AGREEMENT BETWEEN  
OWNER AND CONTRACTOR**

THIS AGREEMENT is by and between CALAVERAS COUNTY WATER DISTRICT (“Owner”) and \_\_\_\_\_ (“Contractor”).

Owner and Contractor hereby agree as follows:

**ARTICLE 1 – WORK**

- 1.01 Contractor shall complete all Work as designated on the Bid Form and described for the bid items and as otherwise specified or indicated in the Contract Documents. The Work is generally described as follows:

The Ebbetts Pass Reach 1 project is located on the western slope of the Sierra Nevada foothills along State Route 4 (SR-4) in Calaveras County, CA. An existing steel 8-inch diameter pipeline originally installed in 1965 is being replaced due to age, poor condition and series of failures and repairs. The project consists of furnishing and installing approximately 24,000 feet of new 12-inch and approximately 1300 feet of new 8 inch diameter pipeline including replacement of associated pressure reducing stations, fire hydrants, air relief valves, gate valves, and other appurtenances. The existing pipeline starts near the water plant at Hunter Dam Rd, continues westerly along the SR-4 highway through Hathaway Pines, Red Apple Ranch and ends approximately 6,000 feet downhill from the entrance of Forest Meadows. Except for ± 1,100 foot section near Hunter Dam Rd, the existing alignment is within Caltrans SR-4 right-of-way (ROW) from approximately post mile PM 32.3 (West of Forest Meadow) to PM 37.0 (near Hunter Dam Rd, just west of Avery, CA). The replacement pipeline will also be placed within the SR-4 ROW and constructed as close as practical to the existing pipeline, which is primarily located past edge of pavement within the south shoulder. The existing steel pipeline operates at a relatively high pressure (250-psig) and is proposed to be replaced with ductile iron fully mechanically restrained with concrete thrust blocks at tie-in points to the existing system. Given the age and poor condition of the existing pipeline, caution must be taken when excavating or working in close proximity to it while it remains in service. An important challenge of the project is sequencing work to install the new pipeline while keeping the existing pipeline operational without causing service interruptions, maintaining adequate transmission flow, and following disinfection procedures to safeguard against bacteriological contamination. For some portions of the alignment, the Contractor is responsible for furnishing and installing temporary bypass piping to maintain continuous water service. Lastly, the project is subject to a Caltrans encroachment permit and corresponding traffic controls and subject to numerous other permits and environmental conditions and constraints that must be adhered to during the course of work.

**ARTICLE 2 – THE PROJECT**

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

EBBETTS PASS WATER SYSTEM  
REACH 1 PIPELINE REPLACEMENT PROJECT  
CIP #11085

**ARTICLE 3 – ENGINEER**

- 3.01 The Project has been designed by John Scroggs, P.E., KASL Consulting Engineers, 7777 Greenback Lane, Suite 104, Citrus Heights, CA 95610.
- 3.02 The Owner has designated Charles Palmer, P.E. (as “Engineer”) to act as Owner’s representative, assuming all duties and responsibilities, and having rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

## ARTICLE 4 – CONTRACT TIMES

### 4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

### 4.02 *Contract Times: Days*

- A. Unless otherwise allowed by the Engineer, no excavations, trenching, or other ground disturbing construction shall occur after October 31<sup>st</sup> or before May 1<sup>st</sup> each year and the project will be shut down and winterized for this period. The Engineer may allow work to continue into mid-November or start by mid-April, if dry weather and ground conditions have been prevalent. An allowance will be made for this winterization period (*estimated to be 182 calendar days*) and used in calculating and adjusting the date(s) of substantial and final completion.
- B. After the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, the Work will be substantially completed within 250 calendar days (*equal to 432 calendar days including 182 calendar days for winterization period*), and all work completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 280 calendar days after the date when the Contract Times commence to run.

### 4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
  1. Substantial Completion: Contractor shall pay Owner \$1,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
  2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$500 for each day that expires after such time until the Work is completed and ready for final payment.
  3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

## ARTICLE 5 – CONTRACT PRICE

### 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit with an initial contract amount of \$\_\_\_\_\_.
- B. As provided in Paragraph 13.03 of the General Conditions, estimated quantities for unit price work are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer and the final contract amount adjusted accordingly.

## ARTICLE 6 – PAYMENT PROCEDURES

### 6.01 *Submittal and Processing of Payments*

- A. Applications for Payment shall be submitted by the Contractor in accordance with Article 15 of the General Conditions and is to be processed by Engineer as provided for in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15<sup>th</sup> or 30<sup>th</sup> day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
  - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
    - a. 95% percent of Work completed (with the balance being retainage).
    - b. 95% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95% percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100% percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

**ARTICLE 7 – INTEREST**

- 7.01 All amounts not paid when due shall bear interest at a rate in accordance with applicable law.

**ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
  - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
  - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### 9.01 *Contents*

- A. The Contract Documents consist of the following:
  - 1. This Agreement (00500).
  - 2. Project Manual / Divisions 0 through 16:
    - a. Contractor's Bid Form (00410) and Bid Bond (00430).
    - b. List of Subcontractors (00470)
    - c. Performance (00610), Payment (00615) and Maintenance (00650) Bonds
    - d. General Conditions (00700) and Supplementary Conditions (00800)
    - e. All Other Specifications and Content of the Project Manual
    - f. Appendices:
      - Appendix A – Project Standard Details
      - Appendix B – CEQA Mitigated Negative Declaration
      - Appendix C – Project Permits
      - Appendix D – Geotechnical Report
  - 3. Project Drawings: As issued and advertised for Bids and titled the "Ebbetts Pass Water System, Reach 1 Pipeline Replacement Project, CIP No.11085."
  - 4. Addenda (numbers \_\_\_ to \_\_\_, inclusive), as issued during the bid period and prior to the date of the public bid opening and as acknowledged/enumerated by the Contractor on the Bid Form.
  - 5. Notice to Proceed, Work Change Directives, Change Orders, or Field Orders, not attached hereto, which may be delivered or issued on or after the Effective Date of the Contract.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above). There are no Contract Documents other than those listed above in this Article 9, and the Contract Documents may only be amended, modified, or supplemented as provided for in the General Conditions.



## ARTICLE 10 – MISCELLANEOUS

### 10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### 10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### 10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### 10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

### 10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
  1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
  2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

### 10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

*(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest: \_\_\_\_\_

Attest: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

License No.: \_\_\_\_\_

*(where applicable)*

*(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*

**SECTION 00510  
NOTICE OF AWARD**

Date: \_\_\_\_\_

Project: Ebbetts Pass Water System Reach 1 Pipeline Replacement Project	
Owner: Calaveras County Water District	Owner's Contract No.: 11085
Contract:	Engineer's Project No.:
Bidder:	
Bidder's Address: <i>[send Notice of Award Certified Mail, Return Receipt Requested]</i>	

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

*[Indicate total Work, alternates, or sections of Work awarded.]*

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

*[Insert appropriate data if unit prices are used. Change language for cost-plus contracts.]*

\_\_\_\_\_ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner

By: \_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

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**SECTION 00550  
NOTICE TO PROCEED**

Date: \_\_\_\_\_

Project: Ebbetts Pass Water System Reach 1 Pipeline Replacement Project	
Owner: Calaveras County Water District	Owner's Contract No.: 11085
Contract:	Engineer's Project No.:
Contractor:	
Contractor's Address: <i>[send Certified Mail, Return Receipt Requested]</i>	

You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_ [(or) the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

\_\_\_\_\_ *[add other requirements].*

	Owner
	Given by:
	Authorized Signature
	Title
	Date

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**SECTION 00610  
PERFORMANCE BOND**

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

Calaveras County Water District  
P.O. Box 846 / 120 Toma Court  
San Andreas, CA 95249

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:  
Amount:  
Description *(name and location)*:

**BOND**

Bond Number:  
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:  
Amount:  
Modifications to this Bond Form:  None  See Paragraph 16

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Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_ *(seal)*  
Contractor's Name and Corporate Seal

\_\_\_\_\_ *(seal)*  
Surety's Name and Corporate Seal

**By:** \_\_\_\_\_  
Signature

**By:** \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Attest:** \_\_\_\_\_  
Signature

**Attest:** \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Notes:** (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of



the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location

where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

#### 14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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**SECTION 00615  
PAYMENT BOND**

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

Calaveras County Water District  
P.O. Box 846 / 120 Toma Court  
San Andreas, CA 95249

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:  
Amount:  
Description *(name and location)*:

**BOND**

Bond Number:  
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:  
Amount:  
Modifications to this Bond Form:     None     See Paragraph 18

---

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_ *(seal)*  
Contractor's Name and Corporate Seal

\_\_\_\_\_ *(seal)*  
Surety's Name and Corporate Seal

**By:** \_\_\_\_\_  
Signature

**By:** \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Attest:** \_\_\_\_\_  
Signature

**Attest:** \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Notes:** (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
  - 5.1 Claimants who do not have a direct contract with the Contractor,
    - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
      - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2 Pay or arrange for payment of any undisputed amounts.
  - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction

performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work including, but not limited to, costs to repair or replace Contractor's defective work, and any amounts owed to Owner, including amounts owed for damages Owner incurred, or for liquidated damages.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be

deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

## 16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has the right to assert a stop notice or bond claim as provided in the California Civil Code. The intent of this Bond shall be to include

without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

**SECTION 00625  
CERTIFICATE OF SUBSTANTIAL COMPLETION**

Owner: CALAVERAS COUNTY WATER DISTRICT	Owner's Contract No.: CIP #11085
Contractor: _____	Contractor's Project No.:
Engineer: Charles Palmer, District Engineer	Engineer's Project No.:
Project: EBBETTS PASS REACH 1	Contract Ref.:

**This [preliminary] [final] Certificate of Substantial Completion applies to:**

- All Work  The following specified portions of the Work:

**Date of Substantial Completion**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities:  None  
 As follows

Amendments to Contractor's responsibilities:  None  
 As follows:

The following documents are attached to and made a part of this Certificate: *[Refer to attached Punch List]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

<b>EXECUTED BY ENGINEER:</b>	<b>RECEIVED:</b>	<b>RECEIVED:</b>
By: _____ (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

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**SECTION 00650  
MAINTENANCE BOND**

The CALAVERAS COUNTY WATER DISTRICT, State of California, on \_\_\_\_\_, \_\_\_\_\_, awarded to \_\_\_\_\_ hereinafter designated as the "Principal", a Construction Agreement for the construction of the project

**EBBETTS PASS WATER SYSTEM  
REACH 1 PIPELINE REPLACEMENT PROJECT  
CCWD CIP #11085**

The Principal and \_\_\_\_\_ as Surety, are held and firmly bound unto the CALAVERAS COUNTY WATER DISTRICT, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), which is equivalent to twenty percent (20%) of the Construction Agreement amount, lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the above bonded Principal, his 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 said Construction Agreement and any alterations made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning and shall indemnify and save harmless, the CALAVERAS COUNTY WATER DISTRICT, its officers and agents as therein stipulated, then this obligation shall become null and void; otherwise, it shall be and remain in full force and virtue, and Principal and Surety, in the event suit is brought on this bond, will pay to the CALAVERAS COUNTY WATER DISTRICT such reasonable attorney's fees as shall be fixed by the court.

As a condition precedent to satisfactory completion of the said Construction Agreement, the above obligation in said amount shall hold good for a period of two (2) years after completion and acceptance of the said work, during which time if the above bonded Principal, his or its heirs, executors, administrators, successors or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the CALAVERAS COUNTY WATER DISTRICT from loss or damage made evident during said period of two (2) years from the date of acceptance of said work, and resulting from or caused by defective materials or faulty workmanship in the execution of the work done, the above obligation in the said sum shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety thereunder shall continue so long as any obligation of the Principal remains.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Agreement or to the work to be performed thereunder or the specifications accompanying the same 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 Construction Agreement or to the work or specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

The above parties have executed this instrument under their seals on \_\_\_\_\_, \_\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Signature for Principal

\_\_\_\_\_  
Title of Signature

(SEAL)

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Signature for Surety

\_\_\_\_\_  
Title of Signature

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

**SECTION 00700  
STANDARD GENERAL CONDITIONS OF THE  
CONSTRUCTION CONTRACT**

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term’s singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer’s decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer’s decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
  11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute,

law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.



30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of

Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 *Terminology*

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*:
  1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day*:
  1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*:
  1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
    - a. does not conform to the Contract Documents; or
    - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
    - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### *2.03 Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

**ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

### 3.02 *Reference Standards*

#### A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

#### B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

**ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK**

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  - 2. abnormal weather conditions;
  - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  - 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

**ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner’s interest therein as necessary for giving notice of or filing a mechanic’s or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
  - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor’s operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor’s performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and



other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
  - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
  - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
  - 1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
  - 2. is of such a nature as to require a change in the Drawings or Specifications; or
  - 3. differs materially from that shown or indicated in the Contract Documents; or
  - 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition.

Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
  - 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
  - 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
    - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
    - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
    - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
  - 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
  - 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and

data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
  2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
    - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
    - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
    - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

- d. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 6 – BONDS AND INSURANCE**

### *6.01 Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates

of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

#### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
  - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
  - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
  - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
  - 2. claims for damages insured by reasonably available personal injury liability coverage.
  - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
  - 1. Products and completed operations coverage:
    - a. Such insurance shall be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  - 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  - 3. Broad form property damage coverage.
  - 4. Severability of interest.
  - 5. Underground, explosion, and collapse coverage.
  - 6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
  8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
  2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or



Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

#### 6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

#### 6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
  - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
  - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
  - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
  - 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
  - 6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
  8. allow for the waiver of the insurer's subrogation rights, as set forth below.
  9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
  10. not include a co-insurance clause.
  11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
  12. include performance/hot testing and start-up.
  13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

#### 6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
  - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

**ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES**

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
      - 3) it has a proven record of performance and availability of responsive service; and
      - 4) it is not objectionable to Owner.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and

- 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
  3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
    - a. shall certify that the proposed substitute item will:
      - 1) perform adequately the functions and achieve the results called for by the general design,
      - 2) be similar in substance to that specified, and
      - 3) be suited to the same use as that specified.
    - b. will state:
      - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
      - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
      - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
    - c. will identify:
      - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but

not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.



7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
- 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
  5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
  6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
  7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
  8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.
- E. *Resubmittal Procedures:*
1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
  2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
  3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  - 1. observations by Engineer;
  - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
  - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  - 4. use or occupancy of the Work or any part thereof by Owner;
  - 5. any review and approval of a Shop Drawing or Sample submittal;
  - 6. the issuance of a notice of acceptability by Engineer;
  - 7. any inspection, test, or approval by others; or
  - 8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits

payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

**ARTICLE 8 – OTHER WORK AT THE SITE**

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting,

and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9 – OWNER'S RESPONSIBILITIES**

### 9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

### 9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

### 9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.  
B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.  
C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

### 9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

### 9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

### 9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and

Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

**ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.



10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

## ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

### 11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
  2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
  3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

### 11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

### 11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

#### 11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
  - 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
  - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
  - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
  - 1. a mutually acceptable fixed fee; or
  - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

#### 11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

#### 11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
  2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
  3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

#### 11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
  4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

**ARTICLE 12 – CLAIMS**

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
  - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
  - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
  - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
  - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
  - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days

of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

## **ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### 13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
  2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
  4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

#### 13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
  1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

#### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
  1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;



2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
  1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

**ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
  1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing,

the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

- e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
- 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
- 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
  - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
  - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. the Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. the Contract Price has been reduced by Change Orders;
  - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
  - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

- k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
  3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly

Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
  - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
  - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
  - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
  - 2. The final Application for Payment shall be accompanied (except as previously delivered) by:
    - a. all documentation called for in the Contract Documents;
    - b. consent of the surety, if any, to final payment;
    - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
    - d. a list of all disputes that Contractor believes are unsettled; and

- e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Application and Acceptance:*
1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:



1. correct the defective repairs to the Site or such other adjacent areas;
  2. correct such defective Work;
  3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
  2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
  2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure

within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

### *17.01 Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
  - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
  - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
  - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agree with the other party to submit the dispute to another dispute resolution process; or
  - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18 – MISCELLANEOUS**

### *18.01 Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

### *18.02 Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### *18.03 Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The

provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**SECTION 00800  
SUPPLEMENTARY CONDITIONS**

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC No. C-700 (2013 Edition). All provisions which are not so amended or supplemented remain in full force and effect. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof. The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

**SC-1.01.A.8 Add the following language to the end of Paragraph 1.01.A.8:**

The Change Order form to be used on this Project is EJCDC No. C-941 (Section 00840). Agency approval is required before Change Orders are effective.

**SC-1.01.A.48 Add the following language at the end of the last sentence of Paragraph 1.01.A.48:**

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

**SC-1.01.A.49 Add the following new Paragraph after Paragraph 1.01.A.48:**

Abnormal Weather Conditions- Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation or season should not be considered Abnormal Weather Conditions.

**SC-2.01 Delete Paragraphs 2.01 B. and C. in their entirety and insert the following in their place:**

*B. Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies of insurance (including all endorsements, and identification of applicable self-insured retentions and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

*C. Evidence of Owner's Insurance:* After receipt from Contractor of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner under Article 6 (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

**SC-2.02.A Amend the first sentence of Paragraph 2.02.A to read as follows:**

Owner shall furnish to Contractor three copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF).

**SC-4.01.A Amend the last Paragraph of 4.01.A by striking out the following words:**

In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

**SC-4.05.C.2 Amend Paragraph 4.05.C.2 by striking out the following text: "abnormal weather conditions;" and inserting the following text:**

Abnormal Weather Conditions;

**SC-5.03. Add the following new paragraphs immediately after Paragraph 5.03.B**

- C. In the preparation of Drawings and Specifications, Engineer relied upon the following reports of exploration and tests of subsurface conditions at the Site:
  - 1. Geotechnical Study by Condor Technologies, Inc. (Refer to Appendix)
- D. In the preparation of Drawings and Specifications, Engineer relied upon the following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the Site:
  - 1. There are no separate figures or drawings except as included in reports as referenced above.
- E. Copies of reports and drawings itemized in SC-5.03.C and SC-5.03.D that are not included with Bidding Documents may be examined at the office of the Calaveras County Water District, 120 Toma Court, San Andreas, CA 95249 / Phone: (209) 754-3543 during regular business hours (8:00 AM to 4:00 PM). These reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which the Contractor may rely as identified and established above are incorporated therein by reference. Contractor is not entitled to rely upon other information and data utilized by Engineer in the preparation of the Drawings and Specifications.

**SC-5.06. Delete Paragraphs 5.06.A and 5.06.B in their entirety and replace with following:**

- A. No reports or explorations or tests of Hazardous Environmental Conditions at or contiguous to the Site are known to the Owner or Engineer.

**SC-6.03. Add the following new paragraph immediately after Paragraph 6.03.J:**

- K. The limits of liability for insurance required by paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
  - 1. Workers’ Compensation, and related coverages under paragraphs 6.03.A.1 and A.2 of the General Conditions:
    - a. State: Statutory
    - b. Employer’s Liability \$1,000,000
  - 2. Contractor’s *Commercial General Liability* under paragraphs 6.03.B and 6.03.C of the General Conditions:
    - a. General Aggregate \$2,000,000
    - b. Products - Completed Operations Aggregate \$1,000,000
    - c. Personal and Advertising Injury \$1,000,000
    - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
    - e. Excess or Umbrella Liability
      - 1) General Aggregate \$2,000,000
      - 2) Each Occurrence \$2,000,000
  - 2. *Automobile Liability* under paragraph 6.03.D of the General Conditions:
    - a. Combined Single Limit \$1,000,000
  - 3. Property Damage liability insurance will provide Explosion, Collapse and Underground (X, C, U) coverages where applicable.

4. Contractual Liability coverage required by paragraph 6.03.C.2 of the General Conditions shall be provided as part of the *Commercial General Liability* coverage.
5. The Owner and Engineer (including all their designated officers, employees, representatives and agents) are to be included as additional insureds including but not limited to:
  - a. Calaveras County Water District
  - b. County of Calaveras / Encroachment Permit
  - c. California Department of Transportation / Encroachment Permit
  - d. KASL Consulting Engineers / Civil Engineering & Surveying
  - e. Thunder Mountain Enterprises, Inc. / Storm Water Management
  - f. ECORP Consulting, Inc. / Environmental Scientists
  - g. Nordahl Land Surveying
  - h. Condor Earth Technologies, Inc.
  - i. Resident Engineer/Resident Project Representative (as designated by Owner).

**SC-6.06 Delete paragraph 6.06B. and 6.06C. in its entirety.**

**SC-7.04.A Amend the third sentence of the paragraph by striking out the following words:**

Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item is permitted.

**SC-7.04.A.1 Amend the last sentence of Paragraph a.3 by striking out “and:” and adding a period at the end of Paragraph a.3.**

**SC-7.04.A.1 Delete paragraph 7.04.A.1.a.4 in its entirety.**

**SC-7.06.A Amend Paragraph 7.06.A by adding the following text to the end of the Paragraph:**

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

**SC-7.06.B Delete Paragraph 7.06.B in its entirety.**

**SC-7.08 Amend Paragraph 7.08 by adding the following text to the end of the Paragraph:**

For encroachments on County roads, the Contractor shall obtain permits except the District will pay direct governmental charges and inspection fees. In submitting a bid, the Contractor shall fully assess encroachments and traffic control needs and include associated costs in the bid items.

**SC-7.18 Replace Paragraph 7.18 in entirety with the following text:**

*Indemnification*

To the fullest extent permitted by law, Contractor shall indemnify, defend, and hold harmless Owner, and any of their agents and consultants, and each of their directors, officers, agents, and employees (“Indemnitees”) for any actual or alleged damage or losses relating to or arising out of Contractor’s performance under this Contract or in any way relating to the Work. Contractor’s defense and indemnity obligation shall include, but not be limited to, Contractor indemnifying, defending, and holding Indemnitees harmless from all actual or alleged liability, claims, damages, losses, expenses, and other costs, including costs of defense and attorneys’ and expert fees, arising out of or resulting from or in connection with the performance of the Work, both on and off the project site. However, Contractor shall not be liable for any such claims, damages, losses, expenses, liability and other costs that are caused by the sole negligence, willful misconduct, or active negligence of Indemnitees.

In any and all claims against the Indemnitees by any employee of Contractor, any Subcontractor, any supplier, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligations under this Agreement shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor, or any Subcontractor, or any Supplier or other person under Worker's Compensation acts, disability benefit acts, or other employee acts.

Additionally, Contractor shall defend, indemnify, and hold Indemnitees harmless from and against: (1) any and all claims, liabilities, loss, damage, costs, or expenses, including reasonable attorneys' fees, awards, and judgments, arising by reason of any claims, liens, stop notices, or bond claims for labor, materials, or equipment used or furnished to be used in connection with the Work, or union trust fund payments arising from or relating to the Work, and (2) all incidental or consequential damages resulting to Owner from such claims, liens, stop notices or bond claims. Contractor shall cause the effect of any such claim, suit, stop notice, or lien to be removed from the Project within ten days after written demand to do so is made by Owner. If Contractor fails to do so, Owner may use whatever means it deems appropriate to cause the suit, stop notice or lien to be removed or dismissed. All resulting cost and expense incurred by Owner shall be immediately due and payable to Owner by Contractor.

**SC-7.20 Add the following new Paragraph after Paragraph 7.19.**

Contractor shall either provide electronic transmittal or provide three (3) printed copies of each submittal; one (1) copy to be returned with Engineer's comments. Submittals shall be organized, securely bound, accompanied by a transmittal, and systematically numbered and titled adding postscript letters "A", "B" or "C" for each subsequent resubmittal. Shop drawings containing unrelated items are not acceptable unless taken together comprise a manufacturer's package or closely related scope of supply. Contractor may fax or email information with approval of Engineer. Engineer will complete review and return comments for each submittal or resubmittal within seven (7) to fourteen (14) days and up to thirty (30) days if more complex (e.g. electrical equipment, process equipment, structural systems). Engineer will return comments marked with one course of action to be carried out by Contractor as follows:

- A. No Exceptions Taken: Shop drawing is approved to be furnished as submitted
- B. Furnish As Noted: Shop drawing is approved and resubmittal is not required given that the Contractor makes corrections as noted by Engineer's comments.
- C. Revise & Resubmit: Shop drawing is not approved by the Engineer; Contractor shall resubmit the shop drawing after revising information according to Engineer's comments.
- D. Rejected/Resubmit: Shop drawing rejected because Engineer finds it materially differs from specifications and contract requirements; Contractor is to verify requirements and resubmit shop drawing accordingly.

**SC-10.03. Add the following language at the end of paragraph 10.03:**

The Duties, Responsibilities, and Limitations of Authority of the Resident Project Representative will be stated in the Agreement for Engineering Services executed for this specific Project.

**SC-11.06.A Amend the first sentence of Paragraph 11.06.A. to read as follows:**

*Procedures:* Contractor shall submit each Change Proposal to the Engineer prior to commencing any work for which Contractor believes it is entitled to an adjustment in Contract Time or Contract Price. If the need for an adjustment in Contract Time or Contract Price arises after the scope of work has commenced then Contractor shall notify Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision.

**SC-11.07.C Add the following new Paragraph after Paragraph 11.07.B:**

All Contract Change Orders must be concurred in by Agency before they are effective.

**SC-13.02.C Delete Paragraph 13.02.C in its entirety.**



**SC-15.01.B      Replace Paragraph 15.01.B in entirety with the following text:**

*B. Applications for Payments*

1. Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the application for payment.
2. Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Price allocated to that portion of the Work in the schedule of values, less retainage of five percent ( 5% );

Add that portion of the Contract Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent ( 5% );

Subtract the aggregate of previous payments made by the Owner.

3. Each Application for payment shall be in such form and contain such information and substantiation of the portion of the Contract Price allocable to the portion of the Work covered thereby as herein required and as the Owner may reasonably require, and shall, include, without limitation, the following:

- (a) A lien waiver in compliance with the requirements of California Civil Code Section 8132 from Contractor and from each Subcontractor and vendor of any tier for the Work and materials that are subject of the Application for Payment and that matches invoice amount. The lien waiver may be conditioned upon receipt of the payment applied for less applicable retention.

- (b) An unconditional lien waiver in compliance with the requirements of California Civil Code Section 8134 from Contractor and from each Subcontractor and vendor of any tier covering Work and materials which covers all previous Applications for Payment.

- (c) Contractor's certification that the Work covered by the Application for Payment has been completed in accordance with the Contact Documents and all applicable laws.

- (d) A detailed, current lien release log, listing all lien releases (both conditional and unconditional) provided to date by Contractor, Subcontractors and Vendors listing the individual amounts by pay period and the total received by each.

- (e) A detailed, current change order log that includes all potential, approved and voided change orders.

- (f) An updated overall Project schedule for review and approval by the Owner. The update should include all activities with percent completes through the current pay period. Any logic changes should be clearly identified with a detailed explanation and list of reasons for each change.

4. The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an application for payment, whether incorporated in the Project or not, will pass to the Owner upon receipt of such payment by the Contractor free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to as "liens."

5. The Owner's progress payment, occupancy or use of the Project, whether in whole or in part, shall not be deemed an acceptance of any Work not conforming to the requirements of the Contract Documents.

**SC-15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:**

The Application for Payment with Engineer's recommendation will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due thirty (30) days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

**SC-15.02.A Amend Paragraph 15.02.A by striking out the following text:**

"no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."

**SC-15.06.A.3 Delete the language in Paragraph 15.06A.3. in its entirety and replace the paragraph with the following language:**

Before issuance of final payment, Contractor must provide to the Owner satisfactory evidence that all payrolls, materials bills and other indebtedness connected with the Work have been paid or otherwise satisfied.

**SC-19 Add Article 19 titled "FEDERAL REQUIREMENTS"**

**SC 19.03 Conflict of Interest**

A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

**SC 19.04 Gratuities**

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

**SC-19.05 Audit and Access to Records**

A. Owner, Agency, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to any books, documents, papers, and records of the Engineer which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

**SC- 19.06      Small, Minority and Women’s Businesses**

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women’s businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women’s businesses on solicitation lists; (2) assuring that small, minority and women’s businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women’s businesses; (4) establishing delivery schedules, where the requirements for the work permit, which will encourage participation by small, minority and women’s businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

**SC-19.07      Anti-Kickback**

A. Contractor shall comply with the Copeland Anti-Kickback Act (18 U.S.C. 874 and 40 U.S.C. 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans and Grants of the United States.”) The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

**SC-19.08      Clean Air and Pollution Control Acts**

A. If this Contract exceeds \$100,000, Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h) and 42 U.S.C. 7401 et.seq.), section 508 of the Clean Water Act (33 U.S.C. 1368) and Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15) is required. Contractor will report violations to the Agency and the Regional Office of the EPA.

**SC-19.09      State Energy Policy**

A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163) and utilize mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan.

**SC-19.10      Equal Opportunity Requirements**

A. This contract does not mandate specific equal opportunity goals or quotas.

**SC-19.11      Restrictions on Lobbying**

A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. 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, 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 shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

## SC-19.12 Environmental Requirements

When constructing a project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental constraints:

A. Wetlands - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

B. Floodplains - When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey maps.

C. Historic Preservation - Any excavation by Contractor that uncovers an historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further direction issued by Agency after consultation with the State Historic Preservation Officer (SHPO).

D. Endangered Species - Contractor shall comply with the Endangered Species Act, which provides for protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

E. Mitigation Measures - If the project had an Environmental Report, Environmental Assessment, or Environmental Impact Statement to meet Federal NEPA or State CEQA environmental requirements, compliance with the mitigation measures, if any, in that document are hereby included as a condition of this contract.

F. The contractor is required to comply with the environmental permits and documents listed below. Copies of documents and permits that are not included with the Bidding Documents will be made available by electronic media or may be examined at the office of the Calaveras County Water District, 120 Toma Court, San Andreas, CA 95249 during normal business hours (8 AM to 4 PM) and/or reviewed on the listed websites.

1. Initial Study/Mitigated Negative Declaration and adopted Mitigation, Monitoring and Reporting Plan (adopted Mitigation, Monitoring and Reporting Plan included in Appendix).
2. Construction General Permit 2009-009-DWQ for Storm Water Discharges Associated with Construction and Land Disturbance ([www.waterboards.ca.gov/water\\_issues/programs/stormwater/constpermits.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml))
3. Clean Water Act Section 404 / NWP 12 Permit issued by U.S. Army Corps of Engineers
4. Clean Water Act Section 401 / Water Quality Certification issued by Central Valley Regional Water Quality Control Board
5. California Department of Fish and Wildlife, Section 1602 Lake or Streambed Alteration Agreement (for construction activities impacting lakes, streams and potentially some ditches, wetlands, vernal pools, etc.)
6. Statewide Low Risk General Order 2003-0003-DWQ for Discharges to Land (e.g. construction dewatering of excavations) with a Low Threat to Water Quality or Low Risk Waiver R5-2013-0145  
[www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0003.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf)  
[www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/waivers/r5-2013-0145\\_res.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf)
7. Central Valley Regional Water Quality Control Board, Low or Limited Threat General NPDES Permit (e.g. for dewatering or chlorinated discharges to any surface or jurisdictional waters of the United States)  
[www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2013-0074.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf)  
[www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/general\\_orders/r5-2013-0073.pdf](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf)

**SC-20 Add the following new paragraph: “ARTICLE 20 - PROJECT SIGN”**

**SC-20.01** Contractor will place a temporary construction project sign at a location designated by the Engineer. This sign measuring 4' x 8', will be made of 3/4” exterior grade plywood and adhere to the format and details given in Section 00810. The sign will be prepared by a professional sign maker.

**SC-21 Add Article 21 titled “CALIFORNIA STATE REQUIREMENTS”**

**SC-21.01** This project is a “public works” project as defined in California Labor Code Section 1720 through 1743. In accordance with California Labor Code Article 1725.5, Contractor and all subcontractors are required to be registered with the California Department of Industrial Relations (DIR) in order to bid or be listed on a bid and/or work on a public works project.

**SC-21.02** Specific contract clauses mandated by Department of Industrial Relations (DIR):

- A. Every Contractor [*and subcontractor*] will be required to secure the payment of workers compensation to his or her employees conforming to Labor Code Section 1860.
- B. The Contractor shall post the applicable prevailing wage rate on the project site according to Labor Code Section 1771.4.

**SC-21.03** In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. 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 purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

**SC-21.04** Prevailing Wages: Notice is hereby given that, pursuant to Section 1773 of the Labor Code of the State of California, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holidays and overtime work for each craft, classification, or type of worker required to execute the Contract. A copy of said prevailing rate of per diem wages is on file in the principal office of the Owner, to which reference is hereby made for further particulars. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at each job site.

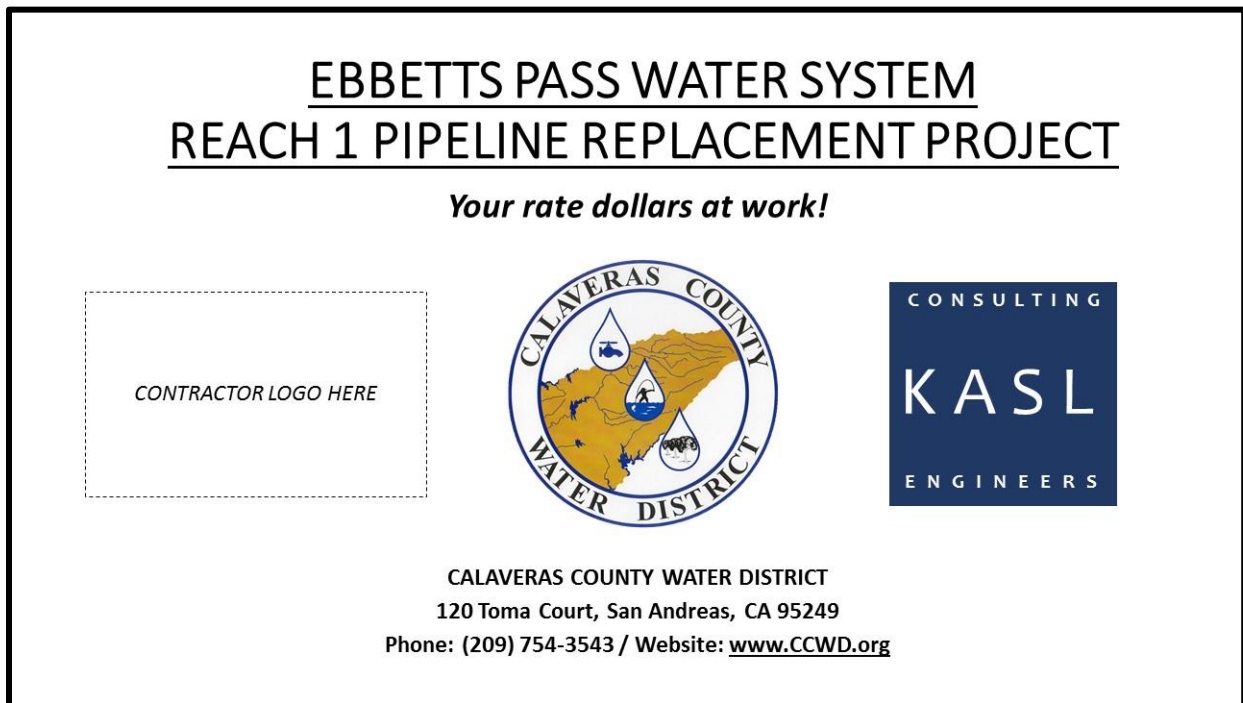
**SC-21.05** Statutory Penalty for Failure to Pay Minimum Wages: In accordance with Section 1775 (a) through (c) of the California Labor Code, the Contractor shall as a penalty to the State of political subdivision on whose behalf a Contract is made or awarded, forfeit not more than two hundred dollars (\$200.00) for each calendar day or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the contractor or, except as provided in subdivision 1775 (b), by any subcontractor under the contractor.

**SC-21.06** Statutory Penalty for Unauthorized Overtime Work: In accordance with Section 1813 of the California Labor Code, the Contractor shall as a penalty to the State or political subdivision on whose behalf the Contract is made or awarded, forfeit twenty-five dollars (\$25.00) for each worker employed in the execution of the Contract by the respective contractor or subcontractor for each calendar day during which said worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of provisions of Sections 1810-1815 of the Labor Code.

- SC-21.06** Apprenticeship Requirements: Contractor agrees to comply with Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime contractor for all apprenticeship occupations. Under these sections of the law, Contractors and Subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one apprentice hour for each five journeymen hours (unless an exemption is granted in accordance with 1777.5) and Contractors and Subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in 3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least 16 years of age, who are in training under apprenticeship standards and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.
- SC-21.07** Payroll Records: Contractor shall keep accurate payroll records in format specified by the Division of Labor Standards Enforcement. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual per diem wages paid to each journeyman, apprentice, or worker employed by the Contractor. Copies of such record shall be made available for inspection at all reasonable hours, and a copy shall be made available to employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Contractor and subcontractors shall furnish and submit electronic certified payroll records directly to the Labor Commissioner, and duplicate copies available to Owner.
- SC-21.08** Contractor shall be responsible for marking all excavations and notifying Underground Service Alert (USA) North at least 48-hours before digging, and follow all other provisions of California Government Code Sections 4216 through 4216.9. Contractor shall maintain an active USA North ticket number for the entire duration of the excavation.
- SC-21.09** Unless otherwise indicated in the Contract Documents, all utility lines, conduits, wires, or structures shall be maintained by the Contractor and shall not be disturbed, disconnected, or damaged by him during the progress of the Work, provided, that should the Contractor in the performance of the Work disturb, disconnect, or damage any of the above, all expenses arising from such disturbance or in the replacement or repair thereof shall be borne by the Contractor. However, in accordance with Section 4215 of the California Government Code, the Contractor shall be compensated for all costs of relocating and repairing damage to main or trunkline utility facilities located on the work site and for costs of operating equipment on the work site necessarily idled during such work where the Contractor has exercised reasonable care in removing or relocating utility facilities which are inaccurately indicated in the Contract Documents.
- SC-21.10** This project is subject to provisions of Assembly Bill 626 regarding resolution of change orders as set forth in Public Contract Code §9204.

**SECTION 00810  
PROJECT SIGN**

For the duration of the construction project, the Contractor shall furnish and install at the job site for public view a temporary project sign on 3/4" APA rated A-B or A-C grade, exterior plywood panel with design shown below. The Contractor shall provide a submittal of the draft/proof for District approval. The District will be allowed the opportunity to revise and change the exact wording, text and logos before fabricating the sign. The sign background shall be painted white on both faces and colored logos and text shall appear on the smooth (A grade) face. Paints and other materials used for sign construction, text and logos shall be weather resistant and not sustain fading, cracking, chipping or other abrupt damage by normal exposure to rain, snow, sun UV exposure, etc. The sign shall be located as directed by the District and, if within highway right-of-way, only in locations authorized by Caltrans. The sign shall be supported and mounted on two 4x4 or 4x6 lumber posts 12-ft in length securely anchored and embedded into the ground. Upon completion of the project and notification by the District staff, the Contractor shall remove the project sign and wood posts and restore the ground surface to a good, prior condition.



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**SECTION 00830  
WORK CHANGE DIRECTIVE**

**Work Change Directive No.**

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_  
Owner: \_\_\_\_\_ Owner's Contract No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_ Contract Name: \_\_\_\_\_

Contractor is directed to proceed promptly with the following change(s):  
Description:

Attachments: *[List documents supporting change]*

**Purpose for Work Change Directive:**

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

- Non-agreement on pricing of proposed change.
- Necessity to proceed for schedule or other Project reasons.

**Estimated Change in Contract Price and Contract Times (non-binding, preliminary):**

Contract Price     \$ \_\_\_\_\_ [increase] [decrease].  
Contract Time     \_\_\_\_\_ days [increase] [decrease].

**Basis of estimated change in Contract Price:**

- Lump Sum                       Unit Price
- Cost of the Work               Other

RECOMMENDED:	AUTHORIZED:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_

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**SECTION 00840  
CHANGE ORDER FORM**

**Change Order No.** \_\_\_\_\_

Date of Issuance:	Effective Date:
Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

<b>CHANGE IN CONTRACT PRICE</b>	<b>CHANGE IN CONTRACT TIMES</b> <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

**RECOMMENDED:**

**ACCEPTED:**

**ACCEPTED:**

By: _____ Engineer (if required)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_

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**SECTION 00900  
ENGINEER'S SUPPLEMENTAL CONDITIONS**

The following additional revisions and amendments are made to the General Conditions, Section 00700:

**ESC-00700-Article 2.03 A.2, Preliminary Schedule of Submittals, add:**

The Contractor shall provide submittals for all equipment and materials to be furnished on the project; and any other submittals as may be specifically called for by the contract documents.

**ESC-00700-Article 4.04 A., add:**

3. Every two (2) weeks, the Contractor shall provide an updated three (3) week "look ahead" schedule that details in advance the activities scheduled to occur on the project in the subsequent three (3) week period; this schedule shall allow reasonable time for coordinating construction activities with required public and agency notifications, scheduling Owner's personnel requirements, calling in advance for special inspection dates, and scheduling surveyors, technicians and other professionals necessary to monitor and facilitate the work. The Owner may hold progress payments if Contractor refuses to provide necessary "look ahead" schedules; these schedules are not necessary if Owner and Contractor agree no work will be occurring within a specific period.

**ESC-00700-Article 7.02 B., Working Hours, add:**

The Owner may require the Contractor to work Saturday and Sunday or extended evening hours when service interruption would cause disruptions to customers beyond regular work hours.

**ESC-00700-Article 7.11 A., Record Documents, revise:**

The Contractor shall maintain in a safe place at the Site one printed record copy (or in electronic format on a laptop computer or tablet device) of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and neatly and accurately annotated in red ink to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference in the field. Owner may require that copies of markups and annotations on drawings be submitted along with monthly progress payment requests to allow Owner to incorporate changes in to the record drawings. Upon completion of the Work, Contractor shall deliver copies of all remaining record documents to Engineer that are not previously submitted.

**ESC-00700-Article 10.03, Project Representative, add:**

At any time before or during construction, the Owner may designate one or more persons as a Resident Project Representative provided that the Contractor is notified in writing and Owner clearly defines their duties, responsibilities and limits of authority.

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**SECTION 02110  
CONSTRUCTION SEQUENCE**

**1.0 GENERAL**

Unless otherwise approved by the District, the Contractor's work shall start from the east end of the project and progress continuously westward. Such a sequence is listed below and provides general steps to be taken, but it is not intended to be comprehensive in all details. The construction sequence must provide for continuous operation of the transmission pipeline to supply the District's customers without interruptions during the construction of the Pipeline Replacement Project. The size and impact of any proposed shutdowns must be minimized to impact the fewest number of customers and for the shortest duration and in no case shall any scheduled shutdown exceed 4 to 8-hours. The bacteriological sterility of the existing, temporary and new water systems must be maintained at all times in accordance AWWA disinfection and bacteriological sampling and testing procedures. Proposed sequence or shortcuts requiring boiled water notices or otherwise causing an increased risk to public safety is not acceptable. Alternatively, the Contractor can submit for District's approval/authorization a different construction sequence for work starting from the west end of the project and progressing eastward or simultaneously starting from both east and west ends and progressing towards the middle of the project to a common mid-point.

**2.0 PRODUCTS – NOT INCLUDED**

**3.0 EXECUTION**

3.1 Construction Sequence / Starting At East End and Progressing Westward

A. STA 248+36 to 219+00

1. Construct temporary bypass piping from STA 248+36 to 237+40, test, disinfect, sample and confirm bacteriological quality, then place bypass into service. Make both temporary bypass connections to the existing 8-inch steel water main.
2. Construct new 12-inch water main from STA 248+36 to STA 219+00 and temporary 8-inch bypass piping from STA 219+00 to STA 211+50.
3. Make first bypass connection at STA 219+00 from new 12-inch water main and second bypass connection at STA 211+50 to existing 8-inch steel water main.
4. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
5. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
6. Remove temporary bypass (between STA 248+36 to 237+40).

B. STA 219+00 to 202+60

1. Construct new 12-inch water main from STA 219+00 to STA 202+60 and temporary 8-inch bypass piping from STA 202+60 to STA 199+50.
2. Make first bypass connection at STA 202+60 from new 12-inch water main and second bypass connection at STA 199+50 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA 219+00 to STA 211+50).

C. STA 202+60 to 194+25

1. Construct new 12-inch water main from STA 202+60 to STA 194+25 and temporary 8-inch bypass piping from STA 194+25 to STA 184+80.
2. Make first bypass connection at STA 194+25 from new 12-inch water main and second bypass connection at STA 184+80 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA 202+60 to STA 199+50).

D. STA 194+25 to B5+21

1. Construct new 12-inch water main from STA 194+25 to STA B5+21 and temporary 8-inch bypass piping from STA B5+21 to STA 160+38.
2. Make first bypass connection at STA B5+21 from new 12-inch water main and second bypass connection at STA 160+38 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA 194+25 to STA 184+80).

E. STA B5+21 to 109+30

1. Construct new 12-inch water main from STA B5+21 to STA 109+30 and temporary 8-inch bypass piping from STA 109+30 to STA 105+00.
2. Make first bypass connection at STA 109+30 from new 12-inch water main and second bypass connection at STA 105+00 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA B5+21 to STA 160+38).

F. STA 109+30 to 98+00

1. Construct new 12-inch water main from STA 109+30 to STA 98+00 and temporary 8-inch bypass piping from STA 98+00 to STA 93+00.
2. Make first bypass connection at STA 98+00 from new 12-inch water main and second bypass connection at STA 93+00 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA 109+30 to STA 105+00).

G. STA 98+00 to 42+20

1. Construct new 12-inch water main from STA 98+00 to STA 42+20 and temporary 8-inch bypass piping from STA 42+20 to STA 38+19.
2. Make first bypass connection at STA 42+20 from new 12-inch water main and second bypass connection at STA 38+19 to existing 8-inch steel water main.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch transmission main.
5. Remove temporary bypass (between STA 98+00 to STA 93+00).

H. STA 42+20 to 14+30

1. Construct new 12-inch (and new 8-inch) water main from STA 42+20 to STA 14+30 and also provide temporary bypass piping from STA 14+30 to STA 8+21.
2. Make first bypass connection at STA 14+30 from new 8-inch water main and second bypass connection at STA 8+21 to existing surge valve vault.
3. Test, disinfect, sample and confirm bacteriological quality and place all new/temporary piping into operational service.
4. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to new 12-inch (and new 8-inch) transmission main.
5. Remove temporary bypass (between STA 42+20 to STA 38+19).

I. STA 14+30 to 8+21

1. Construct new 8-inch water main from STA 14+30 to STA 8+21. then test, disinfect, sample and confirm bacteriological quality and place all new piping into operational service.
2. Construct all pressure regulating stations, appurtenances and tie-in connections and after disinfecting, passing hydrostatic and bacteriological tests complete associated connections to the new 8-inch transmission main.
3. Remove temporary bypass (between STA 14+30 to STA 8+21).

- END OF SECTION -

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**SECTION 02150  
SITE PREPARATION**

**1.0 GENERAL**

1.1 Scope – The scope of work included this section of these specifications includes the clearing, grubbing, removal and disposal of existing rubbish, vegetation and obstructions along the Reach 1 pipeline project alignment. The Contractor shall carefully review the limits of clearing and construction shown on the drawings. There shall be no clearing work permitted beyond the limits of the Project unless authorized by the District.

Work under this item also includes, but is not limited to:

A). Preservation of trees, shrubs and other plant material beyond the limits of clearing and grubbing.

1.2 Job Conditions – The Contractor shall determine the actual conditions of clearing and grubbing required to construct the new pipeline improvements.

1.3 Clearing - In areas to be cleared, Contractor is to remove and dispose of trees, shrubs, brush, limbs, surface vegetation and tree roots. Remove all evidence of their presence from the surface including sticks and branches greater than 2 inches in diameter or thickness. Remove and dispose of trash piles, rubbish and fencing. Remove debris. Site preparation shall be performed for all areas to be excavated, areas to receive fill and areas to receive pipeline or pipeline appurtenance improvements. Site preparation includes stripping the ground surface of vegetation or waste debris and demolition / removal of existing surface and subsurface improvements. Site preparation operations shall extend at least 5 feet beyond the limits of new fill or improvements (where possible) and extend a minimum of 5 feet, each side, of the pipeline replacement alignment. Any vegetation and organic topsoil with more than 2 percent organic material by dry weight shall be removed. Strip vegetation to a depth of 3 inches plus additional depth where roots over ½ inch in diameter are encountered. Site preparation shall include mechanical or manual separation of tree roots from material to be used as backfill or engineered fill.

Protect trees, vegetative growth and fencing which are not designated for removal. Trees to be removed as part of this Work are identified by an “X” on the Contract Plans. Unless otherwise directed by the District, existing trees not designated for removal and that do not interfere with construction of new improvements shall remain.

1.5 Grubbing - After clearing is completed, remove and dispose of wood or root matter below the ground surface remaining after clearing, including stumps, trunks, roots, or root systems greater than 2 inches in diameter or thickness, to a depth of 12 inches.

**2.0 MATERIALS**

2.1 Trees and Shrubbery – Existing trees to be removed are shown on the Plans. Inspect the site as to the nature, location, size and extent of vegetative material to be removed or preserved, as specified herein. Preserve trees and shrubs that are specifically shown on the drawings as designated to be preserved or are located beyond the limits of clearing and grubbing.

2.2 Trees to be Removed – Existing trees 4 inch dbh and larger to be removed as part of the scope of site preparation are itemized following the text of this specification section.

### 3.0 EXECUTION

3.1 General - Remove trees, shrubs and other vegetation or obstructions that interfere with installation of new construction, and such items elsewhere onsite or on premises specifically indicated for removal. Strippings shall not be incorporated in any embankment or engineered fill section. Removal of trees shall include new and old stumps of trees and their roots. Voids left by the removal of the trees, root balls or other underground structures, if found, or any other soft or loose soil pockets shall be over-excavated and backfilled with properly compacted, approved native soils that are free of organic and other deleterious materials, or with approved imported fill.

3.2 Disposal – Except where otherwise indicated, materials cleared and grubbed shall become the property of the Contractor and shall be properly disposed of away from the Project site in accordance with local laws, codes and ordinances. Do not burn combustible material unless prior written authorization is obtained from the U.S. Forest Service and Ebbetts Pass Fire District. Submit applications for burn permits to Agency with jurisdiction. Upon completion of the site clearing work, premises to receive new construction shall be neat, clean and in suitable condition for construction of new work.

- END OF SECTION -

TREES TO BE REMOVED

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
2	Ponderosa Pine	( <i>Pinus ponderosa</i> )		12	12	Fair	Fair
12	Ponderosa Pine	( <i>Pinus ponderosa</i> )		5	6	Fair	Fair
13	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	7	Fair	Fair
54	Ponderosa Pine	( <i>Pinus ponderosa</i> )		34	20	Poor to fair	Fair
57	Ponderosa Pine	( <i>Pinus ponderosa</i> )		16	9	Fair	Fair
58	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	9	Poor to fair	Fair
181	Incense Cedar	( <i>Calocedrus decurrens</i> )		36	19	Fair	Fair
182	Ponderosa Pine	( <i>Pinus ponderosa</i> )		41	28	Fair	Fair
203	Ponderosa Pine	( <i>Pinus ponderosa</i> )		31	26	Fair	Fair
256	Ponderosa Pine	( <i>Pinus ponderosa</i> )		30	26	Fair	Fair
257	Incense Cedar	( <i>Calocedrus decurrens</i> )		7	8	Fair	Fair
258	Ponderosa Pine	( <i>Pinus ponderosa</i> )		18	20	Fair	Fair
260	Incense Cedar	( <i>Calocedrus decurrens</i> )		13	14	Poor to fair	Fair
261	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	8	Poor to fair	Fair
262	Incense Cedar	( <i>Calocedrus decurrens</i> )		13	14	Fair	Fair
273	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	6	Fair	Fair
274	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	3	Fair	Poor to fair
275	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	7	Fair	Poor to fair
276	Incense Cedar	( <i>Calocedrus decurrens</i> )		20	17	Poor	Fair
287	Incense Cedar	( <i>Calocedrus decurrens</i> )		25	23	Fair	Fair
288	Incense Cedar	( <i>Calocedrus decurrens</i> )		16	15	Fair	Fair
289	Redbud	( <i>Cercis canadensis</i> )	2,3,4,5,6	20	12	Fair	Fair
290	Incense Cedar	( <i>Calocedrus decurrens</i> )		21	21	Fair	Fair
295	Incense Cedar	( <i>Calocedrus decurrens</i> )		21	20	Fair	Fair
322	Ponderosa Pine	( <i>Pinus ponderosa</i> )		29	25	Fair	Fair
345	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
358	Ponderosa Pine	( <i>Pinus ponderosa</i> )		10	9	Fair	Fair
359	Ponderosa Pine	( <i>Pinus ponderosa</i> )		12	22	Fair	Fair
360	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	20	Fair	Fair
361	Ponderosa Pine	( <i>Pinus ponderosa</i> )		11	15	Poor	Poor
365	Ponderosa Pine	( <i>Pinus ponderosa</i> )		6	8	Fair	Fair
368	Ponderosa Pine	( <i>Pinus ponderosa</i> )		6	6	Fair	Fair
372	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	16	Fair	Fair
373	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	15	Fair	Fair
374	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	15	Fair	Fair
375	Ponderosa Pine	( <i>Pinus ponderosa</i> )		5	4	Poor to fair	Poor to fair
376	White Fir	( <i>Abies concolor</i> )		6	8	Fair	Fair
378	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	8	Fair	Fair
379	Ponderosa Pine	( <i>Pinus ponderosa</i> )		5	6	Fair	Fair
388	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	8	Fair	Fair
389	Incense Cedar	( <i>Calocedrus decurrens</i> )		20	19	Fair	Fair
390	Incense Cedar	( <i>Calocedrus decurrens</i> )		21	23	Fair	Fair
392	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	8	Poor to fair	Fair
399	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	7	Fair	Fair
400	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	6	Fair	Fair
401	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	9	Poor to fair	Fair
402	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	6	Poor to fair	Poor to fair
403	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	7	Fair	Fair
404	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
406	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
468	Ponderosa Pine	( <i>Pinus ponderosa</i> )		25	26	Fair	Fair

TREES TO BE REMOVED

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
471	Ponderosa Pine	( <i>Pinus ponderosa</i> )		13	16	Fair	Fair
472	Ponderosa Pine	( <i>Pinus ponderosa</i> )		21	20	Fair	Fair
473	Ponderosa Pine	( <i>Pinus ponderosa</i> )		24	23	Fair	Fair
474	Ponderosa Pine	( <i>Pinus ponderosa</i> )		15	16	Fair	Fair
475	Ponderosa Pine	( <i>Pinus ponderosa</i> )		10	14	Fair	Fair
476	Ponderosa Pine	( <i>Pinus ponderosa</i> )		15	16	Fair	Fair
486	Ponderosa Pine	( <i>Pinus ponderosa</i> )		14	16	Fair	Fair
487	Ponderosa Pine	( <i>Pinus ponderosa</i> )		16	15	Fair	Fair
488	Ponderosa Pine	( <i>Pinus ponderosa</i> )		14	15	Fair	Fair
489	Ponderosa Pine	( <i>Pinus ponderosa</i> )		19	22	Fair	Fair
490	Ponderosa Pine	( <i>Pinus ponderosa</i> )		16	16	Fair	Fair
491	Ponderosa Pine	( <i>Pinus ponderosa</i> )		18	17	Fair	Fair
492	Ponderosa Pine	( <i>Pinus ponderosa</i> )		19	18	Fair	Fair
493	Incense Cedar	( <i>Calocedrus decurrens</i> )		21	22	Fair	Fair
501	Ponderosa Pine	( <i>Pinus ponderosa</i> )		18	17	Fair	Fair
504	Black Oak	( <i>Quercus velutina</i> )	3,4,4	11	15	Fair	Fair
506	Ponderosa Pine	( <i>Pinus ponderosa</i> )		18	17	Fair	Fair
507	Ponderosa Pine	( <i>Pinus ponderosa</i> )		16	17	Fair	Fair
510	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	6	Fair	Fair
511	Ponderosa Pine	( <i>Pinus ponderosa</i> )		20	22	Fair	Fair
513	Incense Cedar	( <i>Calocedrus decurrens</i> )		20	19	Fair	Fair
514	Ponderosa Pine	( <i>Pinus ponderosa</i> )		4	5	Fair	Fair
517	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	6	Fair	Fair
522	Incense Cedar	( <i>Calocedrus decurrens</i> )		25	24	Fair	Fair
526	Ponderosa Pine	( <i>Pinus ponderosa</i> )		17	16	Fair	Fair
527	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	6	Fair	Fair
528	Ponderosa Pine	( <i>Pinus ponderosa</i> )		10	12	Fair	Fair
529	Ponderosa Pine	( <i>Pinus ponderosa</i> )		6	5	Fair	Fair
530	Ponderosa Pine	( <i>Pinus ponderosa</i> )		8	9	Poor to fair	Fair
531	Ponderosa Pine	( <i>Pinus ponderosa</i> )		6	6	Fair	Fair
536	Ponderosa Pine	( <i>Pinus ponderosa</i> )		8	8	Fair	Fair
538	Incense Cedar	( <i>Calocedrus decurrens</i> )		10	10	Fair	Fair
546	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
550	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	5	Fair	Fair
552	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
568	Incense Cedar	( <i>Calocedrus decurrens</i> )		19	16	Fair	Poor
569	Ponderosa Pine	( <i>Pinus ponderosa</i> )		23	20	Fair	Fair
592	Ponderosa Pine	( <i>Pinus ponderosa</i> )		20	24	Fair	Fair
661	Ponderosa Pine	( <i>Pinus ponderosa</i> )		38	25	Fair	Fair
662	Black Oak	( <i>Quercus velutina</i> )		8	15	Fair	Fair
665	Foothill Pine	( <i>Pinus sabiniana</i> )		14	15	Fair	Fair
692	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	5	Fair	Poor to fair
720	Ponderosa Pine	( <i>Pinus ponderosa</i> )		17	17	Fair	Fair
721	Ponderosa Pine	( <i>Pinus ponderosa</i> )		22	20	Fair	Fair
722	Incense Cedar	( <i>Calocedrus decurrens</i> )	6,6,6	18	7	Fair	Fair
723	Incense Cedar	( <i>Calocedrus decurrens</i> )		7	7	Fair	Fair
724	Ponderosa Pine	( <i>Pinus ponderosa</i> )		17	16	Fair	Fair
725	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	6	Poor to fair	Poor
727	Ponderosa Pine	( <i>Pinus ponderosa</i> )		8	8	Fair	Fair
728	Ponderosa Pine	( <i>Pinus ponderosa</i> )	6,8	14	10	Fair	Fair
745	Incense Cedar	( <i>Calocedrus decurrens</i> )		17	15	Fair	Fair



TREES TO BE REMOVED

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
757	Incense Cedar	( <i>Calocedrus decurrens</i> )		23	22	Fair	Fair
832	Black Oak	( <i>Quercus velutina</i> )	3,4	7	6	Fair	Fair
844	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	7	Fair	Fair
849	Ponderosa Pine	( <i>Pinus ponderosa</i> )		5	5	Fair	Fair
851	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	3	Fair	Fair
852	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	5	Fair	Fair
855	Incense Cedar	( <i>Calocedrus decurrens</i> )		33	25	Fair	Fair
939	Ponderosa Pine	( <i>Pinus ponderosa</i> )		18	20	Fair	Fair
940	Ponderosa Pine	( <i>Pinus ponderosa</i> )	13,16	29	17	Fair	Fair
947	Incense Cedar	( <i>Calocedrus decurrens</i> )		7	8	Fair	Fair
949	Black Oak	( <i>Quercus velutina</i> )	5,6	11	14	Fair	Fair
950	Black Oak	( <i>Quercus velutina</i> )		8	12	Fair	Fair
951	Ponderosa Pine	( <i>Pinus ponderosa</i> )		50	30	Fair	Fair
952	Black Oak	( <i>Quercus velutina</i> )	7,8	15	16	Fair	Fair
953	Ponderosa Pine	( <i>Pinus ponderosa</i> )		10	12	Fair	Fair
955	Deodar Cedar	( <i>Cedrus deodara</i> )		5	6	Fair	Fair
994	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	5	Fair	Fair
1101	Ponderosa Pine	( <i>Pinus ponderosa</i> )		12	9	Poor to fair	Poor to fair
1102	Ponderosa Pine	( <i>Pinus ponderosa</i> )		32	22	Fair	Fair
1104	California Black Walnut	( <i>Juglans californica</i> )		27	29	Fair	Fair
1158	Ponderosa Pine	( <i>Pinus ponderosa</i> )		4	4	Fair	Fair
1160	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	9	Fair	Fair
1161	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	3	Fair	Poor to fair
1162	Ponderosa Pine	( <i>Pinus ponderosa</i> )		4	5	Fair	Fair
1164	Incense Cedar	( <i>Calocedrus decurrens</i> )		8	8	Fair	Fair
1170	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	6	Fair	Fair
1171	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
1172	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	4	Fair	Fair
1173	Black Oak	( <i>Quercus velutina</i> )		18	21	Poor to fair	Fair
1175	Sugar Pine	( <i>Pinus lambertiana</i> )		5	5	Fair	Fair
1181	Sugar Pine	( <i>Pinus lambertiana</i> )		6	6	Fair	Fair
1182	Ponderosa Pine	( <i>Pinus ponderosa</i> )		4	5	Fair	Fair
1183	Sugar Pine	( <i>Pinus lambertiana</i> )		7	8	Fair	Fair
1185	Sugar Pine	( <i>Pinus lambertiana</i> )		5	5	Fair	Fair
1186	Ponderosa Pine	( <i>Pinus ponderosa</i> )		9	9	Poor to fair	Poor to fair
1188	Sugar Pine	( <i>Pinus lambertiana</i> )		7	8	Fair	Fair
1189	Sugar Pine	( <i>Pinus lambertiana</i> )		8	8	Fair	Fair
1195	Ponderosa Pine	( <i>Pinus ponderosa</i> )		8	9	Fair	Fair
1196	Ponderosa Pine	( <i>Pinus ponderosa</i> )		5	5	Fair	Fair
1197	Ponderosa Pine	( <i>Pinus ponderosa</i> )		7	8	Fair	Fair
1198	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	9	Fair	Fair
1203	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	10	Fair	Fair
1205	Ponderosa Pine	( <i>Pinus ponderosa</i> )		11	13	Poor	Fair
1207	Incense Cedar	( <i>Calocedrus decurrens</i> )		5	5	Fair	Fair
1208	Ponderosa Pine	( <i>Pinus ponderosa</i> )		6	7	Fair	Fair
1211	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	5	Fair	Fair
1215	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
1216	Black Oak	( <i>Quercus velutina</i> )		7	14	Fair	Fair
1217	Incense Cedar	( <i>Calocedrus decurrens</i> )		6	6	Fair	Fair
1218	Incense Cedar	( <i>Calocedrus decurrens</i> )		4	4	Fair	Fair

Trees Identified with  
Square tags w/ orange flagging

SECTION 02150

TREES TO BE REMOVED

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
1230	Ponderosa Pine	<i>(Pinus ponderosa)</i>		13	12	Fair	Fair
1231	Ponderosa Pine	<i>(Pinus ponderosa)</i>		4	5	Poor to fair	Fair
1232	Ponderosa Pine	<i>(Pinus ponderosa)</i>		4	5	Fair	Fair
1233	Ponderosa Pine	<i>(Pinus ponderosa)</i>		4	5	Fair	Fair
1237	Ponderosa Pine	<i>(Pinus ponderosa)</i>		44	28	Fair	Fair
1246	Ponderosa Pine	<i>(Pinus ponderosa)</i>		29	28	Fair	Fair
Field Point #							
10094	15" PINE	Not in tree surveys				STA 108+12	
9822	8" CEDAR	Not in tree surveys				STA 72+70	
9683	11" PINE	Not in tree surveys				STA 37+46	

**SECTION 02200**  
**STRUCTURE EXCAVATION AND BACKFILL**

**1.0 GENERAL**

1.1 Scope - This section shall govern the work for structure excavation and backfill; refer to Section 02315 for open-cut trenches. Structure excavation shall consist of removing material for construction of foundations, vaults, manholes, and other structures and as otherwise designated on Plans or by Specifications. Structure excavation and backfill shall include furnishing of all materials and equipment, construction or installation of all facilities which may be necessary to perform excavations and place and compact backfill, and the subsequent removal of sheeting, shoring and bracing and other temporary facilities, except where they are required or permitted to remain in place by District.

1.2 Submittals - The following items shall be submitted for District's approval in accordance with Section 00700-7.16 and Section 00800 SC-7.20:

- A. Lab gradation, durability and sand equivalent of import materials.
- B. CAL-OSHA permit for sheeting, shoring, bracing plans for trenches and other excavations five (5) feet or more in depth into which workers enter.

**2.0 MATERIALS**

2.1 Excavation is unclassified; Contractor shall make own estimate of soil conditions, extent various materials may occur and complete excavations for all soil types. The Contractor shall be responsible for the stability of all temporary excavations and shall comply with applicable CalOSHA regulations (California Construction Safety Orders). The Contractor shall determine the soil type and requirements for temporary cutslope inclinations during excavation. All open cuts should be regularly monitored for evidence of incipient stability failures. Permanent cutslopes up to 10 feet high may be constructed with inclinations as steep as 2:1 (H:V). Contractor is also referred to the Geotechnical Reports included in the Appendix of this Project Manual.

It is assumed that rock and cobble is commonly encountered in local geology and occurs within the designated project area. No extra payment will be made for changed soil conditions for mechanical excavation unless hydraulic hammering is shown to be infeasible and controlled blasting must be used for removal.

2.2 Backfill materials shall be as follows:

- A. Class 2 Aggregate Base meeting material requirements of Section 26 of State Standards for ¾" Maximum Grading, 25 min. sand equivalent, 35 min. durability index, and 78 min R-value; no recycled materials.
- B. Select Native Material free of organics, large rocks, debris and other deleterious materials with following grading unless otherwise allowed by the District:

<u>Sieve Size</u>	<u>% Passing</u>
4"	100
3"	95-100
#4	45-100
#200	0-35

- C. Crushed rock shall be clean natural material, 1" x No.4 grading conforming to State Standards Section 90 or other acceptable material approved by District.
- D. Geotextile Fabric - Mirafi 160N, nonwoven, 160-lbs grab tensile strength per ASTM D4632 and 410-lbs puncture strength per ASTM D6241.

### 3.0 EXECUTION

3.1 Pavement - Bituminous or concrete pavements, regardless of thickness, and curbs and sidewalks shall be saw cut prior to removal in accordance to encroachment permit requirements or otherwise as required by the District. Pavement and concrete waste materials shall be removed from the site.

3.2 Excavation - The sides of excavations for structures shall be sufficient to leave at least 1.5 foot clear, as measured from the extreme outside of form work on the structure. Soil loosened during excavation or any other soft or loose soil remaining after excavation and beneath proposed fills and structural improvements shall be removed and replaced with properly compacted engineered fill. Soft ground conditions may be anticipated along the proposed improvements where there is a natural depression in the ground surface. Subgrade preparation in these areas shall include over-excavation and recompaction of at least the top 1 foot of existing soil subgrades shall be approved by the Engineer prior to compacting and covering them. Where excavation is inadvertently carried below designated elevations, suitable provision shall be made at the expense of the Contractor for adjustment of construction, as directed by the District, to meet requirements incurred by the deeper excavation. No earth backfill will be permitted to correct overdepth excavation beneath structures, and such locations shall be rectified by backfilling with sand, graded gravel, or concrete as directed by the District.

3.3 Bracing - Excavations shall be adequately supported and sheeting, shoring and bracing provided for worker safety as required by CAL-OSHA; safety plans shall meet minimum requirements of CAL-OSHA Construction Safety Orders Sections 1539-1543. Excavations shall be so braced, shored, and supported that they will be safe, such that walls of excavations do not slide or settle and all existing improvements of any kind, either on public or private property, will be fully protected from damage. The shoring and bracing shall be arranged so as not to place any stress on portions of the completed work. Contractor shall carefully remove shoring, bracing and timbering to prevent the caving or collapse of the excavation faces being supported.

3.4 Dewatering - Contractor shall not allow water to rise in excavations or while backfilling the structure, and shall provide and maintain means and devices to continuously remove and dispose of all water entering excavations during construction and backfill operations. Surface drainage shall be provided to reduce ponding and rain surface water away from foundations, structures and edges of pavement. Surface runoff shall be directed toward suitable collection or discharge facilities. Water shall be disposed of in a manner that does not damage adjacent property and is done in compliance with discharge permits. Contractor shall comply with Waste Discharge Requirements, General Order for Dewatering and other Low Threat Discharges to Surface Waters as issued by the Central Valley Regional Water Quality Control Board.

3.5 Backfill - Filter fabric and crushed stone leveling course shall be placed under structures on undisturbed, firm and dry native subgrade as inspected and approved by the District. Class 2 A.B shall be used as backfill around immediate perimeter of structures, adjacent to sidewalks, and within 2-feet of structure; select native material may be suitable outside these limits if not within road or trench sections. After structures and foundations are in place, backfill shall be placed as required for finished grade or otherwise to return to original grade. Backfill shall be placed in horizontal loose lifts not exceeding eight (8) inches in depth and compacted with specified effort. Until reaching 2,500-psi compressive strength, no material shall be deposited against cast-in-place concrete structures.

3.6 Compaction - Backfill material shall be compacted with a level of effort to achieve 95% relative compaction per ASTM D1557. Each layer of backfill material shall be moisture conditioned to near optimum moisture content, placed in loose lifts 8-inches in depth, and thoroughly compacted to the specified relative density. District may have a qualified soils technician present to observe placement methodology and test compaction is achieving the required density. All areas of material placement failing compaction tests shall be removed, material replaced and re-compacted until obtaining the specified relative compaction.

3.7 Excess Excavated Material - Contractor shall remove and dispose of all excess excavated material; all surplus/waste excavated material shall be property of Contractor and disposed of offsite. No excavated material shall be deposited on private property unless written permission from the owner(s) thereof is secured by the Contractor; a County grading permit is required for placement of material on private property. The

Contractor shall submit a written release signed by all property owners with whom Contractor has entered into agreements for disposal of material, absolving the District from any liability connected therewith.

3.8 Restoration of Damaged Surfaces and Property - Any existing improvements, facilities, vegetation, fences, roads, sidewalks, gutters, or other improvements not designated to be demolished that have been removed, damaged, or disturbed by the Contractor's activities, for whatever reason, shall be replaced or repaired at the expense of the Contractor and to the satisfaction of the property Owner and/or District.

3.9 Final Clean-up – Unless other specific surface improvements are shown on the plans or specified, the right-of-way shall be thoroughly cleaned and restored to pre-construction condition or better and left in a neat and presentable condition according to encroachment permit requirements and satisfaction of the Owner's representative and/or the District.

**- END OF SECTION -**

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**SECTION 02315  
TRENCH EXCAVATION, BACKFILL AND COMPACTION**

**1.0 GENERAL**

- 1.1 Scope - This section governs the work for trench excavation, backfill and compaction for underground pipeline work.
- 1.2 Submittals - Upon request, submit the following items for District approval in accordance with Section 00700-7.16 and Section 00800 SC-7.20:
- A. Lab tests for backfill gradation, durability and sand equivalent.
  - B. CAL-OSHA permit for sheeting, shoring and bracing plans for trenches and other excavations five (5) feet or more in depth into which any workers enter.

**2.0 MATERIALS**

- 2.1 Excavation is unclassified; Contractor shall make own estimate of soil conditions, extent various materials may occur and complete excavations for all soil types. It is assumed that rock and cobble is commonly encountered in local geology and occurs within the designated project area. No extra payment will be made for changed soil conditions for mechanical excavation unless hydraulic hammering is shown to be infeasible and controlled blasting must be used for removal.
- 2.2 Pipe Zone Backfill - Limits of pipe zone backfill are designated on Detail G05 (Appendix A) and shall consist of the following material:
- A. Class 2 Aggregate Base meeting material requirements of Section 26 of the State Standards with 3/4" Maximum Grading, 25 min. sand equivalent, 35 min. durability index, and 78 min. R-value; no recycled materials.
- 2.3 Initial & Final Backfill – As designated limits on Detail G05 (Appendix A), initial and final backfill shall be as follows:
- A. Road Sections – Class 2 A.B. as defined above including structural section under pavement and along adjacent unpaved road shoulder within five (5) feet of edge of pavement.
  - B. Non-Roadway – Select native or imported material free from organics, large rocks, debris and deleterious substances with following gradation:

<u>Sieve Size</u>	<u>% Passing</u>
4"	100
3"	95-100
#4	45-100
#200	0-35

- 2.4 Slurry Backfill – Two (2) sack cement/sand slurry, a.k.a controlled density fill, shall be transit mix consisting of 188 lbs/cy Type II Portland cement, 55 to 60 gal/cy clean water, maximum 1.5% entrapped air and at least 2,900 lbs/cy fine aggregate conforming to State Standard Specification, Section 90 for Portland Cement Concrete. Extra water may be added at the job site to obtain a higher slump and flowable consistency.
- 2.5 Warning Tape – 3" wide warning tape marked as follows:  
Water, Colored Blue marked "CAUTION / WATER LINE BURIED BELOW"  
Sewer, Colored Green marked "CAUTION / SEWER LINE BURIED BELOW"
- 2.6 Tracer Wire – #12 AWG, Type UF with 3M Direct Bury (DBR) Splice Kit or equal.

### 3.0 EXECUTION

3.1 Excavation - Excavation for pipelines, fittings and appurtenances shall be open trench to depth and in direction necessary for the proper installation as shown on the contract drawings or as otherwise approved by District. Excavation shall only proceed when the necessary materials have been delivered to the site.

The Contractor shall remove obstructions within the trench area or adjacent thereto, such as abandoned concrete structures, logs, and debris of all types, without additional compensation. The District may, if requested, make changes in the trench alignment to avoid major obstructions. The Contractor shall bear all costs of disposing of roots and all other waste materials from the excavation. Material shall be disposed of offsite at Contractor's expense.

Contractor shall be responsible for marking all excavations and notifying Underground Service Alert (USA) North at least 48-hours before digging, and follow all other provisions of California Government Code Section 4216 through 4216.9. Contractor shall maintain an active USA North ticket number for the entire duration of the excavation.

- A. Existing Pavement Removal - Pavement shall be removed and replaced in manner prescribed by the Agency issuing the encroachment permit. Existing pavement, curbs, gutters, sidewalks and driveways to be removed shall be neatly saw cut prior to removal. Saw cuts shall have a minimum depth of 1-inch in concrete sidewalk. Concrete sidewalks or driveways shall be removed so that a minimum of a 30-inch square is replaced. If the saw cut in a sidewalk or driveway would fall within 30 inches of a construction joint, expansion joint, or edge, the concrete shall be removed and replaced to the joint or edge. If the saw cut would fall within 12 inches of a score mark, the concrete shall be removed and replaced to the score mark. Concrete shall be removed by jackhammer.
- B. Grading and Stockpiling - The Contractor shall control grading and trenching in a manner to prevent water running into excavations. The excavated material shall be carefully controlled on the site or removed from the site to a designate staging/stockpiling area. Excavated material shall not enter drainages and obstructions of surface drainage avoided, prevented and means provided whereby storm and wastewater can be uninterrupted in existing gutters, other surface drains, or temporary drains. Material for backfill or for protection of excavation in public roads from surface drainage shall be neatly placed and kept shaped so as to cause the least possible interference with public travel. Free access must be provided to all fire hydrants, water valves, meters, and private drives.
- C. Line & Grade - Contractor shall excavate trench to line and grade shown on plans; any deviations shall first be approved by the District. The trench shall be excavated to minimum depth of 6 inches below the bottom of the pipe with trench sidewalls maintained nearly vertical as is practical.
- D. Trench Support – Trenches and excavations shall be adequately supported and sheeting, shoring and bracing provided for worker safety as required by CAL/OSHA; safety plan shall meet minimum requirements of CAL/OSHA Construction Safety Orders Sections 1539-1543.

The Contractor shall be responsible for adequately shored and braced excavations so that the earth will not slide, move, or settle, and so that all existing improvements of any kind will be fully protected from damage.

No shoring, once installed, shall be removed until the trench has been approved for backfill operations. Removal of shoring shall only be accomplished during backfill operations and in a manner as to prevent any movement of the ground or damage to pipe or other structures.

Contractor shall obtain all permits for any excavations over five (5) feet in depth into which a person is required to descend or any excavation less than five (5) feet in depth in soils where hazardous ground movement may be expected and into which a person is required to descend.



Excavated material shall not be placed closer than two (2) feet from the top edge of the trench. Heavy equipment should not be used or placed near the sides of the trench unless the trench is adequately braced.

- E. Blasting - Blasting for excavation shall not be permitted without the written approval of the District and Caltrans and only after securing the required permits. After securing all necessary permits, the Contractor shall notify the District a minimum of two (2) week in advance of any proposed blasting dates including notifying the proper representatives of jurisdictional agencies and individuals which may have property within at least 600 feet of the construction zone or within an area in which damage could occur. Subsequent follow up notifications to local property owners shall be made at least 24 hours in advance of each scheduled blasting event.

Procedures and methods for blasting shall conform to all Federal, State, and local laws and ordinances. The Contractor shall designate, in writing, a single qualified and responsible individual as the Powder Foreman. Carelessness or incompetency by the Powder Foreman shall be grounds for immediate removal from said position or responsibility, and the Powder Foreman shall not be permitted to handle or use explosives on the remainder of the project.

The Contractor is responsible to provide a power source adequate for detonation of the explosive charges consistent with the accepted standard practices involving electric detonation of explosives. Priming of all explosives shall be with electric detonators of sufficient size to ensure efficient and complete detonation of the explosive charge. All charges consisting of more than one hole shall be wired either as series or series-parallel. Straight parallel hookups will not be permitted.

Excessive blasting will not be permitted, and any material outside the authorized cross section which may be loosened or shattered by blasting shall be removed.

Blasting should be highly controlled to prevent causing damage to any person, vehicles, building, existing utilities, structures or private property and blasting mats used if flying rock might occur. All traffic shall be stopped from entering the blasting area and all persons evacuated/removed a safe distance from the area prior to blasting. The District Engineer shall have authority to require the Contractor to discontinue any method of blasting which leads to overshooting, is dangerous to the public, or is destructive to property or natural features.

- F. Preservation of Trees - Excavation within the dripline of any tree shall conform to the project's environmental document and mitigation, monitoring and reporting program and encroachment permit requirements. Tree and stump removal shall be performed were trees are shown on the project drawings in the trench alignment or as otherwise specified in the Contract Documents. Before removing any trees, a bird survey must be performed to certify no nesting birds are present in the vicinity or that any nesting birds in the vicinity are given a suitable non-disturbance buffer from construction activities.
- G. Dewatering - Contractor shall provide and maintain all necessary means and devices to continuously dewater excavations during construction and not let water rise in trenches until work is completed and backfilled. Water shall be disposed of in a manner that avoids damage to adjacent pipe trenches and property and is done in compliance with all Federal and State laws and regulations governing disposal of water from construction dewatering operations. The Contractor shall comply with Waste Discharge Requirements, General Order for Dewatering and other Low Threat Discharges to Surface Waters as issued by the Central Valley Regional Water Quality Control Board.
- H. Overexcavation - Any overexcavation carried below the grade or beyond the trench width, as specified or shown, shall be rectified by backfilling with approved sand and/or graded gravel and shall be compacted as directed by the District.

- I. Structure Protection - Temporary support, adequate protection, and maintenance of all underground and surface structures, drains, sewers, and other utilities encountered in progress of work shall be furnished by Contractor at its expense and subject to District's approval. Any structure or utility that has been disturbed shall be restored upon completion work.
- J. Protection of Property and Surface Structures - Trees, shrubbery, fences, poles, and all other property and surface structures shall be protected unless their removal is shown on the drawings or authorized by the District Engineer.
- K. Trench Width - The width of the trench within the pipe zone shall be such that the clear space between the barrel of the pipe and trench wall shall not exceed the amount shown in Detail G05. In general, the following dimensions shall be apply:

Nominal Pipe Diameter	Trench Width	
	Minimum	Maximum
Dia. < 10"	OD + 12"	OD + 18"
Dia. ≥ 10"	OD + 18"	OD + 24"

Trench widths at joint bells and fittings shall be increased from the outside diameter to obtain minimum width stated above; obtain District approval for widths in excess of those tabulated above.

- L. Maximum Length of Open Trench - Except as approved and authorized by the encroachment permit (Caltrans and Public Works), no open trench will be permitted to remain open within the highway pavement and/or paved roads or adjacent highway and road shoulders that are accessible to traffic and public. If excavations are permitted, by encroachment permit or permitting agency, to remain open within the right-of-way, the Contractor shall provide all necessary barricades, k-rails, traffic rated plates, signage and other traffic controls (meeting Caltrans standards and requirements) to protect traffic, the public and worker safety. Otherwise, in areas not readily accessible to traffic or public access, the maximum length of open trench shall be 500 feet or the distance necessary to accommodate daily work, whichever is less. The distance is the collective length of any location, including open excavation, pipe laying, and appurtenant construction and backfill that has not been temporarily resurfaced. Unless otherwise authorized by the District, all open trench shall be closed within 24-hours. No open trench will be allowed to remain open in wet weather from November to April. Any/all open trenches that are unattended by the Contractor shall be properly secured and covered with steel trench plates, barricaded and fenced off including appropriate temporary signage, cones, and other warning devices to assure public safety. Failure by the Contractor to comply with requirements herein may result in an order to stop work until compliance has been achieved.

3.2 Trench Foundation - The trench bottom shall be graded to provide a smooth, firm, and stable foundation at every point throughout the length of the pipe. Should large gravel and cobbles be encountered at the trench bottom or pipe subgrade, they shall be removed from beneath the pipe and replaced with a uniform, compacted layer of pipe zone material to provide a firm, stable foundation for pipe laying.

- A. Foundations in Poor Soil - If excessively wet, soft, spongy, unstable, or similarly unsuitable material is encountered at the surface upon which the bedding material is to be placed, the unsuitable material shall be removed to a depth as determined in the field by the District. The trench bottom shall be stabilized as shown on Detail G05A as per the District's direction. The Contractor's attention is called to Section 3.1G regarding its responsibilities in maintaining adequate dewatering procedures to ensure that an otherwise stable foundation will not be rendered unfit due to accumulation of water.

3.3 Backfill and Compaction - Backfill shall be completed within the shortest possible time so that the construction area or street can be opened to traffic. If for any reason construction of the pipeline or appurtenances thereto is delayed, the District may require that the trench be backfilled and such areas or streets opened to traffic.

A. Pipe Zone - After completion of the trench excavation and proper foundation preparation, 6-inches of bedding shall be placed on the trench bottom for support under the pipe. Bell holes shall be dug to provide adequate clearance between the pipe bell and bedding material. All pipes shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade and joint is made, the remainder of pipe bedding shall be placed to the limits as shown on the Project Drawings and Details.

All bedding material shall be compacted 95% relative compaction. The bedding and backfill shall be brought to optimum moisture content and placed by hand in layers not exceeding 3 inches in thickness to the centerline (springline) of the pipe. Each layer shall be solidly tamped with the proper tools so as not to injure, damage, or disturb the pipe.

Backfilling shall be carried on simultaneously on each side of the pipe to assure proper protection of the pipe. Each lift shall be "walked in" and supplemented by slicing with a shovel to ensure that all voids around the pipe have been completely filled. Mechanical compaction such as "pogo sticks" or "wackers," as approved, shall be used for pipe zone compaction.

B. Initial Backfill - The remaining portion of the trench shall be backfilled, compacted, and/or consolidated by approved methods to obtain the relative compaction shown on Detail G05.

When backfill is placed mechanically, the material shall be pushed onto the slope of the material previously placed and allowed to slide down into the trench. Contractor shall not push backfill into the trench in such a way as to permit free fall of the material until at least 18 inches of cover is provided over the top of the pipe. Under no circumstances shall sharp, heavy pieces of materials or rocks be allowed to be dropped directly onto the pipe or the tamped material around the pipe. Backfill shall be placed in loose lifts not exceeding 8 inches and compacted by an approved method.

Heavy-duty compacting equipment having an overall weight in excess of 125 pounds shall not be used until backfill has been completed to a depth of 2 feet over top of the pipe. If hydro-hammer is used for compaction of overlying materials, at least 4 feet of backfill must be placed over top of the pipe prior use; this is to ensure that the pipe is not damaged.

C. Final Backfill - Final backfill placed in trenches below roadways or below shoulders of roadways shall be compacted to obtain the relative compaction shown on Detail G05. Backfill shall be placed in loose lifts not exceeding 8 inches, compacted, and brought up to the subgrade of the roadway.

D. Excess Excavated Material - Contractor shall make arrangements for and remove and dispose of all excess excavated material. All surplus material shall become the property of Contractor and disposed of offsite. No excavated material shall be deposited on private property unless written permission from the owner thereof is secured by the Contractor. Before the District will accept the work as being completed, the Contractor shall file a written release signed by all property owners with whom it has entered into agreements for disposal of excess excavated material, absolving the District from any liability connected therewith.

3.4 Restoration of Damaged Surfaces and Property - If any existing improvements, facilities, or vegetation not designated to be removed have been damaged, removed, or disturbed by the Contractor, for whatever reason, such improvements, facilities, and vegetation shall be replaced or repaired at the expense of the Contractor.

3.5 Final Clean-Up - Right-of-way shall be restored to pre-construction condition or better and left in a neat, presentable condition to satisfaction of District and terms and conditions of the encroachment permit.

**- END OF SECTION -**

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**SECTION 02400  
STEEL PIPE BORING AND JACKING**

**1.0 GENERAL**

1.1 Scope - This specification governs the furnishing and installing of steel casing pipe by boring and jacking, including the installation of the carrier pipe as shown on the Project Detail. All incidentals and appurtenant operations necessary for the construction of the casing and pipe installation shall be done in strict accordance with the drawings, applicable permits, and other conditions of the contract. Should there be conflicts between this specification and the governing agency, the more restrictive condition shall apply.

The Contractor shall furnish all equipment, tools, labor, and materials required for the construction as shown and specified. The Contractor shall be responsible for all material furnished by it and replace at its own expense should materials be defective in manufacture or damaged in delivery or installation; this shall include all associated labor and equipment to furnish and replace the defective materials.

1.2 Submittals – Prepare submittals according to Sections 00700-7.16 and 00800-SC-7.20 and as required by the Caltrans Encroachments Permit Manual, Chapter 600. Among other items include: A) general description of work and materials, B) pit shoring plans, calculations and OSHA permit, C) dewatering plan and permits, D) temporary traffic control plan, and E) survey grid and monitoring plan for ground surface movement (settlement or heave) during drilling operations.

1.3 Permits – The Contractor shall secure all permits required for construction of casing and carrier pipe installation. All work shall conform to specifications and requirements of the State of California, Department of Transportation (CalTrans), Encroachment Permits Manual Chapter 600 and specific terms and conditions of the issued encroachment permit.

1.4 Safety – The Contractor shall obtain a project permit or have an applicable annual permit for excavations for the subject work in conformance with California Occupational Safety and Health (Cal-OSHA) regulations. Bore and receiving pits shall be sheeted, shored and braced in accordance to the Department of Industrial Relations, Division of Industrial Safety, Construction Safety Order, Article 6, Excavations (Section 1539-1543).

**2.0 MATERIALS**

2.1 General – All materials shall be new conforming to the following requirements:

ITEM	DESCRIPTION	MANUF./MODEL
Carrier Pipe	Restrained Joint Ductile Iron Pipe, Pressure Class 350 per AWWA C150 and C151	U.S. Pipe TR-Flex, American Flex-Ring or equal
Steel Casing	ASTM A252, A139 or A53, minimum 35,000-psi yield strength and minimum 0.25-inch wall thickness	
Skids	Non-metallic casing spacers/insulators, polyethylene or polypropylene (with minimum 3,000 psi compressive strength ASTM D693 and minimum 1.1 ft-lbs/inch impact strength ASTM D-256). All hardware to be stainless steel.	GPT Industries Ranger II, Calpico PX-SS or equal
End Seals	Wrap around with self-adhering seam or slip-on boot, 1/8-inch thick synthetic rubber, stainless steel bands with worm screws	GPT Industries, Calpico, or equal

2.2 Grout Ports - For casing sizes 30-inch and larger, grout ports shall be provided; location and spacing of the ports shall be approved by the District.

2.3 Grout - Grout shall consist of one part Portland cement, water, and four parts sand. Sand shall have fineness 100% passing standard 8-mesh sieve and at least 45%, by weight, passes the 40-mesh sieve.

2.4 Sand Fill - For filling annual space/void between carrier and casing shall be dry blown silica sand consisting of not less than 97% by weight kiln dried silicon dioxide with 100% passing #30 mesh (500 micron) sieve and not more than 3% passing #200 mesh (53 micron) sieve. Cal-Silica, Unimin or equal.

### 3.0 EXECUTION

3.1 Bore and Receiving Pits – Pits shall conform to requirements of the Caltrans Encroachment Permits Manual, Chapter 600. The excavation for boring operations shall be adequately shored to safeguard existing surface improvements and substructures and to ensure against ground movement. Pits shall not affect any State facilities, or create a hazard to the traveling public. Pits must be located as far from the traveled way as feasible and, typically, a minimum 10 feet minimum from the edge of pavement. Shoring of pits located within 15 feet of lanes must not extend more than 36 inches in height above the ground level. Damage to State facilities shall be replaced in-kind or repaired to their original state.

The foundation of the approach pit shall be prepared to provide firm support for the guide rails and boring machinery. Pits shall be of sufficient size to allow the insert of the lengths of casing pipe. All rails and support members shall be anchored to ensure that the action of the jacks is in line with the axis of the casing. All pits shall have a crushed rock and sump areas to clear groundwater and water used to clean the casings; pits shall be lined with filter fabric when groundwater is found and pumping is required.

All pits shall be fenced and/or Type-K railing barrier placed for protection; Type-K railing shall be placed at a 20:1 taper or as otherwise directed by the Caltrans' representative. Pits to be left, open overnight shall have a 6-foot high fence, in panel sections, securely fastened together for pedestrian safety. Reflectors shall be secured to the side of the fence that faces traffic.

3.2 Alignment and Grade - Where tolerances are not shown on the plans, the horizontal tolerance for pressure and gravity pipeline shall be 1% left or right, from the survey line. Vertical tolerance for pressure pipelines shall be 1% up or down from the grade line. No vertical tolerance is allowed for gravity flow pipelines. Corrections for faulty grades shall be approved by the District.

3.3 Pipe Casing - Casing sections shall be joined by full-circumference butt welding in the field. Grade and alignment are to be checked after each section is installed. The end of the steel casing pipe shall be kept 6 to 8-inches immediately behind the cutterhead of the boring machine. The bored hole shall have a diameter no greater than one (1) inch larger than the steel casing pipe.

3.4 Grouting - Immediately after completion of jacking and boring operations, lean grout shall be injected through the grout connections of casings 30 inches and larger in a manner to completely fill all voids outside the casing in the bore hole. Grout pressure is to be controlled to maximum 5-psig for duration sufficient to fill all voids but not cause excessive pressure to deform the casing and/or surrounding ground movement. After grouting, the grout connections shall be closed with cast-iron threaded plugs. For casings smaller than 30 inches, all voids shall be grouted from ground surface.

3.5 Carrier Pipe Installation - The carrier pipe shall be pushed into the casing pipe using skids in accordance with the detail. The skids/runners shall be centered and restrained in order to secure the carrier pipe from "floating" and subsequent loss of grade when the annular space between the casing pipe and the carrier pipe is filled. Before backfilling the annular space, the carrier pipe shall pass initial pressure and leakage tests. Tracer wire shall be installed inside the casing with the carrier.

3.6 Sand Fill – The annular space/void between the casing and carrier pipe and shall be filled with dry air blown sand.

3.7 Sealing Ends of the Casing - The annual spaces at the ends of the casing shall be sealed with a seamless rubber shroud.

3.8 Closing Pits - After jacking equipment and muck from the tunnel have been removed from the approach trench of the jacking pit, the Contractor shall prepare the bottom of the jacking pit as a pipe foundation. Loose and disturbed material below pipe grade to undisturbed earth shall be removed and then replaced and the entire pit (both jacking and receiving pits) backfilled in 8-inch lifts and compacted to minimum 90% relative compaction.

**- END OF SECTION -**

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**SECTION 02450**  
**HORIZONTAL DIRECTIONAL DRILLING**

**1.0 GENERAL**

1.1 Scope – This specification governs the furnishing and installing of four (4) inch diameter high density polyethylene pipe (HDPE) by horizontal directional and drilling (HDD) methods. The 4 inch diameter HDPE shall serve as a casing pipe for the installation of two (2) inch diameter water service lines across State Route 4. All incidentals and appurtenant operations necessary for the HDD construction of the HDPE casing pipe and for installation of water service lines within the casing pipe shall be done in strict accordance with the Plans, applicable permits and other conditions of the contract. Should there be conflicts between this Specification and the governing agency, the more restorative conditions shall apply.

The Plans indicate the alignment, grades and limits of piping and appurtenances. The indicated locations shall be followed as closely as is practical. The Contractor shall anticipate that the actual installation, while conforming to the Plans may need to be varied to fit conditions prevailing at the time of construction.

The Contractor shall furnish all equipment, tools, labor and materials required for the construction as shown and specified. The Contractor shall be responsible for all material furnished by it and replace at its own expense should materials be defective in manufacture or damaged in delivery or installation; this shall include all associated labor and equipment to furnish and replace the defective materials.

1.2 Submittals – Prepare submittals according to Sections 00700-7.16 and 00800-SC-7.20 and as required by the Caltrans Encroachments Permit Manual, Chapter 600 and the Encroachment Permit obtained by the District for this Project. Among other items include:

- A). General description of work and materials
- B). Manufacturer’s literature and descriptive data for:
  - 1. Drilling, reaming, pulling and locating equipment; and
  - 2. Drilling fluid mixing and handling equipment
- C). Provide product information and Material Safety Data Sheets for drilling fluid components and additives. Identify water source.
- D). Submit calculations of anticipated maximum pullback loads on HDPE pipe demonstrating that maximum allowable stress and load specified by the pipe manufacturer shall not be exceeded during installation.
- E). Submit unstamped HDD working drawings that contain plans, profiles and details identifying Contractor’s proposed configuration of the HDD conductor casing. Identify any proposed revisions to the contract plans, profiles and details. Identify proposed field cuts of pipes.
- F). Submit casing installation plans describing the procedures, guidance control and equipment for installing casings. Identify proposed methods of preventing drill components, tooling and pipe from getting hung up on the edges of the casing during drilling, reaming and pullback.
- G). Submit Site Utilization Plans (SUPs) showing the layout of the HDD work, each location. The SUPs shall show the Contractor performing the HDD work within the areas shown on the drawings and included in the permits obtained for the work. The SUPs shall show Contractor’s proposed locations for the following items:

1. Limits of HDD excavations;
  2. Drilling, reaming, pulling and locating equipment;
  3. drilling-fluid storage, mixing and delivery equipment and related components;
  4. secondary containment measures at the entry and exit pits and around the drill rig;
  5. transport routes and parking places for trucks supplying and removing drilling fluid;
  6. erosion prevention, sediment control and other pollution-prevention measures;
  7. pipe lay-out and assembly areas;
  8. materials storage areas; and
  9. other dedicated areas required to perform HDD activities.
- H). Submit a Drilling Fluid Management Plan containing the following information:
1. Describe drilling-fluid primary and secondary containment methods and, if applicable, recycling method.
  2. Describe procedures for disposing of drilling fluid, cuttings and water. Identify disposal sites and provide documentation showing written permission to use those disposal sites.
  3. Describe procedures for anticipating the potential for drilling-fluid related problems. Identify the maximum production rate and pressure. Describe the method for continually monitoring fluid properties and pressure during drilling and pullback operations.
  4. Describe contingency plans and emergency procedures for containing, remediating and correcting any unplanned release of drilling fluid.
- I). Submit a Pullback Plan identifying the pullback procedure and showing the general pullback arrangement plan.
1. Identify the capacity, show the location and describe moving and setup requirements for the pullback equipment.
  2. Identify control methods to prevent the maximum allowable force from being exceeded.
  3. Provide details of handling equipment for joined pipe, including size, capacity, type of roller supports and support spacing.
- J). Submit a Contingency Plan outlining the corrective and remedial actions proposed for potential situations that may occur during HDD operations. Describe which operating parameters shall be observed, measured and recorded to determine if each situation is occurring or has occurred. The plan shall address, as a minimum, the following conditions:
1. Installation forces start to move up rapidly and reasonable concern exists for completing construction.
  2. HDPE casing cannot be installed to the length shown or refusal is reached before the casing is fully installed.
  3. Drill head or other component encounters obstruction(s) and bore cannot be advanced or alignment cannot be maintained.
- K). Schedule - The Project Work Schedule shall include the following HDD tasks with dates and durations:
1. HDD mobilization and installation of environmental controls
  2. Preparation of entry and exit areas and equipment set-up
  3. Pilot hole drilling, reaming, pipe assembly and pipe pulling
  4. Pipe testing
  5. HDD demobilization and backfilling of entry and exit areas

- L). Submit the following data no more than 5-days after a installing the HDD conduits:
1. Provide raw pilot-hole data showing steering and surface monitoring system readings.
  2. Provide a tabulation of coordinates accurately describing the location of the pilot hole at a maximum spacing of 25 feet referenced to the drilling entry point.
  3. Provide a plot of all readings recorded during HDD operations showing thrust, torque, pull-back load and fluid flow rate recorded at maximum intervals of 25 feet along pipe.
  4. Provide documentation for each heat-fused joint showing plate temperatures, times, pressures and other information required to be collected as part of the pipe manufacturer's procedure for joining the pipe.

1.3 Quality Control

- A). The Contractor shall have a minimum 5 years of experience in pipe installations by HDD and shall have successfully completed at least five separate HDD projects that each required installation of pipe with a minimum diameter of 4 inches and a minimum length of 50 feet.
- B). Contractor's superintendent shall have at least eight years of experience in trenchless pipeline installations and shall have been superintendent on at least two projects in the last 5 years using the types of HDD equipment the Contractor is using on this project.
- C). Operators of HDD equipment on this project shall have at least five years of experience in trenchless pipe installations and shall have worked on at least two projects in the last 5 years using the types of HDD equipment the Contractor is using for his project.
- D). Conduct potholing and take field measurements to establish actual locations of existing pipes and other existing conditions. Coordinate the work specified in this section with the requirements specified and shown for the manholes, piping systems and other components.

1.4 Delivery and Storage

- A). Handle, store and join pipe according to the manufacturer's recommended procedures and in a manner that protects the dimensional integrity of the pipe.
- B). Handle and store drilling fluid according to the manufacturer's recommendations. Drilling fluid shall be delivered to the job site and store in the manufacturer's original, sealed and labeled containers.
- C). Store materials off the ground on timbers, rails, pallets or other suitable supports. Stockpiled pipe shall be secured to prevent rolling. Damaged materials shall be replaced by the Contractor at his own expense.
- D). Keep pipe ends plugged or capped to prevent foreign material from entering the pipe, except when actual joining or installation operations require plug or cap removal.
- E). Pipe shall not be dropped, bumped, pushed or dragged along the ground. Pipe shall not be scratched or allowed to impact against other pipe or other objects.

1.5 Permits – The Contractor shall secure all permits required for the HDD construction of the HDPE casing and water service line installation. All work shall conform to specifications and requirements of the State of California, Department of Transportation (CalTrans), Encroachment Permits Manual Chapter 600 and specific terms and conditions of the issued encroachment permit (Encroachment Permit included in Appendix of Project Manual).

The Contractor shall provide a copy of the bore-log showing horizontal and vertical alignment (depth). A bore-log shall be kept for both the pilot bore and the reaming process. These records must be provided to Caltrans's representative daily. The bore-log must depict a plan profile of the actual bore path.

1.6 Safety – The Contractor shall obtain a project permit or have an applicable annual permit for excavations for the subject work in conformance with California Occupational Safety and Health (Cal-OSHA) regulations. All members of the Contractor's crew shall wear protective safety gear, (Die-Electric boots are recommended).

1.7 Caltrans Encroachment Permit Application Submittal – The permit application package shall contain the following information in support of the permit application; construction plans, site layout plans, project schedule, communication plan, safety procedures, emergency procedures, company experience record, approved contingency plans and an approved drilling fluid management plan in support of the permit application.

## **PART 2 – PRODUCTS**

2.1 Pipe for HDD Installation – Furnish 4 inch diameter HDPE Ductile Iron Pipe Size (DIPS), 200 psi minimum pressure rated pipe. Furnish equipment and qualified workers necessary to prepare and join the specified HDPE pipe.

### 2.2 HDPE Joints

- A). Use butt fusion joining technique for joining pipe segments. .
- B). When joining HDPE pipe at ends of directional drilling runs fusion bond to adjacent pipe section.
  - 1. Use butt fusion, socket fusion or electrofusion coupling joining technique.
- C). Mechanical Couplings are not permitted for joining of directional drilled pipe sections.

### 2.3 HDD Equipment

- A). Provide the equipment and related components necessary to complete the pipe installation shown using HDD methods. Follow the equipment manufacturer's written instructions during transport, setup and use.
- B). Provide equipment of the size and design required for drilling, reaming, pulling and location control.
  - 1. Provide a drill rod and steerable drill head adjustable for the project conditions.
  - 2. Drilling equipment shall have a steering system that controls line and grade in response to signals from a location control system.
  - 3. Use a location control system that provides real-time positioning and operation information to the drilling-equipment operator on a control console. The control system shall enable the operator to guide the drill head by providing immediate information on the tool face location, azimuth (horizontal direction) and inclination (vertical direction).
  - 4. Provide an active strike alert system.
  - 5. Anchor equipment to withstand the HDD pushing and pullback forces.
- C). Provide equipment and accessories required for drilling-fluid handling, mixing, delivery, secondary containment and cleanup.

2.4 Drilling Fluid - Drilling fluid shall consist of a biodegradable and nonhazardous admixture with water and shall be Bio-Bore, as manufactured by Baroid Industrial Drilling Products (Halliburton) or equal Mix drilling fluid according to the admixture manufacturer's recommendations for the anticipated soil conditions. No petroleum-based or detergent additives shall be permitted.

2.5 Tracer Wire – TW, THW, THWN or HMWPE insulated copper, 10 gage or thicker wire, per CCWD Standards.

2.6 HDD Crossing Locations – The proposed locations, HDD casing pipe and water service carrier pipe installations included in the scope of work are as follows:

Approximate Station	HDD Casing Pipe (dia)	Water Service Carrier Pipe (dia)	Length (ft)
15+40	4"	2"	60
17+66	4"	2"	60

**PART 3 – EXECUTION**

3.1 General – Install HDD casing piping across State Route 4 piping with 4 feet minimum cover as shown on the drawings. HDD cased water service lines shall extend a minimum of 10 feet beyond the edge of pavement, each side of each State Route 4 crossing.

3.2 Operation

A). General

1. Determine drilling length and equipment pull strength for type of soil encountered.
2. Provide method to control line and grade.
  - a. Provide and maintain instrumentation that accurately locates pilot hole.
  - b. Drill pilot hole along path following drawings to these tolerances:
    - 1) Vertical alignment plus or minus 0.25 feet. Vertical path of the pilot hole must not establish new high points.
    - 2) Horizontal alignment plus or minus 1.0 foot.
  - c. Include electronic monitoring of horizontal and vertical drilling head location. Obtain accuracy range within 1 inch of actual position of pipeline. Record position readings at maximum of 10 foot intervals.
  - d. At completion of pilot hole drilling, furnish Engineer tabulations of horizontal and vertical alignment.
3. When water is encountered.
  - a. Provide and maintain dewatering system of sufficient capacity to remove water.
  - b. Keep excavation free of water until backfill operation is in progress.
  - c. Perform dewatering in such a manner that removal of soils particles are held to a minimum.
  - d. Dewater into sediment trap following requirements of SWPPP.

B). Drilling Operation.

1. Drilling Fluids.
  - a. Maintain drilling fluid in bore hole to increase stability of surrounding soil and reduce drag on pulled pipe.

- b. Dispose of drilling fluid and other spoils at location following laws, ordinances, rules, and regulations of local jurisdiction.
- c. Transport excess fluids and other spoils to disposal site.
- d. Minimize drilling fluid at locations other than entry and exit points. Immediately clean up any drilling fluids that inadvertently surface.
- e. Provide clean water for drilling.

2. Pilot Hole Drilling

- a. Angle entry hole so that curvature of pilot hole does not exceed allowable bending radius of HDPE pipe.
- b. Be able to make a turn of up to 90 degrees and maintain a curvature not to exceed allowable bending radius of HDPE pipe.
- c. Alignment Adjustment and Restarts.
  - 1) Follow pipeline alignment on drawings within tolerances specified herein. Before adjustments, notify Engineer for approval.
  - 2) Notify Engineer when forward motion of operation is stopped by an obstruction.
    - a. Abandon in place with drilling fluid, unless Engineer directs otherwise.
    - b. Attempt a second installation at approved location.
  - 3) Exercise caution including, but not limited to, locating utilities, drilling downholes (test pits) to observe drill stems or reamer assembly to clear other existing utilities at locations following drawings.

3.3 Installation

A). Installing HDPE Pipe.

- 1. Provide a swivel to reaming assembly and pull section of pipe to minimize torsional stress on pull section after drilling pilot hole.
- 2. Hold reaming diameter to 1.5 times outside diameter of HDPE pipe being installed.
- 3. Protect pull section as it proceeds during pull back so it moves freely and is not damaged.
- 4. Pull detection wire along with HDPE pipe. Extend wire into locator station at each end of HDPE pipe.
- 5. When connecting to adjacent pulled or non-pulled section of HDPE pipe, allow pull section of pipe to extend past termination point. Make tie-ins the next day after pullback of HDPE pipe.
- 6. Test pit pipe installation to verify horizontal and vertical alignment.

B). HDPE Termination Stations

- 1. Field mark ends of HDPE casing as directed by Engineer.
- 2. Record coordinates of HDPE casing terminations and record measurements to reference monuments.
- 3. Tracer wire
  - a. Install detection wire without splices as shown on Standard Details.
  - b. Terminate detection wire inside locator box using proper sized crimp type connectors on wire ends.
  - c. Connect each wire to terminal maintaining at least 18 inches slack in each wire.
  - d. Neatly coil slack wire.
  - e. Locate wires on top of HDPE pipe.
  - f. Test each detection wire for continuity after backfill is completed.

- 1) If test for continuity is negative, repair or replace.
- 2) After continuity is verified, connect each detection wire to terminal block in locator station.

**- END OF SECTION -**

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**SECTION 02670  
ABANDONMENT OF FACILITIES**

**1.0 GENERAL**

1.1 Scope – This specification governs the abandonment of existing water mains. Where existing water mains are identified on the Plans to be “abandoned,” they shall be abandoned in place in accordance with these specifications. Where existing facilities are identified on the Plans to be “removed,” they shall become the property of the Contractor to be removed from the Project area and properly disposed. Excavations shall be backfilled and compacted in accordance with Specification Section 02315 of this Project Manual. Where existing facilities are identified on the Plans to be “salvaged,” they shall be salvaged to the District unless otherwise directed by the Engineer.

1.2 Abandonment of Water Mains with Installation of Abandonment Plug – Water mains to be abandoned shall be excavated to expose the ends of the main to be plugged. The existing water main to be abandoned shall be exposed at intervals not more than 500 feet. Ends of water mains exposed and abandoned shall be plugged with not less than 0.25 cu.yds. of controlled density lean mix concrete, each location. The lean mix shall be cement-sand slurry comprised of aggregate, cement and water. The aggregate, cement and water shall be proportioned by either by weight or volume. Cement used shall be 190 to 210 pounds for each cubic yard of material produced. The water content shall be sufficient to produce a fluid workable mix that will flow and can be pumped without segregation of the aggregate while being place.

After abandonment plug has been placed and the mixture allowed to cure, the excavation shall be backfilled and compacted in accordance with Specification Section 02315 of this Project Manual.

1.3 Removal of Existing Pressure Reducing Valve Stations – Unless otherwise noted on the Plans, pressure reducing valve stations to be replaced with new installations shall be completely removed from the Project site with excavations backfilled and compacted in accordance with Specification Section 02315 of this Project Manual. Salvage existing pressure reducing valves, pipes and appurtenances to the District unless otherwise directed by the Engineer.

Water mains and service lines connected to pressure reducing valve stations removed from service shall be abandoned in place as specified in this section of these specifications.

1.4 Removal of Existing Fire Hydrants, Blowoff Valves, Combination Air and Vacuum Valves, Mainline Valves – Water main appurtenances (fire hydrants, blowoff valves, combination air and vacuum relief valves, mainline valves and the like) to be replaced with new improvements shall be salvaged to the District unless otherwise directed by the Engineer. Water mains and service lines connected to water main appurtenances removed from service shall be abandoned in place as specified in this section of these specifications.

**2.0 MATERIALS**

2.1 Cement –Sand Slurry Mix – Furnish and install cement-sand slurry to plug the ends of abandoned water mains as specified in this section of these specifications.

**3.0 EXECUTION**

3.1 General - Abandon existing water mains as specified herein and as directed by the Engineer.

**- END OF SECTION -**

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**SECTION 02770  
ASPHALT CONCRETE PAVING**

**1.0 GENERAL**

1.1 Submittals: Provide the following submittal accordance in with Section 00700-7.16 and Section 00800-SC-7.20.

A. Information Submittals

1. Asphalt Concrete Mix Formula:

- a. Submit minimum of 15 days prior to start of production.
- b. Submittal to include the following information:
  - 1.) Gradation and portion for each aggregate constituent used in mixture to produce a single gradation of aggregate within specified limits.
  - 2) Bulk specific gravity for each aggregate constituent.
  - 3) Measured maximum specific gravity of mix at optimum asphalt content determined in accordance with ASTM D2041.
  - 4) Percent of asphalt lost due to absorption by aggregate.
  - 5) Percentage of asphalt cement, to nearest 0.1 percent, to be added to mixture.
  - 6) Optimum mixing temperature.
  - 7) Optimum compaction temperature.
  - 8) Temperature viscosity curve of asphalt cement to be used.

2. Test Report for Asphalt Cement:

- a. Submit minimum 10 days prior to start of production.
- b. Show appropriate test method(s) for each material and the test results.

3. Statement of qualification for independent testing laboratory.

4. Test Results:

- a. Mix design.
- b. Asphalt concrete core.
- c. Gradation and asphalt content of uncompacted mix.

1.2 Quality Assurance: Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician. Laboratory testing shall be in accordance with ASTM E329.

1.3 Environmental Requirements: Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 10 degrees C (50 degrees F) or air temperature is lower than 4 degrees C (40 degrees F). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces. Do not apply asphalt materials or place asphalt mixes when application surface is wet.

**2.0 PRODUCTS**

2.1 Materials

A. Road repair shall conform to road agency permit conditions and specifications. When county encroachment permit conditions are more restrictive, they will take precedence.

B. Asphalt Material (Aggregate Concrete): Conform to the following specification: Asphalt Material shall be a hot mix asphalt concrete, consisting of a mixture of mineral aggregate and paving asphalt conforming to Section 92 of the Caltrans Standard Specifications, PG 64-16.

C. Seal Coat: Conform to the following specification: Seal coat material shall conform to Section 37 of the Caltrans Standard Specifications.

### 3.0 EXECUTION

#### 3.1 General

##### A. Traffic Control:

1. In accordance with all applicable specification sections and laws.
2. Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.

B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.2 Line and Grade: Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness. Construct shoulders to line, grade, and cross section shown.

3.3 Preparation: Prepare subgrade as specified.

A. Saw-cut all edges of pavement to be removed to be square with clean lines relative to trench and excavation limits; during saw cutting all water and slurry waste must be immediately vacuumed from the ground surface and not be allowed to flow off pavement or into ditches, curbs or drains.

B. When paving thickness permits grinding, grind out asphalt T-section adjacent to each side of trench, grind out all pavement transitions between new and existing pavement, and grind out other areas as required by encroachment with Public Works and/or Caltrans.

C. Thoroughly coat edges of contact surfaces with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

#### 3.4 Pavement Application

A. General: Place hot mix asphaltic concrete on approved, prepared base in conformance with this section.

##### B. Pavement Mix:

1. Prior to Paving:
  - a. Sweep primed surface free of dirt, dust, or other foreign matter.
  - b. Patch holes in primed surface with asphalt concrete pavement mix.
2. Place asphalt concrete pavement mix in one single lift.
- 3.. After placement of pavement, seal meet line by painting a minimum of 150 millimeters (6 inches) on each side of joint with cut back or emulsified asphalt. Cover immediately with sand.

C. Compaction: Roll until roller marks are eliminated and density of 92 percent of measured maximum density determined in accordance with ASTM D2041.

- D. Tolerances:
1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
  2. Completed Surface or Wearing Layer Smoothness:
    - a. Uniform texture, smooth, and uniform to crown and grade.
    - b. Maximum Deviation: 1/8 inch from lower edge of a 3.6 meter (12 foot) straightedge, measured continuously parallel and at right angle to centerline.
    - c. If surface of completed pavement deviates by more than twice specified tolerances, remove and replace wearing surface.
  3. Transverse Slope Maximum Deviation: 1/4 inch.
- E. Seal Coat:
1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where asphalt concrete was placed by hand, patched surfaces, and other areas as directed by ENGINEER.
  2. Preparation:
    - a. Surfaces that are to be sealed shall be maintained free of holes, dry, and clean of dust and loose material.
    - b. Seal in dry weather and when temperature is above 2 degrees C (35 degrees F).
  3. Application:
    - a. Fill cracks over 1.5 millimeters (1/16 inch) in width with asphalt sand slurry or approved crack sealer prior to sealing.
    - b. When sealing patched surfaces and joints with existing pavements, extend minimum 150 millimeters (6 inches) beyond edges of patches.
- F. Pavement Lines and Markings:
1. General: Contractor shall restore all center lines, fog lines, limit lines, and other pavement markings that are damaged by trenching, excavation and other Contractor's operations and construction activities.
  2. Paint: Unless otherwise required by the County and/or Caltrans, paint shall be 100% acrylic traffic and zone marking paint of required colors, PPG Zoneline, USSC Techline, or equal. Paint shall be applied according to manufacturer's instructions and within required ambient and substrate temperatures to a wet film thickness of 15± mils.

**- END OF SECTION -**

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**SECTION 03300  
CONCRETE AND REINFORCING STEEL**

**1.0 GENERAL**

- 1.1 Scope - This specification includes concrete materials, mixing, placement, form work, reinforcement and curing.
- 1.2 Submittals - Prior to placement, the following shall be submitted:
- A. Supplier's concrete mix data sheet showing contents and proportions of cement, aggregate, water, and admixtures in accordance with the Section 00700-7.16 and Section 00800- SC- 7.20.
  - B. Reinforcing steel schedule and shop drawings.
  - C. Delivery Tickets.

**2.0 MATERIALS**

- 2.1 Concrete – Concrete shall be composed of cement, aggregate and water proportioned and mixed as specified in State Standards Section 90, "Portland Cement Concrete". Concrete for each portion of work shall be of the class as shown on the plans or as indicated below for the type of work performed.

Caltrans Class	Type of Work	Cement (lbs/cy)
Class 1	Special Applications Only	675
Class 2	Slabs, foundations, footings, ring walls, retaining walls, vaults, manhole bases, and unspecified	590
Class 3	Sidewalks, curb & gutter, thrust blocks, valve and hydrant aprons, and pipe encasements.	505

- A. Mix Design: Type II Portland cement, fine aggregate (clean natural sand) and coarse aggregate (crushed rock) with 1” maximum combined grading, 0.45 water/cement ratio, 2” to 4” slump, and 4% to 6% entrained air.
  - B. Fly Ash: For all non-potable water applications, a maximum of 15% by weight of cementitious material may be substituted with ASTM C618, Type F fly ash. The mix design cannot contain fly ash for applications in direct contact with potable water, e.g. slabs and walls in potable water basins and tanks.
  - C. Admixtures: Conform to ASTM C494, Types A-E and certified to NSF-61 shall be used to obtain higher slump if needed for improved pumpability or to retard/accelerate mix. BASF Master Pozzolith 322 (water reducing), BASF MasterAir AE 90 (air entraining), Euclid Eucon AEA-92 and Euclid Eucon WR-91 are offered in certified NSF-61 sources.
- 2.2 Grout – Patch, seal, repair all surface imperfections and defects with suitable grout mixture.
- 2.3 Reinforcing Steel - ASTM A615, Grade 60. Reinforcing steel shall be fabricated in accordance with the current edition of the Manual of Standard Practice, published by the Concrete Reinforcing Steel Institute. Reinforcing steel shall be delivered to site bundled and tagged for identification.
- 2.4 Tie Wire - Tie wire shall be 16-gage minimum, black, soft annealed.

- 2.5 Bar Supports - Bar supports exposed to view after form stripping shall be galvanized or plastic coated. Concrete supports (blocks) shall be used for reinforcing for concrete placed on grade.
- 2.6 Forms - Forms shall be constructed of clean lumber and braced to provide sufficient strength and rigidity to hold the concrete and withstand the necessary pressure and consolidation without deflection from the prescribed lines. The surface of forms against which concrete is placed shall be smooth and free from irregularities, dents, sags, or holes. The surface shall leave uniform form marks conforming to the general lines of the structure. Forms previously used shall be thoroughly cleaned of all dirt, mortar and foreign matter before being re-used.

### 3.0 EXECUTION

- 3.1 Formwork - The Contractor shall notify the District a minimum of one working day before the intended placement of concrete to enable the District to check the form lines, grades, and other required items before placement of concrete.

Unless otherwise indicated on the plans, all exposed sharp concrete edges shall be  $\frac{3}{4}$  -inch chamfered.

Before placing concrete, the form surface shall be clean and coated with form oil of high penetrating qualities where applicable.

- 3.2 Reinforcement - Reinforcing steel shall be placed in accordance with the current edition of Recommended Practice for Placing Reinforcing Bars, published by the Concrete Reinforcing Steel Institute. All reinforcing steel shall be of the required sizes and shapes and placed where shown on the drawings; the Contractor shall not use bars with bends not otherwise shown on the drawings. All reinforcing steel shall be cold bent and not straightened or re-bent in a manner that will damage the material. All bars shall be free from rust, scale, oil, dried mortar, or other coatings that reduce or destroy the bond between concrete and steel.

Reinforcement steel shall be positioned in accordance with the drawings and secured by using annealed wire ties or clips at intersections and supported by concrete or metal supports, spacers, or metal hangers. Tie wires shall be bent away from the forms in order to provide the specified concrete coverage. In addition to any shown on the drawings, bars may be found necessary or desirable by the District for the purpose of securing reinforcement in position, shall be provided.

All reinforcing steel and wire mesh shall be completely encased in concrete. Reinforcement shall be placed a minimum of 2-inches clear of any metal pipe or fittings. The reinforcement shall be so secured in position that it will not be displaced during the placement of concrete.

Reinforcing dowels shall be secured in place prior to placing concrete. The Contractor shall not press dowels into the concrete after the concrete has been placed. The minimum lap for all reinforcement shall be 40 bar diameters.

Additional reinforcement shall be placed around the pipe or openings as indicated in the drawings.

A. Wire Mesh - Wire mesh reinforcement is to be rolled flat before being placed in the form. The Contractor shall support and tie wire mesh to prevent movement during concrete placement. Welded wire fabric shall be extended to within 2 inches of the edges of the slab. Splices shall be lapped with at least 1-1/2 courses of the fabric and a minimum of 6 inches. Laps and splices shall be securely tied at ends and at least every 24 inches with tie-wire. The Contractor shall pull the fabric into position as the concrete is placed by means of hooks, and then work concrete under the steel to ensure that it is at the proper distance above the bottom of the slab.



3.3 Embedded Items - All embedded bolts, dowels, anchors, pipes, conduits, sleeves, and other such items shall be held correctly in place in the forms before concrete is placed. Items of aluminum embedded in concrete shall have all surfaces powder coated. Pipes and conduits penetrations shall not be placed closer than 3 diameters on center.

3.4 Placing Concrete – Prior to placing concrete all debris (loose tie-wire, rocks, wood, etc.) shall be removed and the surfaces are to be dampened which will be in contact with the concrete.

Concrete shall be placed in the forms before taking its initial set. No concrete shall be placed in water except with approval of the District.

Concrete shall be deposited as nearly as practical in its final position to avoid segregation. Concrete shall not be permitted to fall more than 6 feet.

As the concrete is placed, it shall be thoroughly consolidated through the entire layer by internal vibration and tamping bars. In walls, the lift depth shall be limited to two feet.

Vibration shall not be used to move concrete horizontally. The vibrator shall be inserted vertically such that there is an overlap of the fields of action.

All concrete surfaces upon which or against which the concrete is to be placed, and to which new concrete is to adhere, shall be roughened, thoroughly cleaned, wet or sandblasted to bare aggregate as directed. An approved bonding agent shall be used before the concrete is deposited.

3.5 Construction Joints - Location of and type of construction joints shall be as directed by the Engineer. The surface of all construction joints shall be cleaned and all laitance removed.

3.6 Concrete Finishing - The surfaces of concrete to be permanently exposed to view shall be smooth, free from projections, and thoroughly filled with mortar. Immediately upon the removal of forms, all voids shall be neatly filled with mortar. Exposed surfaces of concrete not finished against forms, such as horizontal or sloping surfaces, shall be screeded to a uniform surface and worked with suitable tools to a light broom finish.

3.7 Protection and Curing of Concrete - Contractor shall protect all concrete against damage, freezing, cracking, etc. Exposed surfaces of new concrete shall be protected from direct rays of the sun and from frost. Concrete shall be kept submerged or dampened daily for at least two weeks after the concrete has been placed or by using an approved curing process.

**- END OF SECTION -**

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**SECTION 03405  
PRECAST CONCRETE VAULTS**

**1.0 GENERAL**

1.1 Scope - The work covered by this section shall consist of furnishing all materials, accessories, equipment, tools, transportation, service, labor, and performing all operations to furnish and install the precast concrete vaults in accordance with this section of the specifications and applicable drawings. Excavation and backfill are to be in accordance with Section 02200.

Precast concrete vaults and covers shall conform to the shapes and dimensions indicated on the plans and shall be manufactured by a producer/facility certified by the National Precast Concrete Association's Plant Certification Program.

1.2 Submittals: Submit manufacturer's catalog data on precast items and access hatch cover in accordance with Section 00700-7.16 and Section 00800- SC- 7.20.. Show dimensions of vault, thickness of walls, and top slab.

1.3 Design Loads – Design loads shall consist of dead load, live load, impact, and, in addition, loads due to water table and any other loads which may be imposed upon the structure and shall not in any case be less than those required by ASTM C857. Live loads shall be for HS20 per AASHTO standard specifications for highway bridges. Design wheel load shall be 16 kips. The live load shall be that which produces the maximum shears and bending moments in the structure. Minimum wall thickness shall be 6 inches.

**2.0 MATERIALS**

2.1 Manufacturing: Precast vaults shall conform to requirements of ASTM C858 and shall be manufactured by Jensen Precast, Oldcastle or equal.

2.2 Concrete - Class 2 per Section 03300. All concrete shall develop a minimum 28-day compressive strength of 4,000 psi or greater.

2.3 Sectional Vaults – Vaults shall be monolithic but horizontal extensions shall be added if necessary to adjust the top of vault to finished grade. Panel vaults are not acceptable.

2.4 Reinforcement - Reinforcement shall be deformed reinforcement in accordance with ASTM A615 or ASTM A185 for welded wire fabric.

2.5 Access Hatch – Vaults shall be designed to support full AASHTO H20-44 wheel loads including a 30% impact factor (for incidental traffic the 30% impact factor may be deleted for locations that are fully and completely outside the pavement). Vaults shall have double leaf hatches manufactured of ¼-inch thick structural grade aluminum diamond plate covers reinforced to support the subject traffic loads. Unless otherwise approved by the Engineer, access hatches dimensions shall provide a large clear, unobstructed opening to match the vault's inside dimensions. Frames shall be heavy duty minimum ¼-inch extruded aluminum with a continuous anchor flange for concrete embedment. Factory finish shall be mill aluminum with a bituminous coating applied to the exterior of the frame. Hinges, hold open arm, lift assist and all hardware shall be stainless steel throughout. Hinges to be through bolted to both cover and frame with locknuts. The covers shall open using flush lifting handles with hold open arms with latches locking covers in full open, upright position and lifting mechanisms providing the proper amount of lift assist via enclosed springs to insure that the cover can be opened by one person with no more than 40-lbs of force required. Covers shall be furnished with slam locks and all cover leafs having redundant, heavy duty bolt down features on all loose corners.

### **3.0 EXECUTION**

3.1 Installation – The base of the vault shall be placed on compacted, crushed rock sub-base, graded to level and to the elevation shown on the plans. Openings or "knockouts" in precast concrete vaults shall be located as shown on the drawings and shall be sized sufficiently to permit passage of the largest dimension of pipe and/or flange. Upon completion of installation, all openings in the vault walls around pipes shall be sealed per the standard wall penetration detail.

All joints between precast concrete vault sections shall be made watertight. The joint sealing compound shall be installed according to the manufacturer's recommendations to provide a watertight joint, which remains impermeable throughout the design life of the structure.

The Contractor is responsible for placing the cover at the proper elevation as shown on the plans and shall make all necessary adjustments so that the cover meets these requirements.

The vault floor shall contain a 12-inch minimum diameter hole for installation of a gravity drain or sump. The vault floor shall be constructed so that there is a positive slope to the sump.

3.2 Exterior Coating - All exterior concrete surfaces to be buried and in contact with soil shall have a minimum 30 mils of bituminous mastic or approved equal coating.

**- END OF SECTION -**

**SECTION 15062  
DUCTILE IRON PIPE**

**1.0 GENERAL**

1.1 Scope - This specification governs furnishing and installation of ductile iron pipe and fittings including laying, joining, bedding, and approvals. All incidentals and appurtenant operations necessary for the construction of pipelines shall be in strict accordance with the drawings and other terms and conditions of the contract. Pipe and fittings shall comply with latest published version of ANSI/AWWA standards.

All material and products used in a drinking water system that may come in contact with drinking water shall be certified as meeting the specifications of the latest published edition of ANSI/NSF-61.

Fitting types covered under this section include bends, tees, crosses, reducers, couplings, caps, plugs, adapters, and all other fittings necessary for a complete pipeline installation.

The Contractor shall also furnish all equipment, tools, labor, and materials required to relocate sewers, conduits, ducts, pipes, or other structures as may be necessary to complete the installation as shown and specified.

All standard specifications, i.e., ANSI/AWWA, ASTM, etc., made a portion of these specifications by reference shall be the latest published edition/revision thereof.

The Contractor shall be responsible for all material furnished by it, and shall replace at its own expense, all material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishings of all material and labor required to replace defective material discovered prior to final acceptance of the work.

The Contractor shall be responsible for the safe storage of material until it has been incorporated into the completed project. The interior of all pipe and fittings shall be kept free from dirt and foreign matter at all times.

Pipe surfaces shall be free from nicks, scratches, and other blemishes. The joining surfaces of pipe spigots and bell sockets shall be free from gouges or other imperfections that might cause leakage.

1.2 Submittals: Furnish submittals in accordance with the Section 00700-7.16 and Section 00800- SC- 7.20.

**2.0 MATERIALS**

2.1 Ductile Iron Pipe (DIP) and Fittings: All materials shall conform to NSF-61 and the following requirements:

A. Ductile Iron Pipe shall conform to AWWA C150 and C151 Pressure Class 350 and AWWA C115 flanged pipe Special Thickness Class 53. Standard lay lengths shall be eighteen (18) or twenty (20) feet; provide custom lengths for flanged pipe spools.

B. Fittings shall be all ductile iron (no gray iron) rated for 350-psi working pressure and conforming to AWWA C110 and/or C153.

C. Lining and Coating shall be AWWA C104 cement mortar lining with ISO 8179-1 external zinc-based coating, active inner layer of 200 g/m<sup>2</sup> of pure metallic zinc under asphalt topcoat; provide fusion bonded epoxy fittings only as specifically noted on plans or contract documents.

D. Joints rated 350-psi working pressure conforming to AWWA C111 for standard flanged, mechanical, push-on (Tyton), TR-Flex, Flex-Ring or approved equal; full face flange gaskets shall be American Toruseal, U.S. Pipe Flange-Tyte or equal.

E. Restraint Glands & Flange Adapters shall conform to AWWA C111, rated 350-psi working pressure and consist of ASTM A536 ductile iron body incorporating multiple individually actuated gripping wedges engaged by torque limiting twist off nuts. Restrained joints shall allow at least 3-degrees of deflection during assembly. Casting body shall have heat cured polyester powder coating and wedges two coats thermoset epoxy. All products to be domestic sourced; restraint flange adapters EBAA 2100 Megaflange; mechanical joint restraint glands EBAA 1100 Megalug, Romac Roma-Grip (Romabond) or equal.

F. Bolts & Nuts conforming to AWWA C111; flanged heavy hex nuts and bolts of low-carbon steel ASTM A307/Grade B, 60,000 psi tensile strength; t-bolts and nuts of high strength, low alloy corrosion resistant steel (ASTM A242) with 45,000-psi yield strength. All bolts, nuts & washers zinc plated with Xylan 1424 top coat (Tripac 2000, Romac R-Blue or equal).

2.2 Polyethylene Encasement shall conform to AWWA C105, Method A.

### 3.0 EXECUTION

3.1 Handling and Transportation - Handling and transportation of pipe shall be in accordance with the pipe manufacturer's published instructions.

Heavy canvas or nylon slings of suitable strength shall be used for lifting and supporting materials. Chains or cables shall not be used.

Pipe and fittings shall not be stored on rocks or gravel or other hard material that might damage the pipe.

A. Rubber Gasket Storage - All rubber gaskets shall be stored in a cool, well-ventilated place and not exposed to the direct rays of the sun. Gaskets shall not be allowed in contact with oils, fuels, petroleum, or solvents.

3.2 Pipe Laying - Pipe shall be laid according to pipe manufacturer's instructions, project drawings, District Standards, AWWA C600, and AWWA C651-14 as supplemented and amended herein.

A. Cleanliness - Interior of pipes shall be clean of foreign materials before sections of pipe are installed and protected to prevent entry of foreign materials after installation. Open ends of installed pipe shall be sealed with watertight plugs or other approved means at times when pipe installation is not in progress. Ground water shall not be allowed to enter the pipe.

B. Inspection before Installation - All pipe and fittings shall be carefully examined for cracks and other defects while suspended and before installation. Spigot ends shall be examined with particular care as this area is most vulnerable to damage from handling. Defective pipe or fittings shall be laid aside for inspection by the District to reject or accept proposed corrective repairs.

C. Lowering of Pipe Material into Trench - Proper implements, tools, and equipment, satisfactory to the District, shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece in such a manner as to prevent damage to the water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench. If damage occurs to any pipe, fittings, valves, hydrants, or water main accessories in handling, damage shall be immediately brought to the District's attention.

D. Laying of Pipe - Pipe shall be laid in trenches to the line and grade indicated on the plans. Generally, the pipe is laid with the bell end facing the direction of pipe laying, except on steep grades.

Every precaution shall be taken to prevent foreign material from entering the pipe while being placed in the trench. If the pipe-laying crew cannot install the pipe into the trench without getting earth into it, the District may require a heavy, tightly woven canvas bag of suitable size, or plastic caps, be placed over each end of the pipe prior to installation and left there until the connection is made to the adjacent pipe. During laying operations, no debris, tools, clothing, or other material shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell or coupling and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it, except at the bells or couplings. Precautions shall be taken to prevent dirt from entering the joint space.

Joints shall be assembled in accordance with manufacturer's instructions. Each joint checked with a feeler gauge to assure proper seating of gasket.

E. Cutting of Pipe – Pipe that has been marked For Field Cut shall be used. If the pipe is not marked for field cutting, then the diameter of the pipe should be checked prior to cutting. Field cuts and connections shall be in accordance with the pipe manufacturer's published instructions. The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe so as to leave a smooth end at right angles to the axis of the pipe.

F. Allowable Deflection - The maximum allowable angular deflection at the joints shall be 75% of manufacturer's published maximum value unless otherwise allowed by the District.

3.3 Thrust Restraint – Fittings, valves, and pipe joints shall be restrained against unbalanced thrust forces from internal pipeline pressure acting on pipe and surrounding soil. Unbalanced thrust forces occur at bends, tees, wyes, closed valves, dead ends and reducers, but these forces are transmitted along the pipeline to the pipe joints. At high pressures and larger pipe diameters, the size of the thrust block becomes so large that it becomes impracticable in comparison to mechanical methods. Unless plans and/or specifications require entire pipeline to be fully restrained, thrust restraint can be provided by either: A) mechanical means, B) thrust blocks or C) a combination of these two methods.

A. Mechanical Thrust Restraint – For all diameters buried condition, U.S. Pipe TR-Flex, American Flex Ring or equal; or alternatively for buried 8" diameter or smaller, push-on (Tyton) joint pipe with restraint gaskets (U.S. Pipe Field Lok 350, Romac Piranha or equal) and mechanical joint fittings with restraint glands. For all flanged valves, pipe and fittings, provide flanged spools, restrained flange adaptors and other restraint devices as shown/noted on the plans and approved by the District.

B. Thrust Blocks – Concrete thrust blocks shall be only be used for systems with operating and test pressures not exceeding 150-psig. Thrust blocks shall be poured against undisturbed earth and have at least the minimum dimensions shown per Detail W01 of the Standard Drawings. Care shall be taken not to obstruct the outlets of tees or crosses, which are intended for future connections. A waterproof paper or plastic bond-breaker shall be placed between plugs and caps and the concrete thrust block to facilitate their removal in the future.

C. Combined Method – Mechanical thrust restraint combined with concrete thrust blocking is required all buried tie-in connections made between new and existing piping and in situations when thrust restraint of existing piping is unknown condition. For new buried piping with operating and test pressures not exceeding 150-psig, the District may require/allow all fittings to be mechanically restrained at joints in combination with thrust blocking per Detail W01 of Standard Drawings intended to prevent upstream and downstream separation of pipe joints.

3.4 Polyethylene Encasement – All buried pipe and fittings shall be wrapped in polyethylene encasement to prevent contact with the surrounding backfill and bedding materials; it is not intended to be a completely airtight or watertight enclosure. Installation of polyethylene encasement shall be in accordance with the Standard Drawings and AWWA C105, Method A.

All lumps of clay, mud, cinders, etc. on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embedment material from becoming trapped between the pipe and the polyethylene.

For installations below the water table, both ends of the polyethylene tube shall be sealed as thoroughly as possible with adhesive tape at the joint overlap.

3.5 Testing and Disinfection - Testing and disinfection shall be performed on all pipelines, in accordance with Section 15140 and project requirements.

**- END OF SECTION -**



**SECTION 15095  
WATER SERVICE LINES AND APPURTENANCES**

**1.0 GENERAL**

1.1 Scope - This section governs materials and installation for 1-inch size standard residential water services from the main line to and including the meter box and setup for a standard 5/8"x3/4" meter. Existing, active services shall be re-connected downstream of the new meter box re-establishing water service.

1.2 Submittals – Provide shop drawings for all materials in accordance with Section 00700-7.16 and Section 00800- SC- 7.20

**2.0 MATERIALS**

2.1 Service Line Materials - Service line materials include service line pipe, service saddles, service fittings, meter stops, corporation stops, curb stops, and ball valves. All items are to be furnished as shown in the District approved "Materials List" and delivered with the required markings. All materials shall comply with ANSI/NSF 61 and State of California AB 1953 "no-lead" requirement.

2.2 Approved Materials – provide materials for service lines as listed below:

ITEM	DESCRIPTION	MANUFACTURER
Tracer Wire	#12 solid copper, Type UF with 3M DBR splice kits	
Corporation Ball Stop	Conforming to AWWA C800 for use with 1" CTS P.E. Tubing	Ford FB1100-4-NL Mueller P-25028N, or equal.
Angle Meter Stop	Conforming to AWWA C800 for use with 1" CTS P.E. Tubing and 5/8"x3/4" meter	Ford BA43-342W-NL Mueller P-24258N, or equal.
Meter Valve	Conforming to AWWA C800 for use with 1" F.I.P. and 5/8"x3/4" meter	Ford B13-342W-NL Mueller B-24351N, or equal.
Meter Idlers	7-1/2" length for standard 5/8"x3/4" meter	Ford Idler-2-NL Mueller H-10887N, or equal.
Service Tubing	Flexible polyethylene tubing AWWA C901, PE 4710/3408, CTS, SDR 9, ASTM D2737	JM Eagle Pure-Core (Blue Exterior), or equal.
Insert Stiffeners	For connecting 1" CTS P.E. tubing to corporation stop and angle meter stop.	Ford Insert 52 Mueller 528705N, or equal.
Service Saddles	AWWA C800, bronze body ASTM B62; bolts and straps silicon bronze, gaskets Nitrile or EPDM	Ford S912 (C900) Ford 202B (DIP/other) Jones J-996 (C900) Mueller BR2B (DIP/other), or equal.
Meter Box	Heavy wall polyethylene plastic body designed for 20,000-lbs vertical load non-deliberate traffic (black color), Polymer cover with reading door.	Carson BCF Heavywall with Polymer Concrete Cover

**3.0 EXECUTION**

3.1 Polyethylene Tubing - Tubing and fittings should be stored in a way that prevents damage due to crushing or piercing, excessive heat, harmful chemicals, or exposure to sunlight for prolonged periods. The manufacturer's recommendations regarding storage should be followed.

Handling operations and trench installation and backfill shall be performed with reasonable care to prevent scratches, nicks, and gouges in the tubing. Tubing cut or excessively kinked shall not be used.

Bends in PE tubing shall not occur closer than 10 diameters from any fitting or valve. The minimum radius of curvature is 30 diameters or coil radius when bending with the coil. Bending of coiled tubing against the coil shall not go beyond straight. Polyethylene tubing that becomes kinked during handling or installation shall not be used, and care taken to ensure that kinking does not develop after installation. Service line from the main line tap to the angle meter stop shall be one continuous length of tubing without any splices.

PE tubing shall be installed in trench bottoms with 6 inches of bedding material to provide continuous and uniform support. The initial backfill shall be 6 inches above the tubing and shall be free from rock, stones, and debris.

3.2 Service Saddles - The service saddle shall be no closer than 18 inches to a valve, coupling, joint, or fitting, unless it is at the end of the main. The surface of the pipe shall be free of all loose material and have a clean, hard surface before placing the saddle. The service saddle shall be tightened firmly to ensure a tight seal; however, care shall be used to prevent damage or distortion of either the pipe, corporation stop, or service saddle by over- tightening. The drilling of the pipe shall be performed in accordance with the manufacturer's instructions.

3.3 Fittings, Angle Meter Stops, and Boxes - Installation of fittings, meter stops, and boxes shall be as recommended by the manufacturer. Pipe or fittings made of nonferrous metals (bronze) shall be isolated from ferrous metals with insulating unions or couplings as directed by the District. Meter box shall be adequately sized dimensions and depth to fully fit the entire meter and meter valves inside the box so valves may be turned, fully operational, free and clear of hitting the interior walls of the box.

3.4 Hydrostatic Testing & Disinfection - The Contractor shall hydrostatic test and disinfect all service appurtenances at the same time as the main line; the service line shall be thoroughly flushed after disinfection until obtaining a safe, normal operating chlorine residual.

**- END OF SECTION -**

**SECTION 15109  
GATE VALVES**

**1.0 GENERAL**

1.1 Scope - This specification governs materials and installation of resilient wedge gate valves 2 thru 12 inches furnished and installed by Contractor at locations shown on the plans or as required by the District.

1.2 Submittals – Furnish manufacturer’s drawings and specifications and information regarding the nut and handwheel operators; upon request, demonstrate UL and FM working pressure, seat test and shell test ratings per Section 00700-7.16 and Section 00800- SC- 7.20.

**2.0 MATERIALS**

2.1 General – Gate valves shall be AWWA C515 resilient wedge design and certified to NSF 61-G and NSF 372. The valves shall be UL Listed and FM approved for 4 to 12-inch valves at 350-psig (525-psig seat and 700-psig shell tests) and for 2 to 3-inch valves at 250-psig (375-psig seat and 500-psig shell tests). Gate valves shall be American (ACIPCO), Mueller Co., or equal.

2.2 Body – The body shall be constructed of ductile iron ASTM A536 with wall thickness per Table 2 of AWWA C515 and marked “D.I.” or “Ductile Iron” cast on body; heavy wall and/or cast gray-iron bodies are not acceptable. The body shall have a smooth, oversized waterway. Prior to assembly, all internal and external ferrous surfaces of body and bonnet shall receive electro-statically applied fusion-bonded epoxy coating complying with AWWA C550. All exterior valve body bolting shall be 304 stainless steel with hexagonal heads and dimensions per ANSI B18.2.1; metric size and/or socket head cap screws or bolts are not allowed. All body gaskets shall be pressure energized O-ring style design.

2.3 Wedge - For 4 to 12-inch sizes, wedge to be ductile iron with protective Acetal polymer wedge guide covers, and for 2 to 3-inch sizes wedges to be bronze. All wedges fully encapsulated in EPDM rubber.

2.4 Stem – Forged or cast manganese bronze (ASTM B138 C67600 or ASTM B763 C86700), sealed by three O-rings, and thrust washers located above and below the thrust collar to reduce operating torque.

2.5 Operators - For all buried/underground applications, including vertically oriented valves inside vaults, provide 2” AWWA nut; the operating nut shall be 2” square constructed of ductile iron fitted to a square tapered stem to help ensure even valve operating input torque. Handwheel operators shall be provided for all above ground valves and horizontally oriented valves inside vaults.

**3.0 EXECUTION**

3.1 Storage - Valves shall be delivered and stored in the field with the port openings covered with plastic, cardboard, or wood. These covers shall remain in place until the valve is ready to be installed. Valves shall not be stored in contact with bare ground. Valves shall not be stacked on top of one another.

3.2 Installation – Valves shall be installed in accordance to manufacturer’s instructions and the District’s Standard Drawings, unless special installation requirements are otherwise shown on the project drawings.

3.3 Polyethylene Encasement – All buried valves and connections shall be encased per AWWA C105.

3.4 Operation - Immediately before installation, each valve shall be operated through one complete open-close cycle and visually checked for proper operation. Installation of valve boxes shall begin immediately after pipe sections containing the valve have been installed. All valve boxes, paving rings, and lids shall be brought to grade after pavement has been constructed.

**- END OF SECTION -**

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**SECTION 15113**  
**AIR AND VACUUM VALVE ASSEMBLIES**

**1.0 GENERAL**

1.1 Scope - This specification governs materials and installation “anti-shock” air-vacuum and air-release valve assemblies. The type of air valve to be installed shall be as indicated on the Drawings. Valve assemblies include all items from the main pipeline to the valve vent as shown on the Drawings.

1.2 Submittals – Product data sheets for the make and model with complete catalog information, descriptive literature, specifications, and identification of materials of construction in accordance with Section 00700-7.16 and Section 00800- SC- 7.20.

**2.0 MATERIALS**

2.1 Construction: The air release and vacuum break valve shall be a compact single chamber design with solid cylindrical High Density Polyethylene (HDPE) control floats housed in a compact single chamber design with solid cylindrical HDPE control floats housed in a tubular ductile cast iron body, epoxy powder coated to 250 microns, secured by means of stainless steel 304 or 316 fasteners. The entire valve assembly and components shall have a rated working pressure through 276 psi and be NSF61 approved.

The valve shall have an integral surge alleviation mechanism which shall operate automatically to limit transient pressure rise or shock induced by closure due to high velocity air discharge or the subsequent rejoining of separated water columns. The limitation of pressure rise must be achieved by deceleration of approaching water prior to valve closure.

Large orifice sealing shall be effected by the flat face of the control float seating against a Nitrile/EPDM rubber ‘O’ Ring housed in a dovetail groove circumferentially surrounding the large orifice. Discharge of pressurized air shall be controlled by the seating and unseating of a small orifice on a natural/EPDM rubber seal affixed to the control float. The intake/discharge orifice area shall be equal to the nominal size of the valve i.e. a 3” valve shall have a 3” intake/discharge. The internal annular area surrounding the floats shall also be equal to the nominal 3” intake/discharge area.

The valve construction shall be proportioned with regard to material strength characteristics, so that the deformation, leaking or damage of any kind does not occur by submission to twice the designed working pressure. The valve design shall incorporate an over pressure safety feature that will fail without an explosive effect, such as is normally the case when highly compressed air is released suddenly.

The inlet connections shall be flanged conforming to ANSI B16.5 Class 150 and outlet threaded conforming to ASNI B16.5 Class 150.

2.2 Manufacturers: Vent-O-Mat Series RBXc, RF Valves, Inc. anti-shock and anti-surge air release valve represented by Aquadyne Associates; or District approved equal.

**3.0 EXECUTION**

3.1 Installation - The tap for the air valves shall be made in a level section of pipe no closer than 18 inches to a bell, coupling, joint, or fitting.

Tapping mains shall conform to the standard procedures for house services.

Air valve assemblies shall be installed in accordance with the Drawings and manufacturer’s instructions.

Threaded joints shall be cleaned by wire brushing or swabbing. Teflon joint compound or Teflon tape shall be applied to pipe threads before installing threaded valves. Joints shall be watertight.

Dielectric connections with PVC tape wrap shall be provided at all connections between steel or iron and brass or bronze. Copper, brass, and other nonferrous metal pipe shall be isolated from steel or cast iron by insulated couplings or unions.

The Contractor shall also isolate nonferrous pipe from steel supports and pipe straps by means of insulating sleeves or tape wrapped around the pipe.

3.2 Testing - Air valve assemblies shall be tested at the same time that the connecting pipelines are pressure tested.

**END OF SECTION**

**SECTION 15114  
PRESSURE REDUCING AND RELIEF CONTROL VALVES**

**1.0 GENERAL**

1.1 Scope – This specification governs materials and installation of pressure reducing valves and pressure relief control valves complete and operable, in accordance with the Contract Documents. All valves shall be certified by the Water Quality Association (WQA) for NSF 61 and 372 for lead free compliance.

1.2 Submittal – Furnish submittals in accordance with the Section 00700-7.16 and Section 00800- SC- 7.20.

1.3 Warranty - The valve specified in the Section shall be warranted for a period of three (3) years from the date of shipment to be free of defects in materials and workmanship.

1.4 Equipment - For each pressure regulating station provide the following control valves. Refer also to Sheet 67 of the Plans.

<b>Pressure Regulating Valve (Bypass)</b>	<b>Pressure Regulating Valve (Main)</b>	<b>Pressure Relief Valve</b>
3-inch, Cla-Val 100-20 (reduced port, globe)	8 inch or 6-inch, Cla-Val 100-01 (full port, globe)	2-inch, Cla-Val 100-01 (full port, angle pattern)

**2.0 MATERIALS**

2.1 Valve Characteristics - Pressure reducing valves shall reduce an upstream pressure to a pre-set constant lower pressure, regardless of fluctuations in the upstream pressure. Pressure relief valves shall open when the inlet pressure exceeds a set maximum level. Relief valves shall maintain that pressure and gradually close as the pressure drops below the maximum pressure. Both reducing and relief valves shall be hydraulically-operated, with diaphragm and shall be of the globe or angle pattern as indicated on the Drawings. Necessary repairs shall be possible without removing the valves from the pipeline.

2.2 Valve Body, Covers and Flanges – All pressure reducing and relief valves shall have body, cover and flanges of ASTM A536 ductile iron with Class 150 flanges. Interior and exterior of valves shall be fusion bonded epoxy coated, NSF 61 approved according to AWWA C116-03.

2.3 Valve Trim - The valve stems, springs, body seat rings, and bolts, nuts, and washers shall be of Type 304, or 316 stainless steel. The valve stems shall have top and bottom guides and shall be 303 stainless steel. Rubber parts shall be Buna-N. The diaphragms shall be of Nylon-reinforced Buna-N, supported firmly between body and valve cover.

2.4 Valve Controls - The valve shall be furnished with a complete, externally-mounted control system, including adjustable opening and closing speed control needle valves, strainer, and stainless steel connecting tubing and fittings. All control tubing and fittings shall be stainless steel.

2.5 Manufacturer – Control valves shall be manufactured by Cla-Val Co., Newport Beach, CA 92659, with no like, equivalent, or “or equal” item permitted including: 2-inch pressure relief valves Cla-Val Model 50A-01BKC (angle pattern); 8-inch or 6-inch pressure reducing valve (main, globe pattern, full port) Cal-Val Model 90G-01BCSYKC, and 3-inch pressure reducing valve (bypass, globe pattern, reduced port) Cal-Val Model 690G-01BCSYKC. Provide valves with anti-cavitation trim when specified.

2.6 Operation Conditions – Operation conditions for the valves shall be as specified in the Table below.

<b>Location or PRV Station No.</b>	<b>Upstream Pressure (psi)</b>	<b>Downstream Pressure (Main/Bypass) (psi)</b>	<b>Bypass Flow (gpm)</b>	<b>Main Flow (Fire Flow) (gpm)</b>
20	135	80/85	1 – 260	10 – 1,800
16	190	95/100	1 – 260	10 – 1,800
9	190	70/75	1 – 260	10 – 1,800
72	195	70/75	1 – 260	10 – 1,800
8	190	50/55	1 – 260	10 – 1,800
7	175	50/55	1 – 260	10 – 1,800
5	200	95/105	1 – 260	10 – 1,800
4	218*	90/95	1 – 260	10 – 1,800
3	117 (235)*	70/80	1 – 260	10 – 1,800
2	151 (270)*	78/90	1 – 260	10 – 1,800

\* Assumes transmission main pipeline pressure reduced at PRV #4.

2.7 Factory Tests - Valves shall be factory tested with a hydrostatic test and a functional test and a test certificate shall be submitted to the Engineer prior to delivery of the valve.

### 3.0 EXECUTION

3.1 Installation -Valves shall be installed in accordance with provisions of this Section and as indicated on the Plans.

3.2 Inspection, Startup, and Field Adjustment - The service representative of the valve manufacturer shall be present to assist the Contractor in the installation and adjustment of the valve(s).

**- END OF SECTION -**



**15118**  
**FIRE HYDRANT ASSEMBLIES**

**1.0 GENERAL**

1.1 Scope - This specification governs materials and installation for fire hydrant assemblies including main line tee, 6-inch ductile iron branch line, 6-inch gate valve for isolation, fire hydrant and all other items as shown on the Details W04, W04A, and W04B. Fully mechanically restrain all joints. Pipe, fittings and other piping materials shall conform to Section 15062 and gate valves to Section 15109. Provide trench bedding and backfill according to Section 02315 and Standard Detail G05. Fully mechanically restrain all pipe and fittings. Fire hydrants for high pressure service conditions include an additional pressure reducing valve located inside a vault as shown in Detail W04B.

1.2 Submittals – For fire hydrants, submit manufacturer’s certification of conformance with AWWA C502, latest revision; provide standard data, UL/FM approvals, pressure ratings, test data, materials and parts lists, and internal and external coating information. Additional submittal requirements shall be in accordance with Section 00700-7.16 and Section 00800- SC- 7.20.

**2.0 MATERIALS**

2.1. Fire Hydrants – Hydrants shall comply in all respects to AWWA C502 for dry barrel type as manufactured by American Darling Model B-84-B-5, Mueller Super Centurion, or equal. All components shall conform to ANSI/NSF-61 and 372. Hydrants shall have 5-1/4” main valve opening 3-way with two 2-1/2” hose nozzles and one pumper nozzle; chains shall be provided for all nozzle caps. Upon vehicular impact, safety flange ring at base of above ground hydrant assembly and internal stem coupling shall break away to allow above ground hydrant assembly to separate cleanly from buried standpipe without damage to internal parts with main valve remaining closed without loss of water. Hydrants shall have 6-inch mechanical joint or flanged shoe with interior and exterior fusion bonded epoxy coating per AWWA C550 or equal. Interior and exterior above and below ground line coated with catalyzed epoxy primer (NSF61 listed and AWWA C550 compliant); exterior above ground surfaces shall have finish coat of catalyzed polyurethane (yellow). Hydrants shall be UL/FM rated for a working pressure of 250-psig and hydrostatically tested according to AWWA C502 to 500-psig; first, for testing of the main valve seat, a hydrostatic test at 500-psig shall be made with main valve closed with pressure applied through the shoe inlet; a second test shall be made with the main valve open and the entire hydrant and drain valves subject to a pressure of 500-psig. Fire hydrants shall be provided with a ten-year limited warranty free of defects in materials and workmanship.

**3.0 EXECUTION**

3.1 Examination of Material - Prior to installation, all hydrants shall be inspected for direction of opening, nozzle threading, operating-nut, and cap-nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage, and cracks. Defective hydrants shall be corrected or held for inspection by the District.

3.2 Placement of Hydrant – Within the public right-of-way, the final location and placement of the fire hydrant shall be approved by the agency having jurisdiction over the right-of-way, Caltrans in highway and Public Works on other roads. If replacing an existing hydrant, placement shall be in same location as the existing ones. All hydrants shall stand plumb with their nozzles parallel with or at right angles to the curb and with pumper nozzle facing the curb.

3.3 Assembly Installation – Assemble the hydrant in accordance to the manufacturer’s instruction and with the following:

- Shoe of hydrant to be anchored on a concrete thrust block.
- Hydrant positioned so that bolts between extension piece and hydrant are accessible, both top and bottom, within limits shown on the Standard Drawings. If hydrant level is too high or low, it shall be corrected.
- Contractor shall provide hydrant extensions made by the same manufacturer as the fire hydrants; extensions shall be provided to raise the hydrant to the proper and correct ground surface elevation and prevailing finished grade and consistent with the standard details.
- All underground iron fittings shall be wrapped with polyethylene; but shall not obstruct the hydrant drain ports.

3.4 Testing - Hydrants shall be tested at the same time as the main; dry-barrel hydrants shall have the drain valves tested in the following manner:

- Following the pressure test, open fire hydrant valve a few turns and allow hydrant to fill until water is at bottom of nozzle.
- Close hydrant valve and observe water level drop. If water level drop is not detectable, the hydrant has failed the drainage test.
- If the hydrant fails the drainage test, the drain valve may be clogged or backfill material does not permit free drainage. The Contractor shall make the necessary corrections and repairs to correct improper drainage.

**- END OF SECTION -**

**SECTION 15140  
PRESSURE TESTING AND  
DISINFECTING OF WATER MAINS**

**1.0 GENERAL**

1.1 Scope - All water mains, including hydrants, valves, services and other appurtenances shall be flushed, tested and disinfected by the Contractor and this work witnessed by the District. Contractor shall furnish all temporary piping, fittings, valves, pumps, calibrated supply tanks, gauges, and all other materials and equipment required to perform tests and make necessary repairs. Only potable water shall be used; when potable water is drawn from the existing system, the Contractor shall provide an adequately sized, certified reduced pressure backflow device including control valves and pressure regulation.

The pressure and leakage tests shall be performed simultaneously. Hydrostatic tests shall not be performed until after installing the water line, appurtenances, and thrust blocks and backfilling and compacting the trench. In roads, testing shall be done before placing final pavement. The Contractor may, at any time and at his own expense, perform additional pressure and leak tests, but these will in no way be in-lieu of final tests witnessed by the District.

Disinfection shall be in accordance to AWWA C651 and additional requirements as described in this Section. After having been successfully tested, disinfected and flushed to normal operating chlorine residual and passing bacteriological tests, the water main shall be connected to the existing distribution system.

1.2 Submittals – The Contractor shall prepare and submit written plans, procedures, and proposed schedule for flushing, testing and disinfection including materials, equipment, sources of potable water, chemicals, method of chlorination and dechlorination, control and disposal of used water, copies of applicable permits, and other information in accordance with Section 00700-7.16 and Section 00800- SC- 7.20.

**2.0 MATERIALS**

2.1 General - All test equipment, chemicals for chlorination, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the Contractor, subject to the District's review. All chemicals and materials shall comply NSF/ANSI 60 and NSF/ANSI 61, respectively. No materials shall be used which would be injurious to the newly installed work or its future function.

2.2 Hydrostatic Testing Equipment - Contractor shall be responsible for supplying and operating all testing equipment. The District may furnish a test gauge at its option. Temporary piping connecting to an existing main for water supply shall be protected with an adequately sized certified reduced pressure backflow device and pressure reducing valve.

2.3 Chlorine - Chlorine for disinfection shall comply with ANSI/AWWA B300 and NSF/ANSI 60.

**3.0 EXECUTION**

3.1 General - Contractor shall correct all defects in workmanship or materials, which at any time become evident by testing or inspection. As outlined in AWWA C651-14, Sec. 4.8, all preventative and corrective measures shall be observed/used during construction including special provisions for wet trench construction or if water mains becomes flooded by storm water or groundwater. All pipelines and potable water components shall be flushed, tested and disinfected in the presence of the District. Disinfection operations shall be scheduled by the Contractor so as to assure the maximum degree of sterility of the facilities as soon as District accepts the work and facilities are placed into service. The District shall perform bacteriological tests. Release of water from flushing, testing and disinfecting pipelines shall be de-chlorinated in accordance with a written disposal plan approved by the District and meeting State permit requirements.

3.2 Hydrostatic Test - The purpose of the hydrostatic test is to test the ability of the pipeline to withstand pressure and check for allowable leakage; both tests shall run simultaneously. All valves and appurtenances shall be operated during the test period; appurtenances shall be left on during the test. Thrust blocks shall have been in place for at least seven days for standard concrete mix or thirty-six (36) hours if using a high-early-strength mix.

A. Initial Filling & Flushing - Prior to testing, the new main shall be slowly filled (velocity  $\leq$  1.0-ft/sec) with potable water from low end of the section and air vented from the pipe and appurtenances in a manner not causing excessive air pressure. Once completely full of water, a flushing velocity of 3.0-ft/sec shall be applied to scour the pipeline and any remaining air pockets by opening services, hydrants, blow-offs, air release valves, and venting from uphill end. The valve controlling the admission of water into the section of pipe to be tested should be opened wide before shutting hydrants and blow-offs. After the system has been thoroughly flushed, all valves controlling the section to be tested shall be closed and the line soaked in this condition under a slight pressure for a period of 24-hrs to allow the cement mortar to absorb water.

B. Test Section Length - The length of pipe being tested at any one time shall not exceed 2,400 feet unless otherwise approved by the District; shorter test sections may be required depending on the sequence of work.

C. Test Pressure - The test pressure shall be taken from the lowest point in section being tested or as otherwise directed by District. An initial test pressure of 300-psig shall be applied to the new 8 and 12-inch transmission pipelines including all new sections of water main on the upstream high pressure side of the new pressure reducing stations (isolate and protect pressure reducing valves, fire hydrants, air valves and other appurtenances from this initial high pressure test). A second test pressure of 250-psig shall be applied to the system to test the pressure reducing valves, fire hydrants, air valves, other appurtenances including all new piping upstream and downstream of the pressure reducing stations. The above tests shall be done before making tie-in connections to the existing system; tie-in's shall be tested to 50-psig greater than working pressure of existing system as measured in field or as directed by the District. All new valves shall be tested against a reduced pressure side; butterfly valves tested in both directions.

D. Test Duration/Leakage - The test pressure shall be maintained within  $\pm$  3-psi of the test pressure for minimum two (2) hour duration by adding water; the amount of water added/pumped into the main during the test period shall be accurately measured to calculate the leakage. This amount shall be checked against the allowable leakage advised by AWWA C600. The individual testing of the valves may be of a shorter duration as approved by the District.

E. Repairs - During the pressure and leakage test, all accessible appurtenances shall be inspected for visual signs of leakage. All visual leaks shall be corrected immediately, regardless of the amount of leakage and the test shall be run again for its full duration. All leaks detected shall be repaired to a watertight condition. All repairs made shall be retested in accordance with the specifications. All repairs shall be made and a successful test accomplished prior to taking bacteriological samples.

3.3 Disinfecting - After completion of pressure testing, the Contractor shall disinfect all water mains, services, and appurtenances. Disinfection shall be accomplished by continuous-feed method using sodium hypochlorite according to the latest revision of AWWA C651; swabbing with minimum 1% chlorine solution will be allowed for tie-in connections 20-ft or less. Tablet or other alternate methods may be allowed upon request and District's approval. Chlorination and dechlorination shall be performed by competent individuals knowledgeable and experienced in the operation and safety of disinfecting procedures with the applicable Federal, State, and local laws and regulations. Transporting, storage, and handling of these materials shall be performed in accordance with Federal and State Hazardous Materials Regulations.

The basic disinfection steps consists of:

- 1) Prevent dirt, mud, groundwater and contaminating materials from entering water main during storage, construction and repair; remove contaminating materials by flushing and other means.
- 2) Protect existing distribution system from backflow using a certified reduced pressure backflow device during hydrostatic testing and disinfecting procedures.
- 3) Disinfect the new main by chlorinating with a 25-mg/L hypochlorite solution for 24-hour period, then flushing with potable water.
- 4) After disinfecting, verify bacteriological quality by lab tests before making final connections between new water main and active system.

A. Sodium Hypochlorite – A sodium hypochlorite solution shall be used for disinfecting by the continuous-feed method. The point of injection shall correspond with the point of entering dilution water, either at end or within 10-ft of the end of the test section; the solution shall be injected using a suitable chemical feed pump and thoroughly mixed with incoming potable water as it enters the test section. A backflow prevention device shall be installed at the point of connection to the potable water source.

B. Filling and Contact - The main shall be filled at a constant rate (velocity  $\leq$  1.0-ft/sec) with minimum concentration 25-mg/L chlorine throughout the system and held for at least twenty-four (24) hours. During this time, valves, hydrants, blowoffs, air valves, and other appurtenances shall be operated and flushed to move the chlorinated water throughout the system to ensure disinfection. After 24-hr holding period there shall be a free chlorine residual of not less than 10-mg/L.

C. Final Flushing – After applicable retention period, heavily chlorinated water should not remain in prolonged contact with pipe. In order to prevent damage to the pipe lining or corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed and dechlorinated from the main until chlorine measurements throughout the new water main match the existing system background chlorine levels, as approved by the District. The Contractor shall submit the method of dechlorination; chemicals for dechlorination are listed in Appendix C of AWWA C651.

D. Disinfecting Cut-In Connections – When connecting to an existing water main with a cut-in tee or making other repairs, the trench excavation shall be kept dewatered during this work. The interior of the pipe, couplings, fittings, valves and other components that make up the connection assembly shall be swabbed with a minimum 1% hypochlorite solution in accordance to AWWA C651. Flushing towards location of the work/repair from both directions is recommended, if valve and hydrant locations permit, and is continued until eliminating all discolored water.

E. Hot Taps - Before installation, exterior surface of the main are to be cleaned and interior surface of tapping sleeve, outlet and valve swabbed with a minimum 1% hypochlorite solution.

3.4 Bacteriological Tests - After testing and sterilization and before connecting the new water main to the existing distribution system, the District will take water samples for bacteriological examination. Should any samples fail to meet minimum State of California, Department of Public Health requirements, the Contractor will continue to chlorinate and flush the system, as directed, until obtaining passing samples.

Basic Sampling Procedures - After disinfection and final flushing such that a typical system chlorine residual is present, samples shall be collected as follows:

A. After the water has remained in the new main for at least 16 hours, two (2) consecutive sets of acceptable samples, taken at least twenty-four (24) hours apart, shall be collected from the new main. At least one (1) set of samples shall be collected from every 1,200 feet of the new water main, plus one (1) set from the end of the line, and at least one (1) set from each branch. All 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 organisms. A standard heterotrophic plate count may be required, at the option of District.

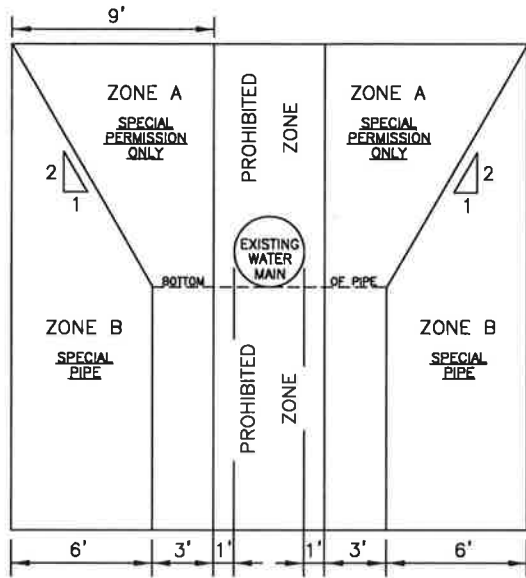
B. Extra Sampling Intervals - If trench water entered the new main during construction or, in the opinion of District, excessive quantities of dirt or debris have entered the new main, bacteriological samples shall be taken at intervals of each two hundred (200) feet and identified by location. Samples shall be taken after water has stood in the new main for at least sixteen (16) hours after final flushing has been completed.

C. Redisinfection - If the initial disinfection fails to produce satisfactory bacteriological samples, the main may be reflashed and shall be re-sampled. If check samples show the presence of coliform organisms, then the main shall be rechlorinated until satisfactory results are obtained.

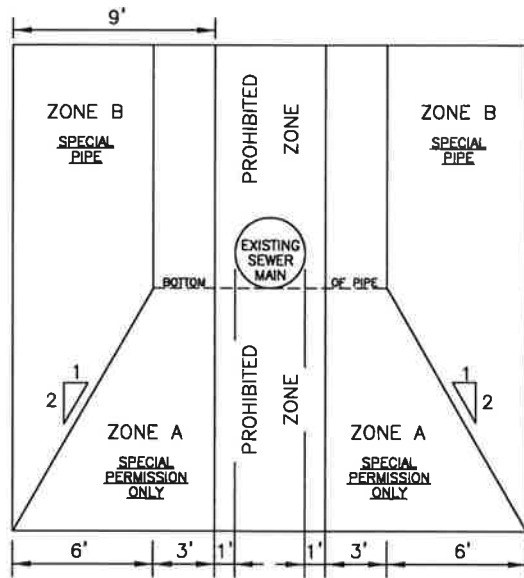
*NOTE: High velocities in the existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, it is well to also sample water entering the new main or initially flush the existing water main before tests.*

**- END OF SECTION -**

**APPENDIX A – PROJECT GENERAL DETAILS**



CASE 1 PARALLEL CONSTRUCTION  
NEW SEWER - EXISTING WATER



CASE 2 PARALLEL CONSTRUCTION  
NEW WATER - EXISTING SEWER

- ZONE A: SEWER LINES NOT PERMITTED WITHOUT WRITTEN PERMISSION FROM COUNTY ENVIRONMENTAL HEALTH AND CCWD
- ZONE B: NEW SEWER MAIN SHALL BE CONSTRUCTED OF:  
PVC PIPE WITH RUBBER RING JOINTS (ASTM D3034)  
CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS

- ZONE A: WATER LINES NOT PERMITTED WITHOUT WRITTEN PERMISSION FROM COUNTY ENVIRONMENTAL HEALTH AND CCWD
- ZONE B: IF EXISTING SEWER MAIN DOES NOT MEET CASE 1 - ZONE B REQUIREMENTS NEW WATER MAIN SHALL BE:  
CLASS 200 PVC (DR 14 / AWWA C900-97)  
DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING  
DIPPED & WRAPPED 1/4" WALL WELDED STEEL PIPE

WATER MAIN SEPARATION:

- A. NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM AND ONE FOOT VERTICALLY ABOVE ANY PARALLEL PIPELINE CONVEYING:
- 1 - UNTREATED SEWAGE
  - 2 - PRIMARY OR SECONDARY TREATED SEWAGE
  - 3 - DISINFECTED SECONDARY-2.2 OR 2.3 RECYCLED WATER (AS DEFINED IN SECTIONS 60301.220 & 60301.225\*)
  - 4 - HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES AND WASTEWATER SLUDGE
- B. NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM AND ONE FOOT VERTICALLY ABOVE ANY PARALLEL PIPELINE CONVEYING:
- 1 - DISINFECTED TERTIARY RECYCLED WATER (AS DEFINED IN SECTION 60301.230\*)
  - 2 - STORM DRAINAGE PIPES OR CATCHMENTS
- C. NEW SUPPLY LINES CONVEYING RAW WATER TO BE TREATED FOR DRINKING PURPOSES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM AND ONE FOOT VERTICALLY BELOW ANY WATER MAIN
- D. IF CROSSING A PIPELINE CONVEYING A FLUID LISTED IN (A) OR (B) ABOVE, A NEW WATER MAIN SHALL BE CONSTRUCTED PERPENDICULAR TO AND AT LEAST ONE FOOT ABOVE THAT PIPELINE. NO CONNECTION JOINTS SHALL BE MADE IN THE WATER MAIN WITHIN EIGHT HORIZONTAL FEET OF SAID FLUID PIPELINE
- E. THE VERTICAL SEPARATION SPECIFIED IN (A) (B) & (C) IS REQUIRED ONLY WHEN THE HORIZONTAL DISTANCE BETWEEN A WATER MAIN AND PIPELINE IS ELEVEN FEET OR LESS AS MEASURED FROM THE OUTSIDE EDGE OF EACH PIPE
- F. NEW WATER MAINS AND NEW SUPPLY LINES SHALL NOT BE INSTALLED WITHIN 100 FEET HORIZONTALLY OF ANY SANITARY LANDFILL, WASTEWATER DISPOSAL POND, OR HAZARDOUS WASTE DISPOSAL SITE, OR WITHIN 25 FEET OF ANY CESSPOOL, SEPTIC TANK, SEWAGE LEACH FIELD, SEEPAGE PIT OR GROUNDWATER RECHARGE PROJECT SITE.
- G. THE MINIMUM SEPARATION DISTANCES SET FORTH IN THIS SECTION SHALL BE MEASURED FROM THE NEAREST OUTSIDE EDGE OF PIPE TO THE NEAREST OUTSIDE EDGE OF PIPE IN ALL CASES

\*REFERENCED IN CALIFORNIA ADMINISTRATIVE CODE, TITLE 22

NOTES:

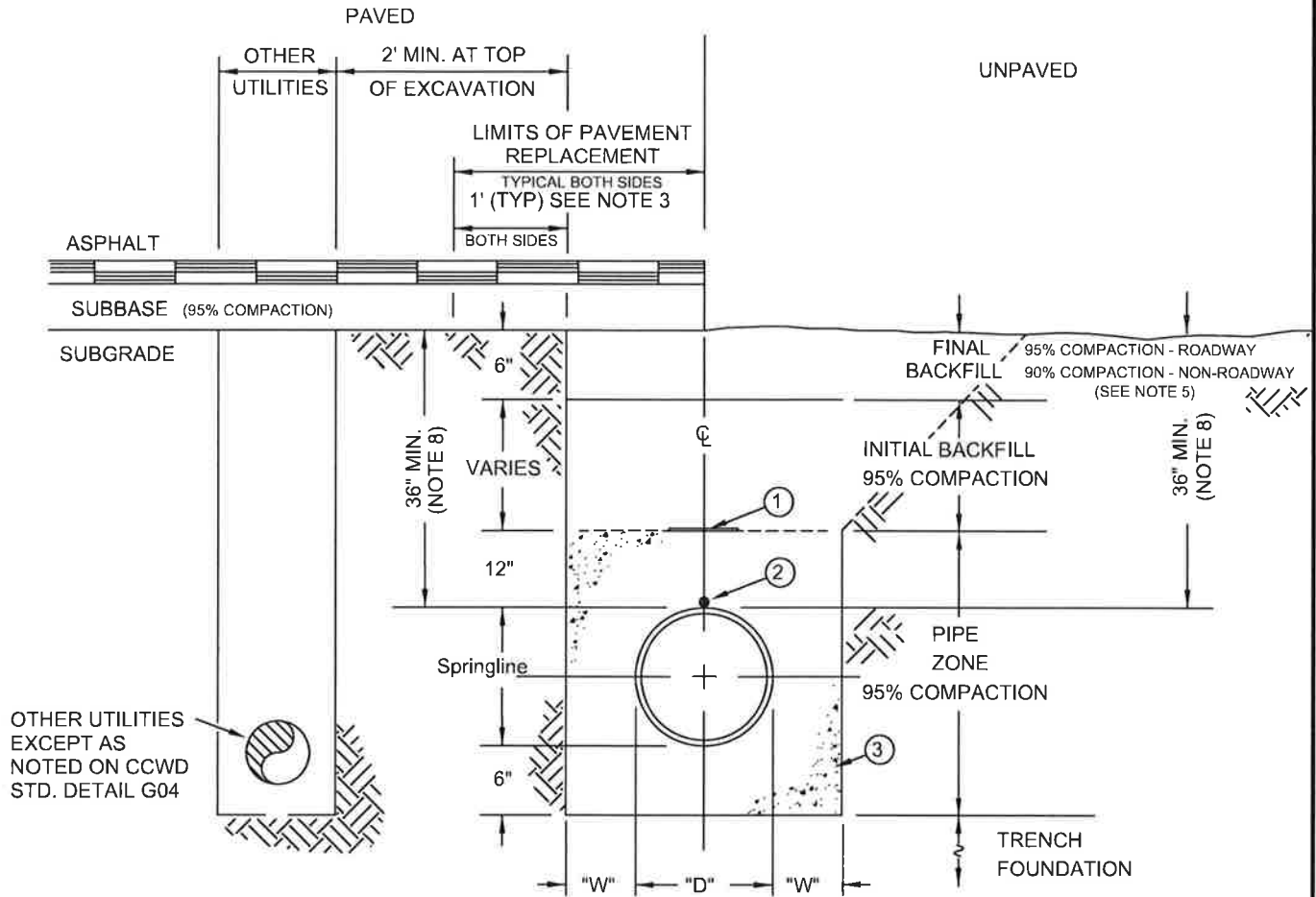
1. THE ABOVE CONSTRUCTION CRITERIA APPLIES TO HOUSE SEWER LATERALS CROSSING ABOVE A WATER MAIN
2. SEWER LINES LARGER THAN 24" DIAMETER AND SEWER LINES WITHIN 25 FEET OF LOW-HEAD WATER MAIN SHALL BE REVIEWED AND APPROVED BY COUNTY ENVIRONMENTAL HEALTH DEPT.
3. IN NO CASE SHALL WATER MAINS AND ANY NON-POTABLE PIPELINE CONVEYING SEWAGE OR ANY OTHER FLUID NOTED ABOVE BE INSTALLED IN THE SAME TRENCH

CALAVERAS COUNTY WATER DISTRICT

GENERAL DETAILS  
SEPARATION STANDARDS

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G04</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	





**NOTES:**

1. FOR EXCAVATIONS THAT WORKERS ENTER/DECEND, PERMITS SHALL BE REQUIRED FOR ALL EXCAVATIONS OVER 5 FEET IN DEPTH AND ANY EXCAVATIONS LESS THAN 5 FEET IN DEPTH IN SOILS THAT HAZARDOUS GROUND MOVEMENT MAY OCCUR.
2. PIPE TO BE LAID WITH LABEL UP ON EACH JOINT.
3. ROAD REPAIR SHALL CONFORM TO ROAD AGENCY PERMIT CONDITIONS AND SPECIFICATIONS. WIDTH OF REPAIR PER COUNTY OR CALTRANS REQUIREMENTS
4. WHEN COUNTY PUBLIC WORKS OR CALTRANS ENCROACHMENT PERMIT CONDITIONS ARE MORE RESTRICTIVE, THEY WILL TAKE PRECEDENCE.
5. EXCEPT FOR TRENCHES CUT IN ROAD SUBGRADE SLOPES AND FILLS, TRENCH WALLS ARE TO BE VERTICAL AND REMAIN WITHIN DESIGNATED LIMITS. ROADWAY INCLUDING AREAS UNDER PAVING, AREAS WITHIN 5-FT OF EDGE OF PAVEMENT, AND ALL SLOPES AND FILLS WITHIN ROADBED'S STRUCTURAL SECTION/SUBGRADE SHALL BE BACKFILLED TO 95% RELATIVE COMPACTION.
6. TRACER WIRE TO BE INCLUDED ON ALL PIPELINES INCLUDING SERVICE LATERALS.
7. SEE DETAIL G05A FOR UNSTABLE CONDITIONS.
8. PRECEDENCE SHALL BE GIVEN TO DEPTH OF COVER SHOWN ON PLAN AND PROFILE SHEETS, AND NOT LESS THAN 36-INCHES MINIMUM COVER.

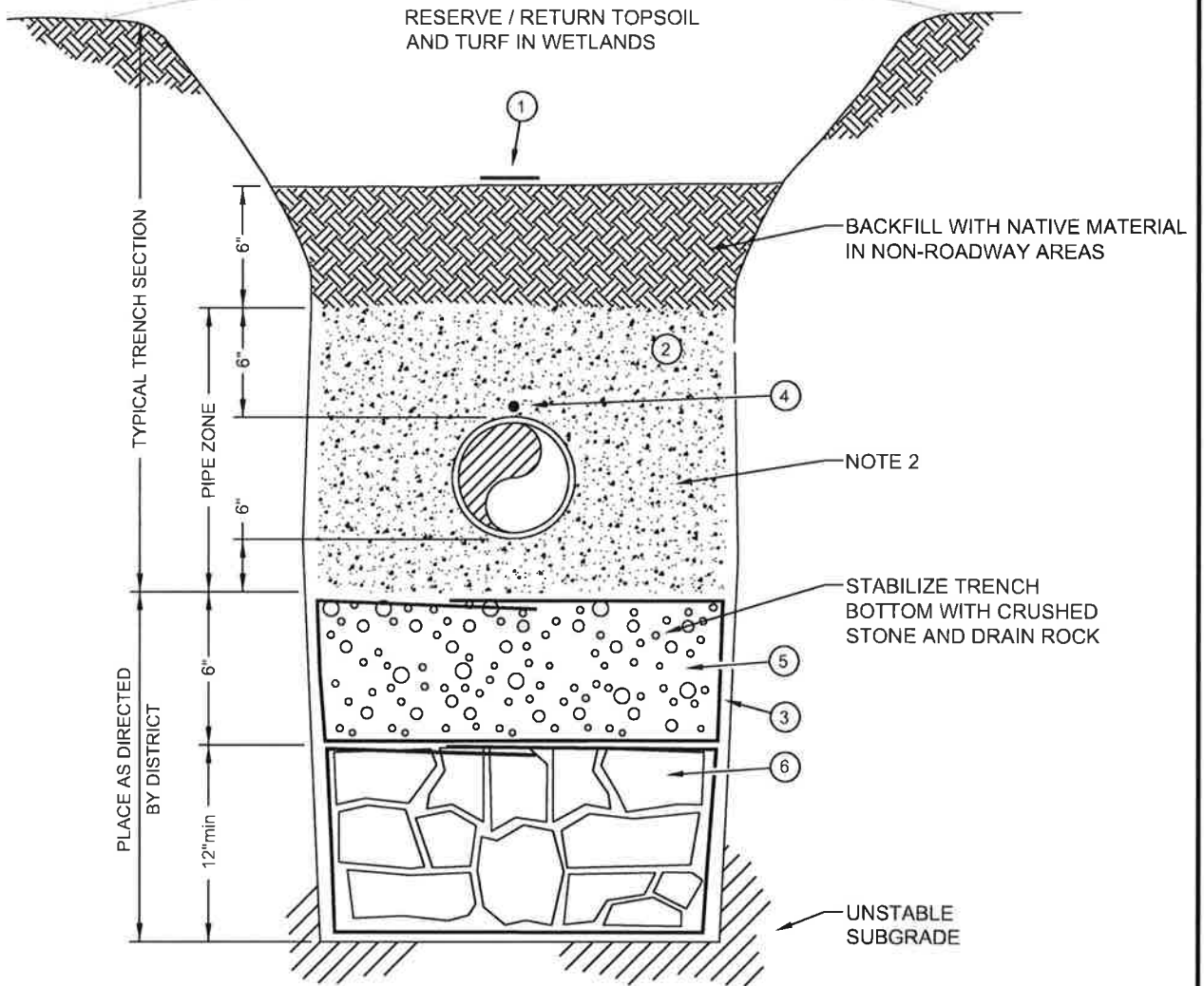
PIPE ZONE EXCAVATION LIMITS		
D	W (min.)	W (max.)
<10"	6"	9"
≥10"	9"	12"

ITEM #	DESCRIPTION
①	2" WIDE WARNING TAPE (COLOR - MARKING) BLUE - "WATER" GREEN - "SEWER"
②	TRACER WIRE
③	PIPE ZONE MATERIAL

**CALAVERAS COUNTY WATER DISTRICT**

**GENERAL DETAILS  
TRENCH SECTION**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G05</b>
APPROVED: CHARLES PALMER	DATE: AUG. 2018	



ITEM #	DESCRIPTION
1	WARNING TAPE (SEE DETAIL G05)
2	CALTRANS CLASS 2 (A.B.) AGGR. BASE
3	NONWOVEN GEOTEXTILE CLOTH, MINIMUM 8 oz
4	TRACER WIRE
5	3/4" CRUSHED ROCK
6	1-1/2" DRAIN ROCK

### NOTES:

- CONSTRUCTION SHALL HAVE PRIOR APPROVAL BY THE DISTRICT.
- ALL EXCAVATION SHALL BE IN CONFORMANCE WITH CAL/OSHA REQUIREMENTS.
- ELEC. CONDUITS INSTALLED BY CCWD SHALL MEET CURRENT PG&E TRENCH STANDARDS & INCLUDE WARNING TAPE AS SHOWN.

## CALAVERAS COUNTY WATER DISTRICT

### GENERAL DETAILS TRENCH SECTION - UNSTABLE SUBGRADE

DRAWN BY:  
CCWD STAFF

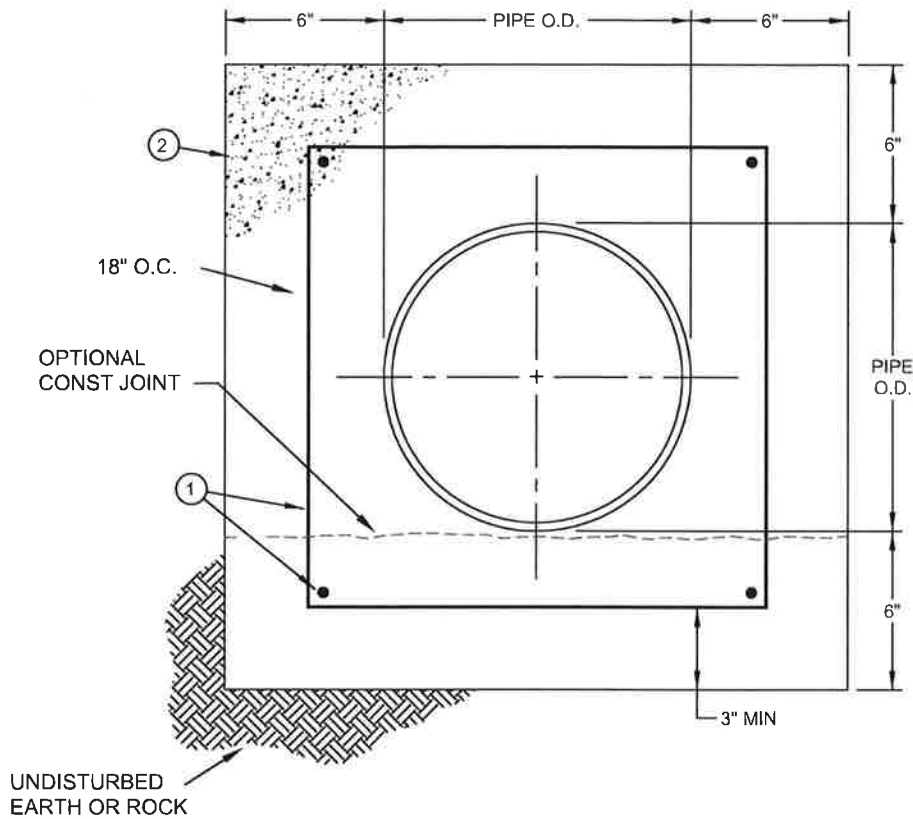
SCALE:  
NONE

CCWD STANDARD DRAWING NO.

APPROVED:  
CHARLES PALMER

DATE:  
AUG. 2018

**G05A**



CONCRETE ENCASEMENT

NOTES:

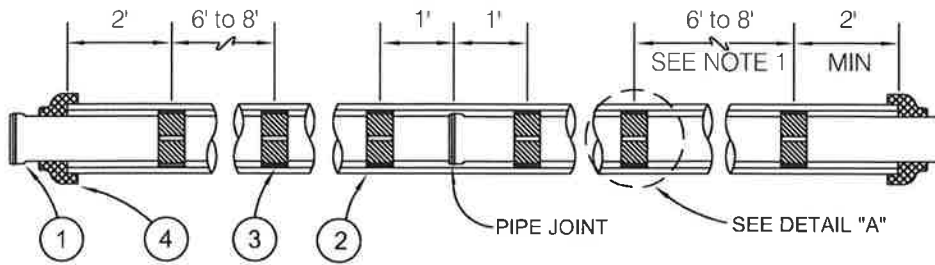
1. INSTALL SAND BAGS UNDER THE PIPE AT MIDPOINT AND AT EACH JOINT TO SUPPORT PIPE.
2. PIPE JOINTS SHALL BE TIED DOWN TO PREVENT FLOATING.
3. ALL ENCASED PIPE SHALL BE DUCTILE IRON AND WRAPPED
4. PIPE SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS EXTENDING TWO PIPE LENGTHS BEFORE AND AFTER ENCASEMENT

ITEM #	DESCRIPTION
①	#4 REBAR
②	CLASS "3" CONCRETE

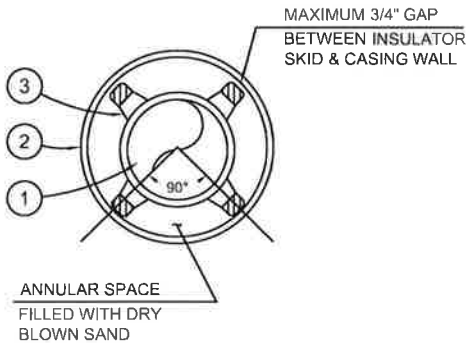
**CALAVERAS COUNTY WATER DISTRICT**

GENERAL DETAILS  
CONCRETE ENCASEMENT

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G09</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	



**PROFILE**



ITEM	DESCRIPTION
①	CARRIER / WATER MAIN, CLASS 350 DUCTILE IRON PIPE WITH RESTRAINED JOINTS (U.S. PIPE TR-FLEX, AMERICAN FLEX-RING OR EQUAL)
②	STEEL CASING PIPE WITH 0.25-INCH THICK WALL, AND ALL JOINTS FULLY BUTT WELDED
③	INSULATORS, 8-INCH WIDE VINYL COATED STEEL BAND, 2" WIDE RUNNERS, CENTERED AND RESTRAINED (CALPICO, GPT INDUSTRIES OR EQUAL)
④	END SEALS, SYNTHETIC RUBBER, WRAP AROUND WITH SELF-ADHERING SEAM OR SLIP-ON BOOT, STAINLESS STEEL BANDS (CALPICO, GPT INDUSTRIES OR EQUAL)

**DETAIL "A"**

**NOTES:**

- Provide minimum three spacers per standard length 18' to 20' ductile iron pipe and place to support each side of joints and center middle insulator equally from ends.
- All work shall conform to requirements of the Cal-Trans Encroachment Permits Manual Chapter 600, and specific terms and conditions of the State and/or County issued encroachment permit.
- Contractor shall obtain a project or annual permit for excavations for subject work in conformance with Cal-OSHA regulations. All pits shall be sheeted, shored and braced according to the Division of Industrial Safety, Construction Safety Orders, Article 6, Excavations, Sections 1539-1543.
- Bore and receiving pits shall conform to Cal-Trans Encroachment Permits Manual, Chapter 600 and adequately shored to ensure against ground movement and to safeguard existing surface improvements and substructures. Pits shall not affect public or private facilities or create a hazard to traveling public; damage to State facilities shall be replaced in-kind or repaired to original condition.
- All pits shall be fenced and Type-K barrier placed for protection adjacent to traffic and road; Type-K railing shall be placed at 20:1 taper or as otherwise directed by District. Pits left open overnight shall have a 6-ft high fence with panel sections securely fastened together for pedestrian safety. Reflectors shall be secured to sides of fence that face traffic.
- For State Highway crossings, subsurface monitoring points shall be installed and surveyed prior to starting work. Points shall be monitored regularly during bore and jack operations and Cal-Trans representative notified immediately of any ground movement or change in elevation.

Carrier Pipe Size	Casing Pipe	
	Size	Wall Thickness*
4"	12"	1/4"
6"	14"	1/4"
8"	16"	1/4"
10"	18"	1/4"
12"	20"	1/4"
16"	30"	3/8"
20"	36"	3/8"
24"	42"	1/2"

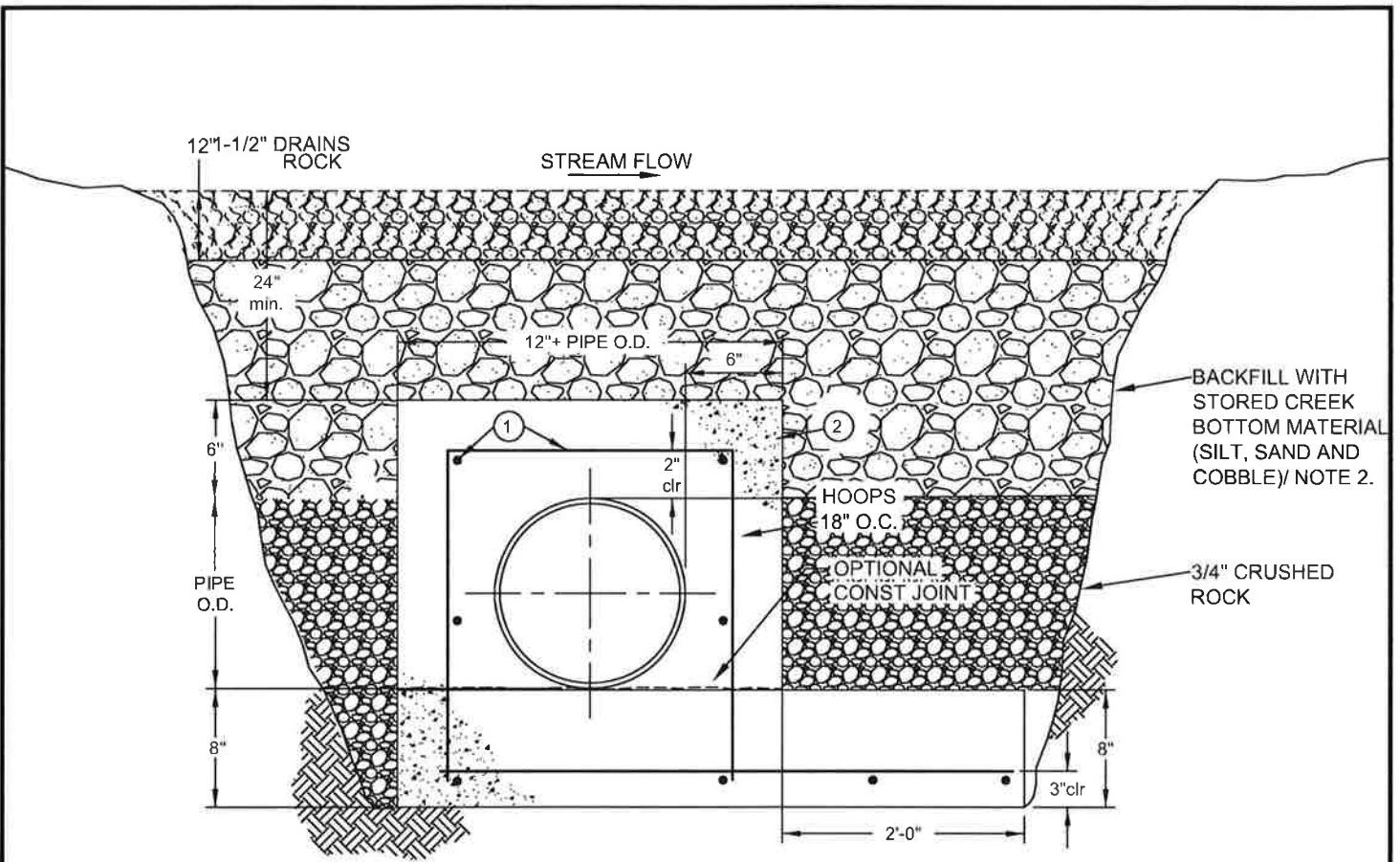
\* thickness for casing pipes less than 150'(ft) in length.

**CALAVERAS COUNTY WATER DISTRICT**

**GENERAL DETAILS  
CASING DETAIL (PROJECT MODIFIED)**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G10</b>
APPROVED: CHARLES PALMER	DATE: AUG. 2018	

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STREAM CROSSING IN SOIL

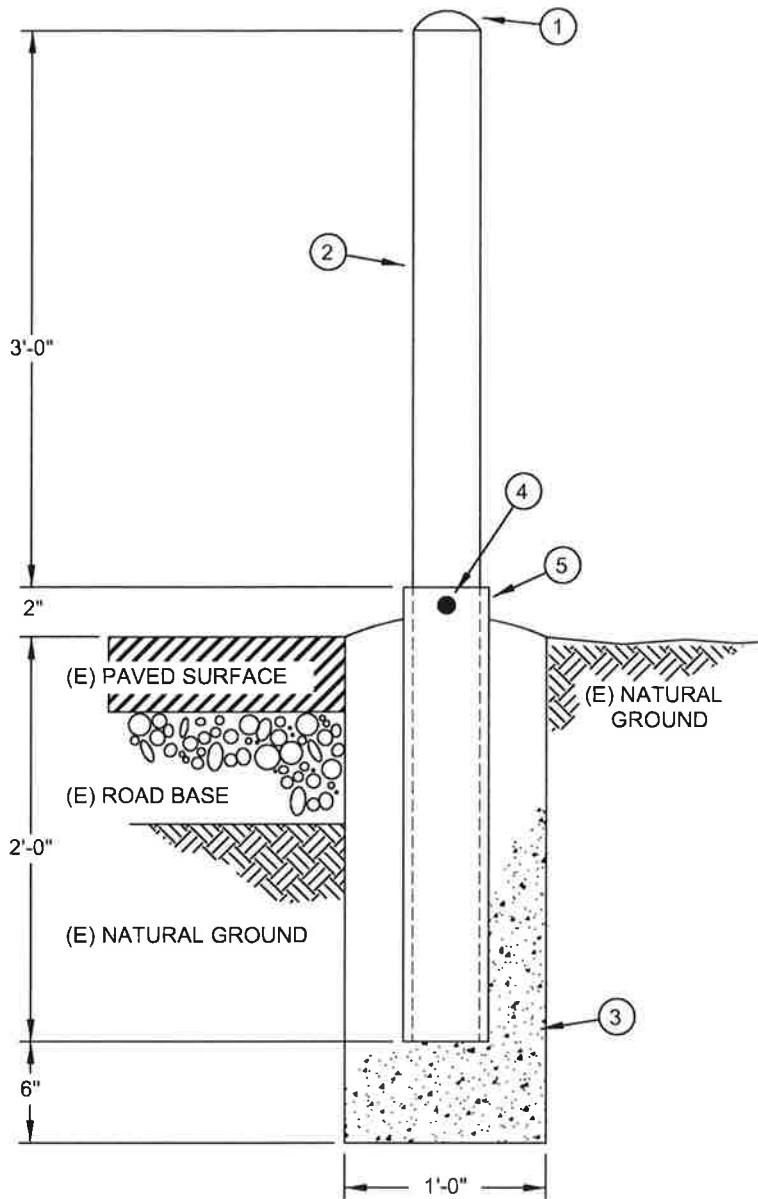
NOTES:

1. PIPE SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS EXTENDING TWO PIPE LENGTHS BEFORE AND AFTER ENCASEMENT
2. BACKFILL & COMPACT WITH NATIVE/STORED CREEK BOTTOM MATERIAL; USE IMMEDIATELY ADJACENT/NEARBY MATERIAL FROM STREAM BANKS IF LOWER MOISTURE CONTENT IS NEEDED FOR COMPACTION.

ITEM #	DESCRIPTION
①	#4 REBAR
②	CLASS 3 CONCRETE

<b>CALAVERAS COUNTY WATER DISTRICT</b>		
GENERAL DETAILS STREAM CROSSING (PROJECT MODIFIED)		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G11</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	

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**REMOVABLE GUARD POST**

ITEM #	DESCRIPTION
①	3" PVC END CAP
②	3" SCH 40 STEEL POST, PAINTED SAFETY YELLOW, PLAIN END
③	CLASS 3 CONCRETE
④	1/2" BOLT THRU SLEEVE & POST w/NUT
⑤	4" STEEL SLEEVE EXTENDING 2" ABOVE CONCRETE

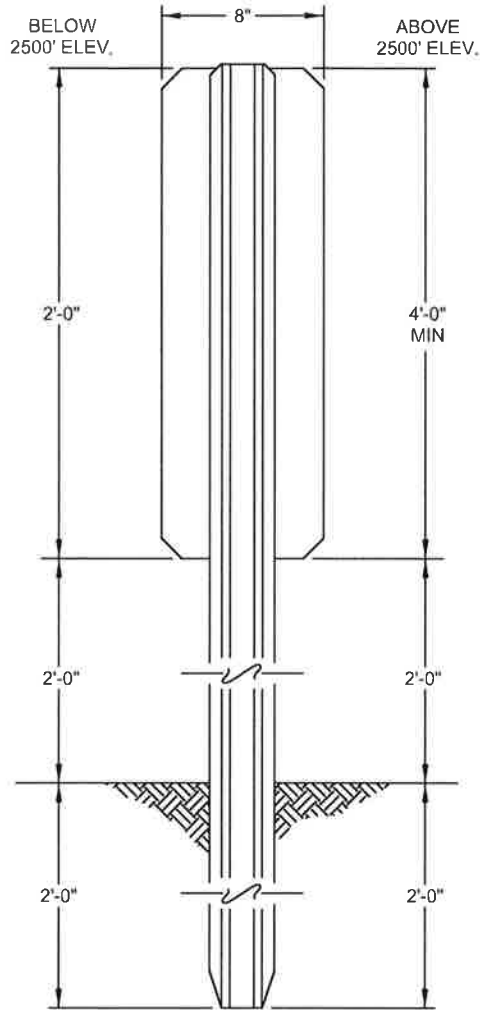
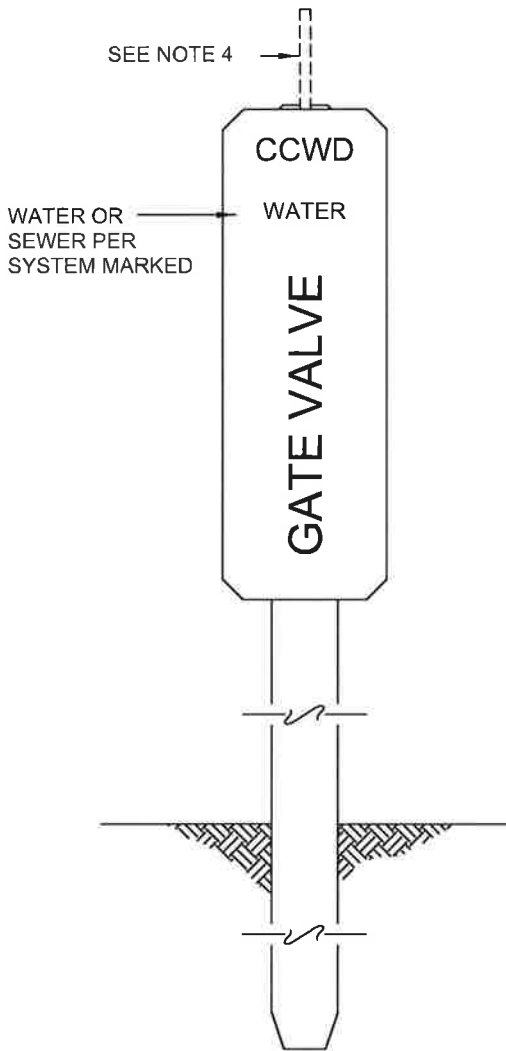
**NOTES:**

1. EXPOSED PIPE TO BE PAINTED YELLOW WITH TWO COATS OF PRIMER.

**CALAVERAS COUNTY WATER DISTRICT**

**GENERAL DETAILS  
REMOVABLE GUARD POST**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>G12</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	



**PADDLE MARKER PLACEMENT**

SEWER	WATER
GATE VALVE	GATE VALVE
AIR RELIEF VALVE	AIR RELIEF VALVE
MANHOLES	FIRE HYDRANT

**NOTES:**

1. THE MARKER SHALL BE FLAT WHITE STEEL PLATE WITH BLUE LETTERING FOR WATER AND GREEN LETTERING FOR SEWER AS NOTED ABOVE
2. SEE CALTRANS STANDARD MARKER TYPE TYPE L-1 PER CALTRANS STANDARD PLANS.
3. PADDLE MARKER SHALL FACE TOWARDS APPURTENANCE
4. ABOVE 2000' ELEVATION MARKERS SHALL BE ADAPTED FOR USE WITH SNOW POLES PER CCWD FIELD STAFF.
5. PLACE SIGN OUTSIDE OF PAVED AREAS NO MORE THAN 36" FROM CCWD APPURTENANCE BEING MARKED.
6. MARKERS TO BE PLACED WHERE NOTED IN TABLE ABOVE UNLESS OTHERWISE INDICATED ON CONSTRUCTION PLANS.

**CALAVERAS COUNTY WATER DISTRICT**

**GENERAL DETAILS  
PADDLE MARKER**

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

CCWD STANDARD DRAWING NO.

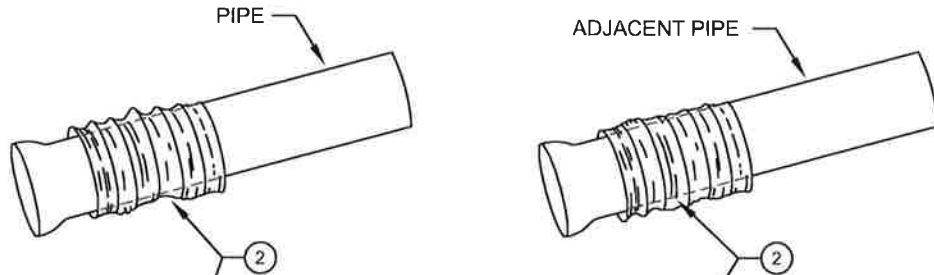
APPROVED:  
CHARLES PALMER

DATE:  
SEPT. 2015

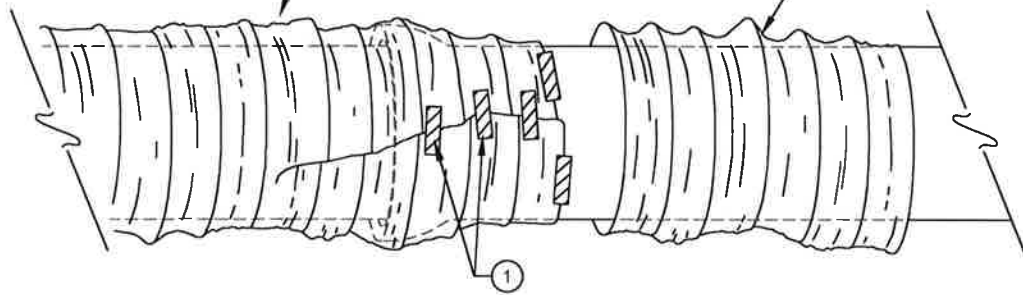
**G12A**

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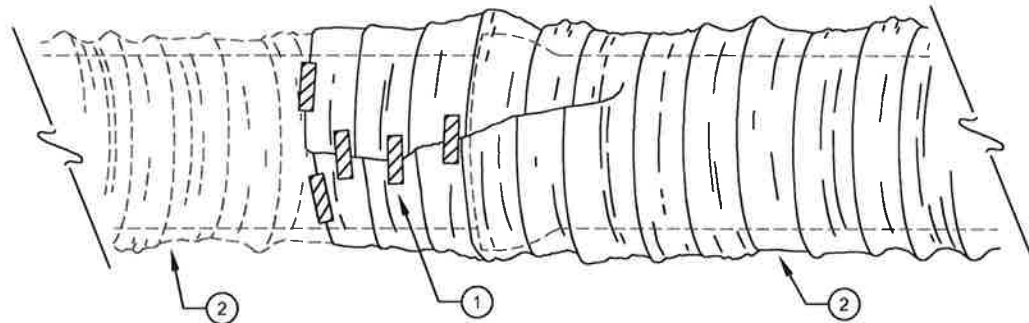
STEP 1  
SIDE VIEW



STEP 2  
TOP VIEW



STEP 3  
TOP VIEW



FIELD INSTALLATION - POLYETHYLENE WRAP

- STEP 1: PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING INTO TRENCH.
- STEP 2: PULL THE TUBE OVER THE LENGTH OF THE PIPE AND TAPE TO TOP OF PIPE AT JOINT. FOLD THE MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE.
- STEP 3: OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH UTILITY TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF THE PIPE AND TAPED IN PLACE.

ITEM #	DESCRIPTION
①	UTILITY TAPE
②	PIPE WRAP

**CALAVERAS COUNTY WATER DISTRICT**

GENERAL DETAILS  
POLYETHYLENE WRAP

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

CCWD STANDARD DRAWING NO.

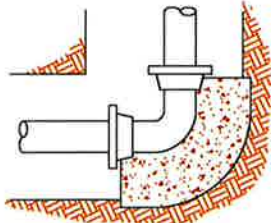
APPROVED:  
CHARLES PALMER

DATE:  
SEPT. 2015

**G13**



**HORIZONTAL BEND ANCHOR**  
CONCRETE BEARING AREA (S.F.)



**90° BEND**

4" = 6	10" = 14
6" = 6	12" = 20
8" = 9	

**45° BEND**

4" = 3	10" = 8
6" = 3	12" = 11
8" = 6	

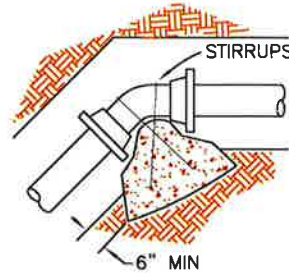
**22 1/2° BEND**

4" = 1.5	10" = 4
6" = 1.5	12" = 6
8" = 2	

**11 1/4° BEND**

4" = 1	10" = 3
6" = 1	12" = 4
8" = 2	

**VERTICAL BEND ANCHOR**  
CONCRETE VOLUME (C.Y.)



**45° BEND**

4" = 1.4	10" = 3.6
6" = 1.4	12" = 5.1
8" = 2.4	

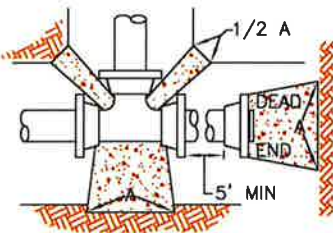
**22 1/2° BEND**

4" = 0.7	10" = 1.8
6" = 0.7	12" = 2.6
8" = 1.2	

**11 1/4° BEND**

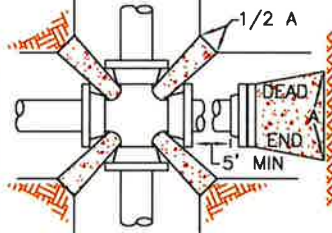
4" = 0.4	10" = 0.9
6" = 0.4	12" = 1.3
8" = 0.6	

**TEE/DEAD END & PLUG**  
CONC. BEARING AREA (S.F.)



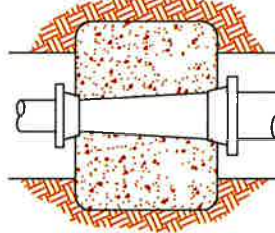
4" = 3	10" = 8
6" = 3	12" = 12
8" = 5	

**CROSS with PLUG**  
CONC. BEARING AREA (S.F.)



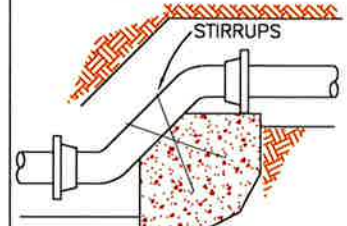
4" = 3	10" = 8
6" = 3	12" = 12
8" = 5	

**REDUCER**  
CONC. BEARING AREA (S.F.)



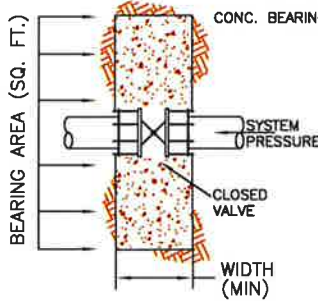
4"-6" = 10	8"-10" = 10
6"-8" = 10	10"-12" = 10

**OFFSET ANCHOR BLOCK**  
SINGLE FITTING  
CONC. VOLUME (C.F.)



4" = 26	10" = 80
6" = 26	12" = 107
8" = 53	

**DEAD END/CONSTRUCTION**  
GATE VALVE



CONC. BEARING AREA (S.F.)

PIPE	150PSI	300PSI	WIDTH(MIN)
4"	3	6	18"/24"
6"	3	6	18"/24"
8"	5	10	18"/24"
10"	8	16	24"/30"
12"	12	24	24"/30"

**NOTES:**

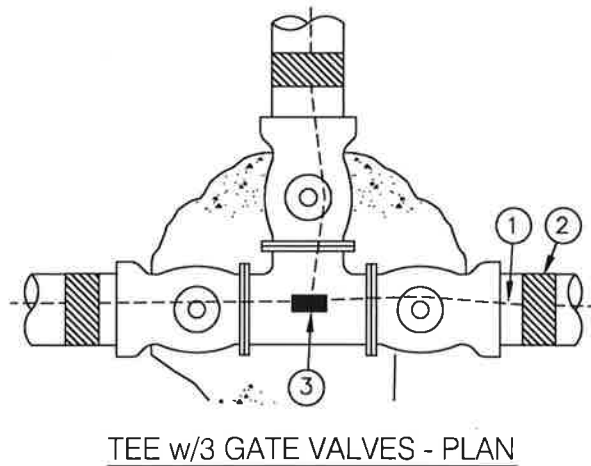
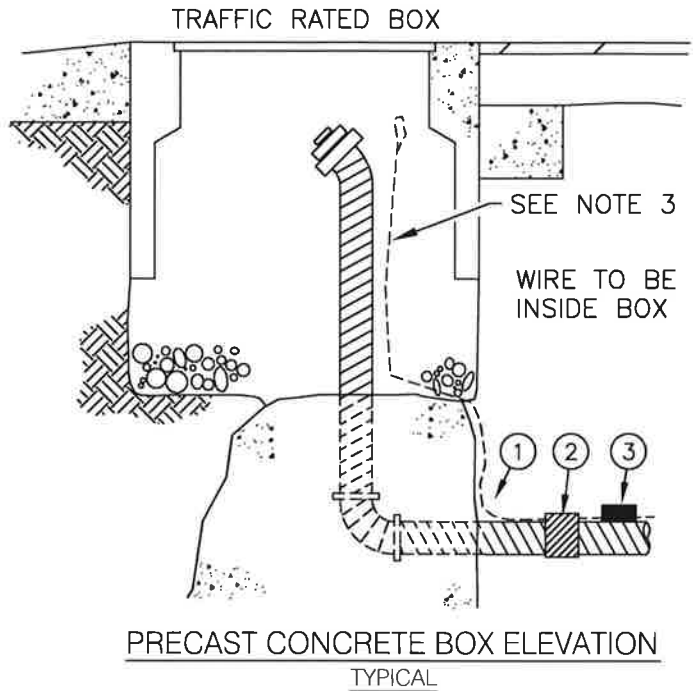
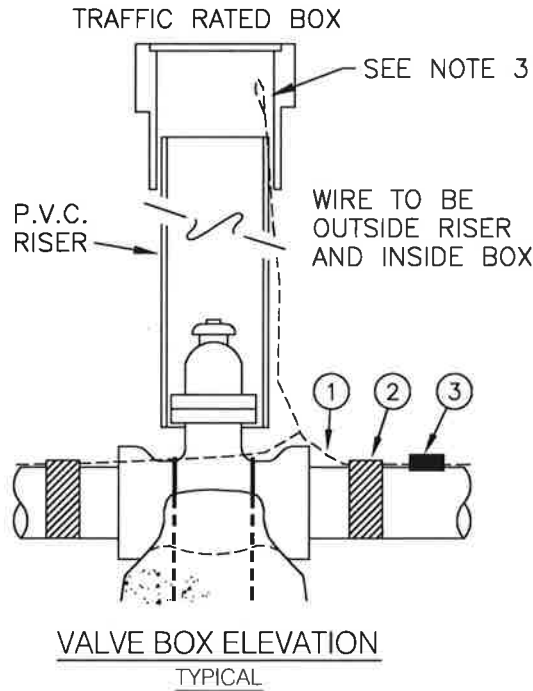
1. THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 3 CONCRETE.
2. AREAS GIVEN ARE FOR PIPE AT TEST PRESSURES OF 150 PSI. SIZE OF THRUST BLOCK ABOVE 150 PSIG MUST BE SCALED PROPORTIONALLY, I.E 2X FOR 300 PSIG.
3. IN SOIL WITH 2,000 PSF BEARING CAPACITY, INSTALLATIONS USING DIFFERENT TEST PRESSURES, AND/OR SOIL TYPES, SHOULD ADJUST THRUST BLOCK AREAS ACCORDINGLY, SUBJECT TO APPROVAL OF DISTRICT ENGINEER.
4. BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL, OF MINIMUM AREA SQUARE FEET.
5. PROTECT BOLTS, NUTS, THREADS, AND GASKETS FROM CONCRETE WITH 6 MIL. MIN. PVC SHEETING.
6. ALL FITTINGS SHALL BE WRAPPED (SEE DETAIL G13).
7. STIRRUPS SHALL BE MINIMUM 1/2" IN SIZE
8. TWO STIRRUPS REQUIRED ON 4" - 8" FITTINGS. FOUR STIRRUPS REQUIRED ON 10" - 12" FITTINGS.

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS**  
**THRUST BLOCK BEARING AREA SCHEDULE**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W01</b>
APPROVED: CHARLES PALMER	DATE: DEC 2015	

F:\CCWD\1-ACAD\_dwg\Details\Nov2007\_Working\_Stds\FinalPass\_Approved\Water\SD\_W03.dwg 20090225.1315

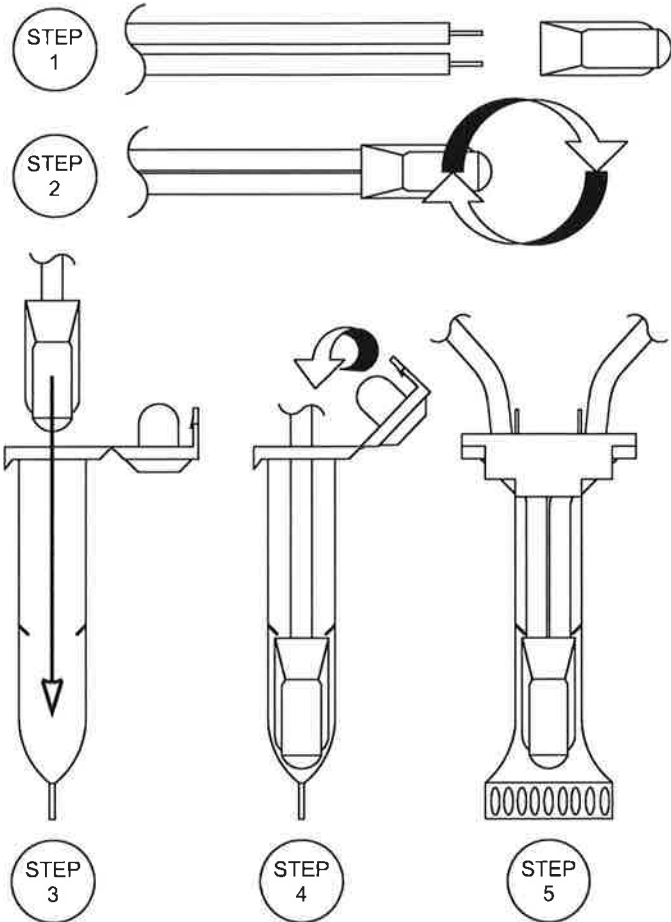


**NOTES:**

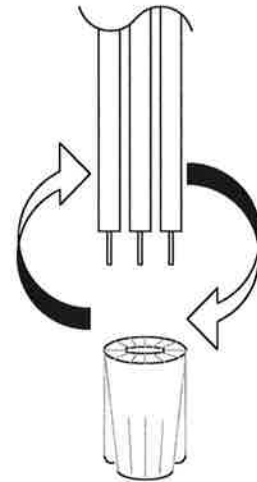
1. TRACER WIRE SHALL BE INSTALLED WITH ALL PIPE. SERVICE LINES FROM WATER MAIN TO METER, WHICH ARE NOT PERPENDICULAR TO THE MAIN, SHALL HAVE A TRACER WIRE ALSO. WIRE TO BE TAPED TO BASE OF CURB STOP.
2. PLACE WIRE DIRECTLY ON TOP OF PIPE AND TAPE TO PIPE (TWICE EVERY FULL PIPE SECTION). SPLICES IN THE WIRE SHALL BE PER CCWD STD DWG W02A OR OTHER CCWD APPROVED METHOD.
3. STRIP APPROXIMATELY 3" (in) OF INSULATION AT 1' LOOP TERMINATION OF WIRE IN VALVE OR METER BOX.
4. AT THE TERMINATION OF TRACER WIRE, INSTALL AN EXTRA VALVE BOX IF NECESSARY. SHOW LOCATION ON PLANS.
5. THE CONTRACTOR SHALL TEST THE CONTINUITY OF THE FINISHED INSTALLATION.

ITEM #	DESCRIPTION
①	TRACER WIRE
②	UTILITY TAPE, SEE NOTE 2
③	SEE W02A FOR CONNECTOR DETAIL

<b>CALAVERAS COUNTY WATER DISTRICT</b>		
<b>WATER DETAILS</b>		
<b>TRACER WIRE INSTALLATION</b>		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W02</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	



TRACER WIRE SPLICE DETAIL  
TWO WIRES ONLY

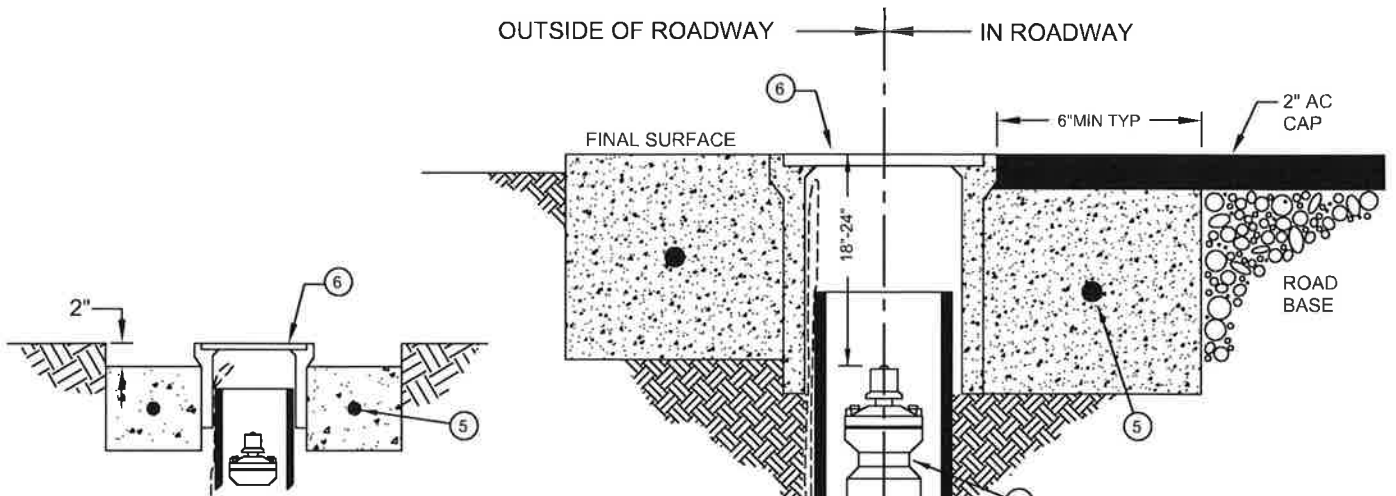


TRACER WIRE SPLICE DETAIL  
TWO TO FOUR WIRES

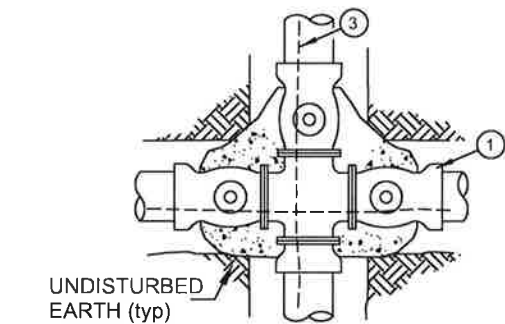
NOTES:

1. TRACER WIRE SHALL BE INSTALLED WITH ALL PIPE. SERVICE LINES FROM WATER MAIN TO METER, WHICH ARE NOT PERPENDICULAR TO THE MAIN, SHALL HAVE A TRACER WIRE ALSO. WIRE TO BE TAPED TO BASE OF CURB STOP.
2. PLACE WIRE DIRECTLY ON TOP OF PIPE AND TAPE TO PIPE (TWO PLACES EVERY FULL PIPE SECTION).
3. STRIP APPROXIMATELY 3" (in) OF INSULATION AT THE TERMINATION OF THE WIRE IN THE VALVE OR METER BOX.
4. AT THE TERMINATION OF TRACER WIRE, INSTALL AN EXTRA VALVE BOX IF NECESSARY. SHOW LOCATION ON PLANS.
5. THE CONTRACTOR SHALL TEST THE CONTINUITY OF THE FINISHED INSTALLATION.

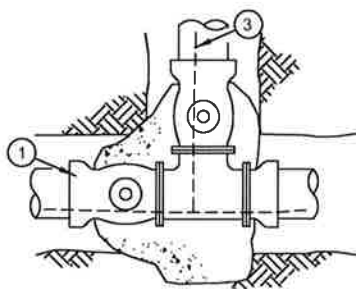
<b>CALAVERAS COUNTY WATER DISTRICT</b>		
WATER DETAILS TRACER WIRE CONNECTOR		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W02A</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	



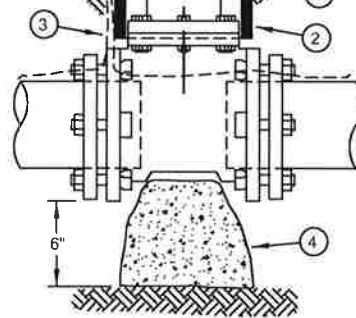
INSTALLATION IN LANDSCAPING



CROSS INSTALLATION



TEE INSTALLATION



GATE VALVE DETAIL

ITEM #	DESCRIPTION
1	GATE VALVE, RESILIENT SEAT
2	8" C900 P.V.C. RISER
3	TRACER WIRE FOR ALL INSTALLATIONS (PER DETAIL W02 & W02A)
4	CONCRETE BLOCK, 3sqft AREA, BOTTOM THRUST AREA, REQUIRED FOR VALVES 8" OR LARGER
5	#4 REBAR HOOP
6	CHRISTY G5 OR APPROVED EQUAL CONCRETE VALVE BOX BODY WITH TRAFFIC TYPE CI COVER MARKED WATER. RECESS BOX 1/4" MAX. FOR SNOW REMOVAL ABOVE 2000'.

**NOTES:**

1. ALL GATE VALVES SHALL BE EPOXY COATED, AWWA APPROVED AND FULLY ENCAPSULATED WITH RESILIENT SEAT, MECHANICAL JOINT OR FLANGE.
2. VALVES PLACED FOR FUTURE LINE EXTENSIONS SHALL HAVE A BLIND FLANGE PLACED OVER THE OUTLET.
3. WHEN OPERATING NUT IS GREATER THAN 24" FROM FG, INSTALL STEM EXTENSIONS. (see CCWD W03A)

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS  
GATE VALVE INSTALLATION**

DRAWN BY:  
CCWD STAFF

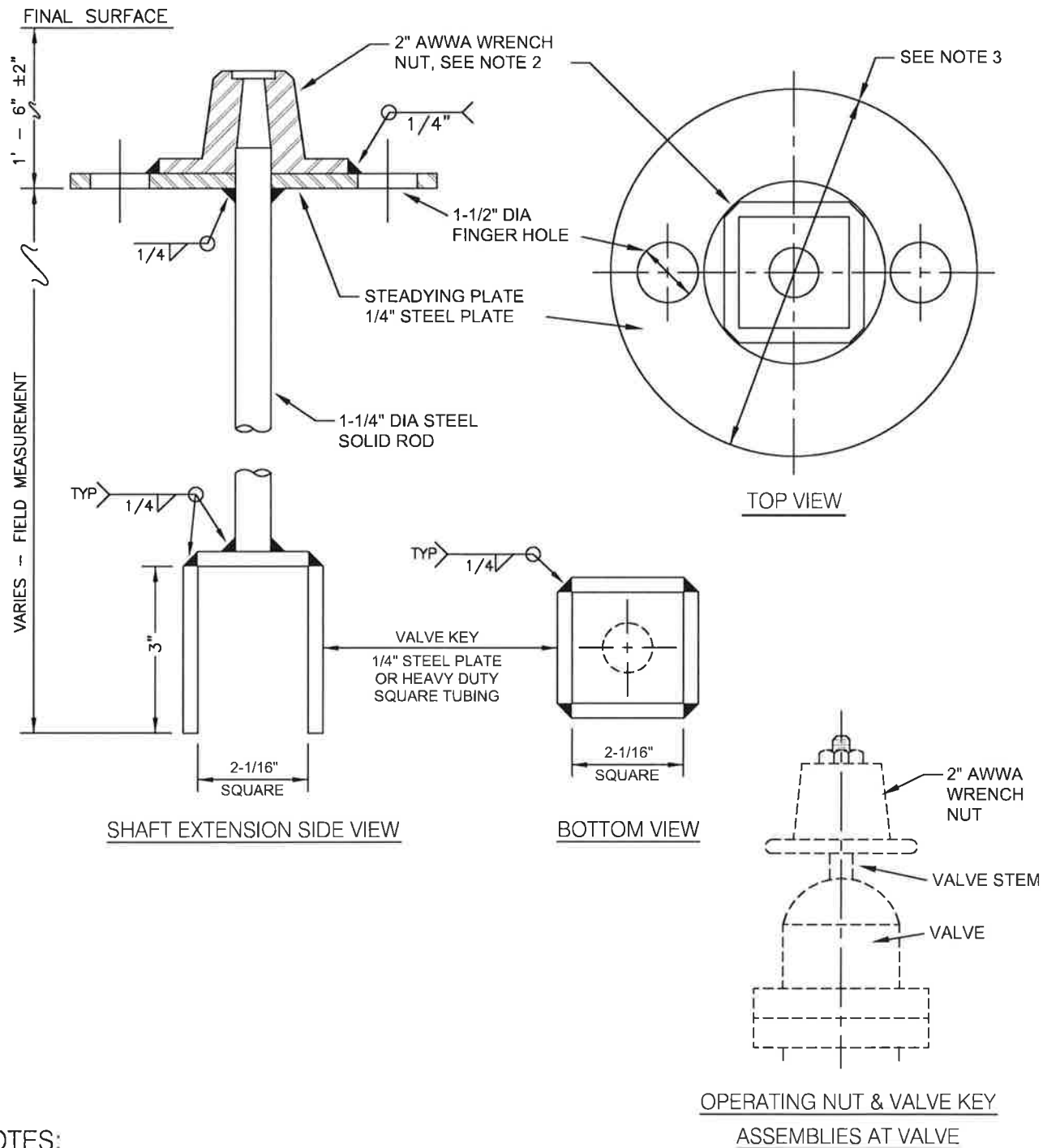
SCALE:  
NONE

CCWD STANDARD DRAWING NO.

APPROVED:  
CHARLES PALMER

DATE:  
SEPT. 2015

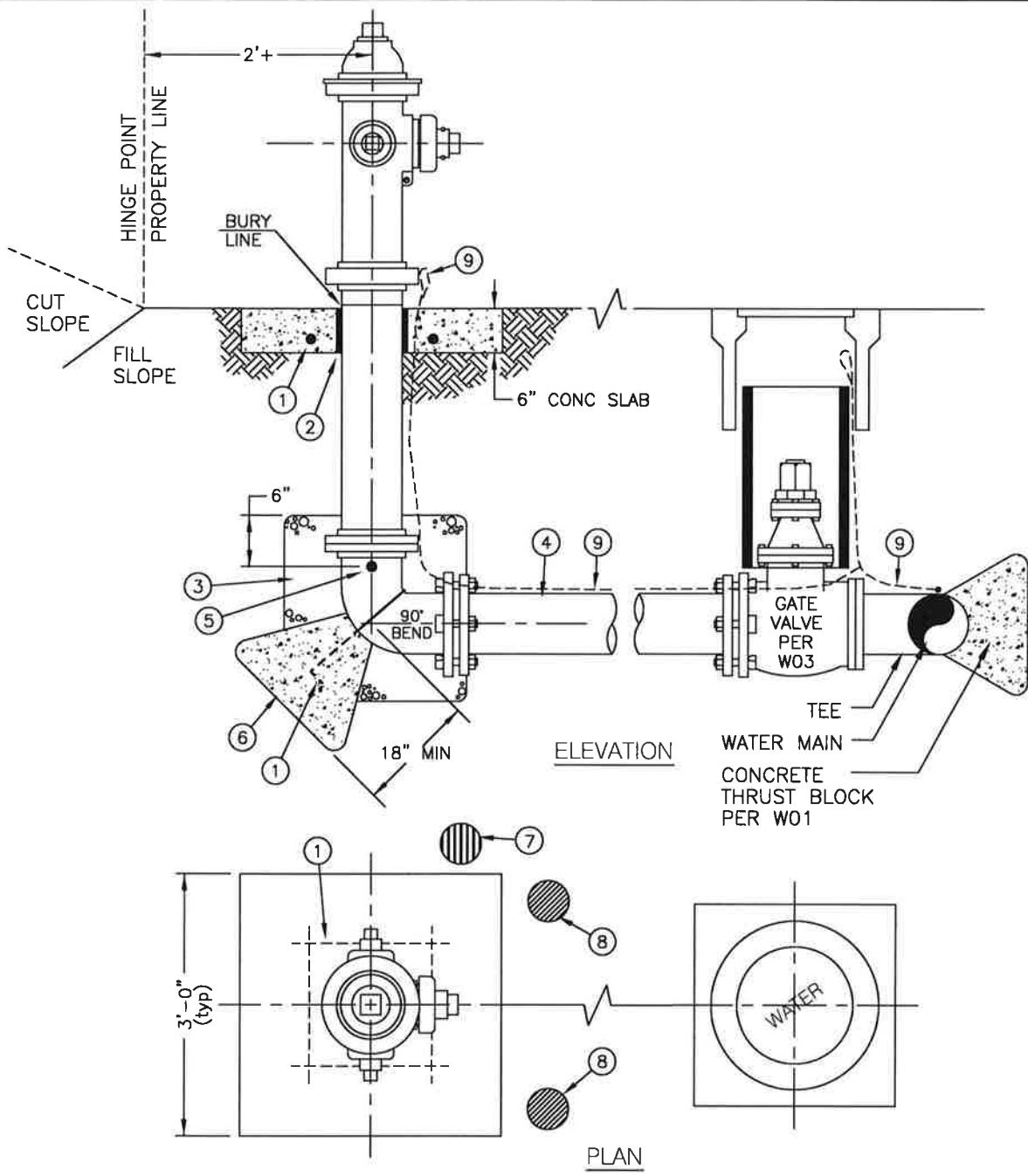
**W03**



**NOTES:**

1. AN EXTENSION SHALL BE REQUIRED WHEN THE TRENCH DEPTH IS 36" (in) OR MORE BELOW THE FINAL SURFACE, OR AS SPECIFIED.
2. WRENCH NUT SHALL BE AS SPECIFIED IN AWWA C500, SECTION 20. PEEN TOP OF SHAFT TO SECURE THE NUT, OR ATTACH BY WELDING.
3. STEADYING PLATE DIAMETER SHALL BE EQUAL TO THE INSIDE DIAMETER OF THE VALVE BOX EXTENSION MINUS 3/4" (in).
4. COAT ENTIRE ASSEMBLY IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.

<b>CALAVERAS COUNTY WATER DISTRICT</b>		
<b>WATER DETAILS</b>		
<b>GATE VALVE EXTENSION INSTALLATION</b>		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W03A</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	

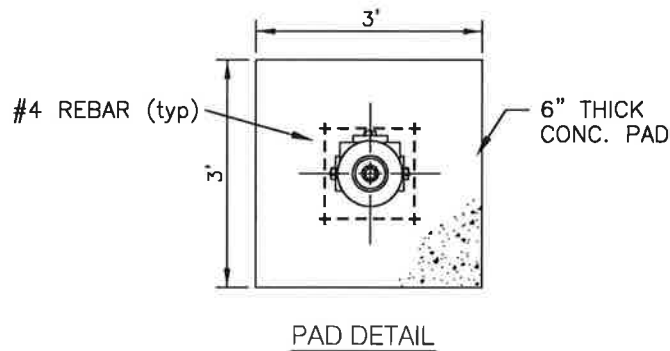
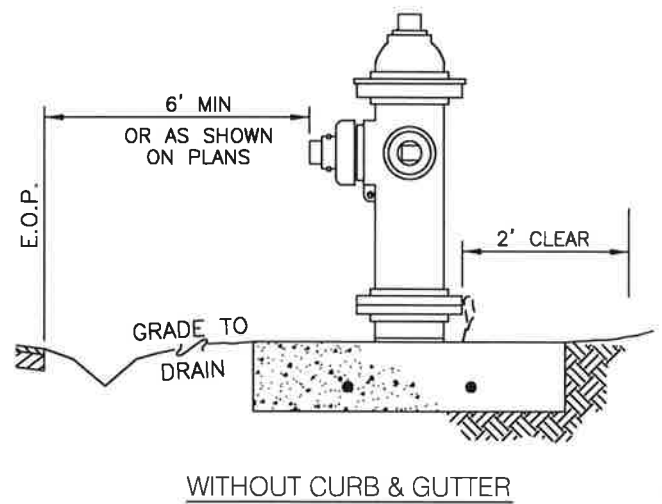
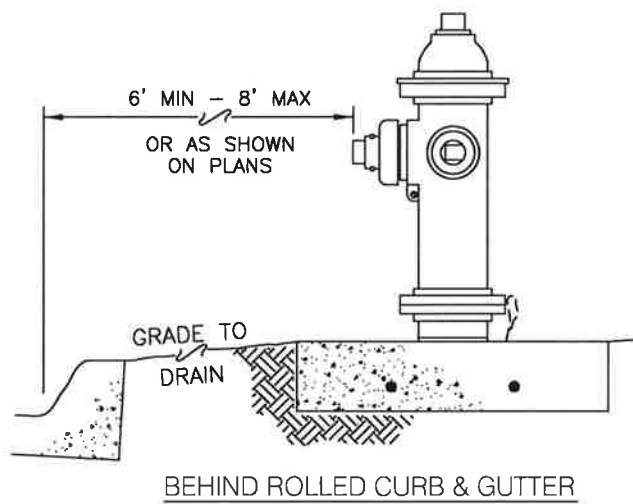
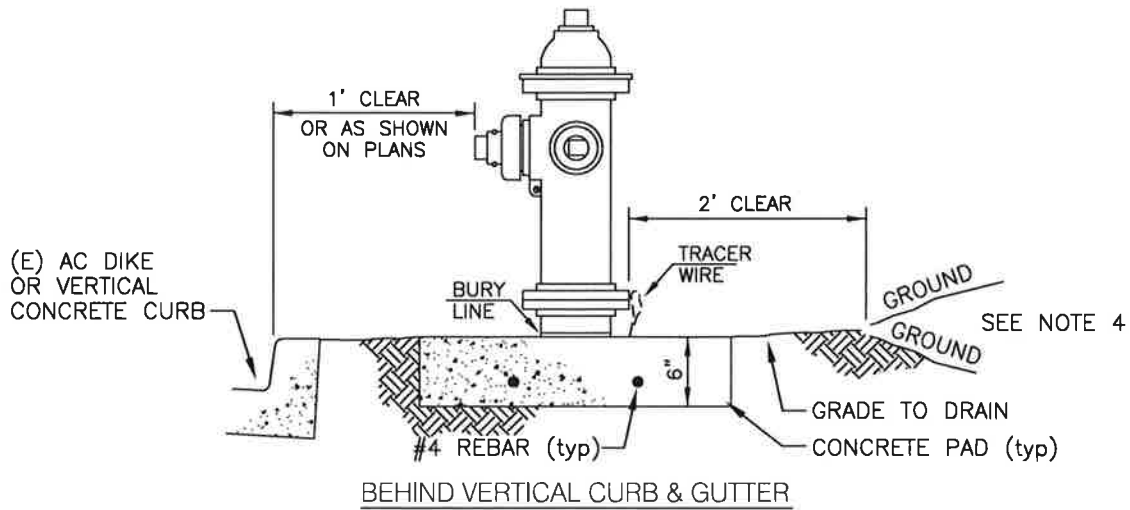


ITEM #	DESCRIPTION
①	#4 REBAR
②	PLASTIC WRAP
③	DRAINAGE PIT, APPROX 2.5' sq, 2.5' DEEP - FILLED w/PEA GRAVEL
④	6" DUCTILE IRON PIPE, CL 350
⑤	HYDRANT DRAIN, REMOVE PLUG WHEN INSTALLING
⑥	CONCRETE THRUST BLOCK w/#4 REBAR, 6 sqft MIN THRUST AREA
⑦	PADDLE MARKER W/ SNOW POLE AS REQUIRED ABOVE 2500', G12A
⑧	GUARD POST AS REQUIRED, G12
⑨	TRACER WIRE FOR ALL INSTALLATIONS (PER DETAIL W02 & W02A)

NOTES:

1. USE TAPPING SLEEVE AND VALVE ON EXISTING MAINS 8" (in) AND LARGER.
2. INSTALL GUARD POSTS & SNOW POLES AS DIRECTED.
3. SEE STD DWG W04A FOR FIRE HYDRANT LOCATIONS.
4. SET CONCRETE PAD TO FIT/MATCH HYDRANT BURY LINE

<b>CALAVERAS COUNTY WATER DISTRICT</b>		
<b>WATER DETAILS</b>		
<b>TYPICAL FIRE HYDRANT INSTALLATION</b>		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W04</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	



NOTES:

1. THE FIRE HYDRANT IS TO BE PLACED BEHIND THE DRAINAGE DITCH AND NO FURTHER THAN 8' (ft) FROM DRIVEABLE SHOULDER SURFACE, BACK OF CURB, OR PER AGENCY INVOLVED.
2. ALL VALVE BOXES SET IN THE AC OR CONCRETE TO BE FINISHED GRADE MINUS 1/4" (in).
3. FOR TYPICAL INSTALLATION, SEE DETAIL W05.
4. ALTERNATE LOCATIONS & SLOPES GREATER THAN 2:1 IN ANY INSTANCE MUST HAVE DISTRICT ENGINEER'S APPROVAL PRIOR TO INSTALLATION.

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS  
TYPICAL FIRE HYDRANT LOCATION

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

CCWD STANDARD DRAWING NO.

APPROVED:  
S.HUTCHINGS

DATE:  
DEC 2008

W04A

ITEM #	DESCRIPTION
①	#4 REBAR
②	6" GATE VALVE W/ RESTRAINED MJ
③	DRAINAGE PIT, APPROX 2.5' sq. 2.5' DEEP - FILLED W/PEA GRAVEL
④	6" CLASS 350 DI W/ RESTRAINED PUSH-ON BELL
⑤	HYDRANT DRAIN, REMOVE PLUG WHEN INSTALLING
⑥	CONCRETE THRUST BLOCK w/#4 REBAR, 6 sq. ft. MIN THRUST AREA
⑦	PADDLE MARKER W/ SNOW POLE
⑧	GUARD POST AS REQUIRED, G12
⑨	TRACER WIRE FOR ALL INSTALLATIONS (PER DETAIL W02 & W02A)
⑩	6" RESTRAINED DISMANTLING JOINTS ROMAC DJ 400, OR EQUAL W/ 250 # FLGS
⑪	6" PRESSURE REDUCING VALVE CLA-VAL 690-01 W/ 300 # FLG
⑫	48" X 48" X 60" CONC. VAULT W/ H20 TRAFFIC RATED HOT DIP GALV STEEL, HINGED, TORSION ASSISTED DOUBLE LEAFED COVER AND LOCK BOX
⑬	DI 250 # FLG X PE SPOOL
⑭	12" X 12" X 6" DI TEE RESTRAINED PUSH-ON OR MJ JOINTS
⑮	GEOTEXTILE/FILTER FABRIC

NOTES:

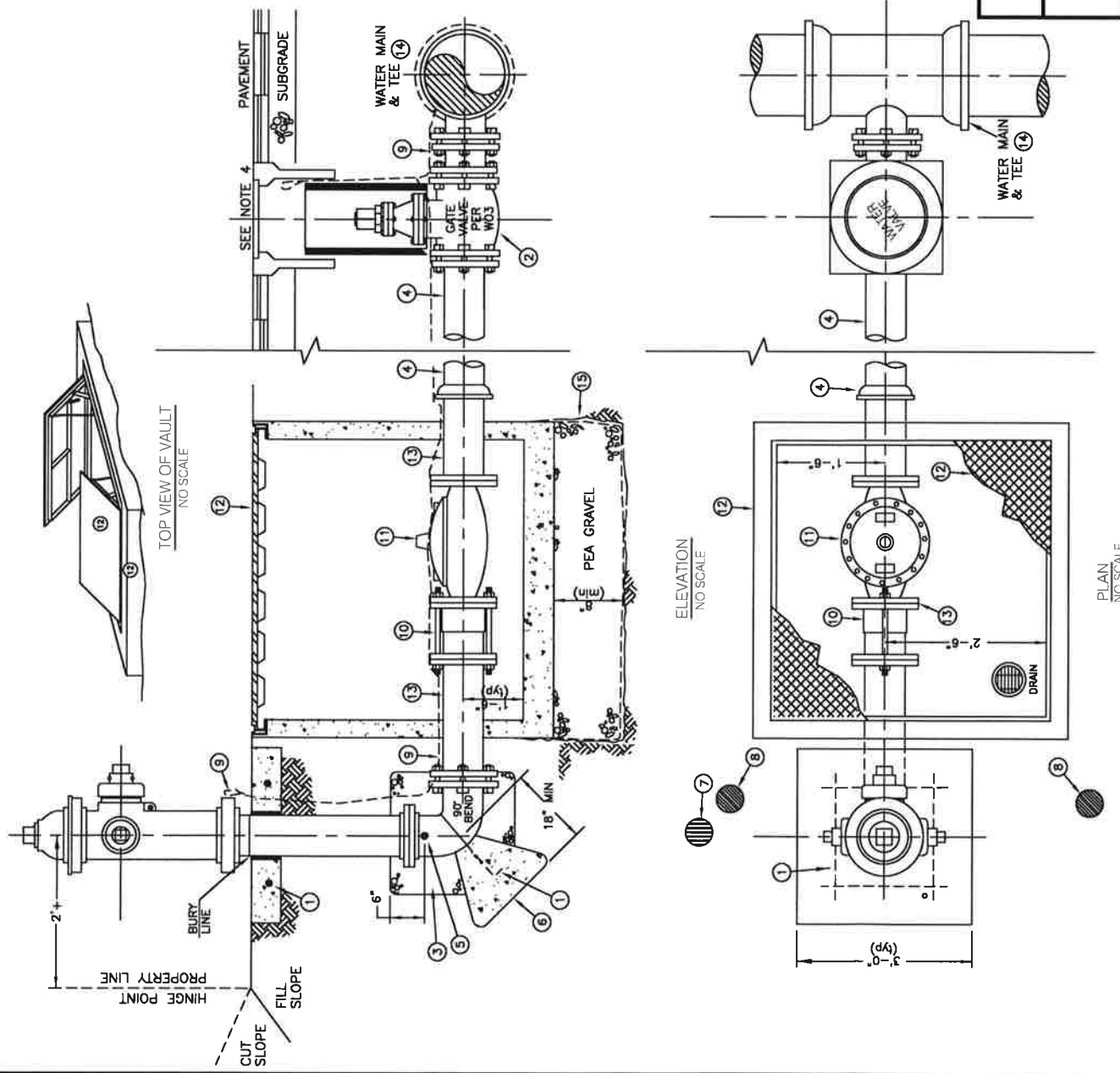
1. INSTALL GUARD POSTS & SNOW POLES AS DIRECTED.
2. SEE STD DWG W04A FOR FIRE HYDRANT LOCATIONS.
3. SET CONCRETE PAD TO FIT/MATCH HYDRANT BURY LINE
4. RECESS VALVE BOX AND COVER 1/4" BELOW PAVEMENT

# CALAVERAS COUNTY WATER DISTRICT

## WATER DETAILS

### FIRE HYDRANT INSTALLATION W/ PRV

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO. <b>W04B</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	

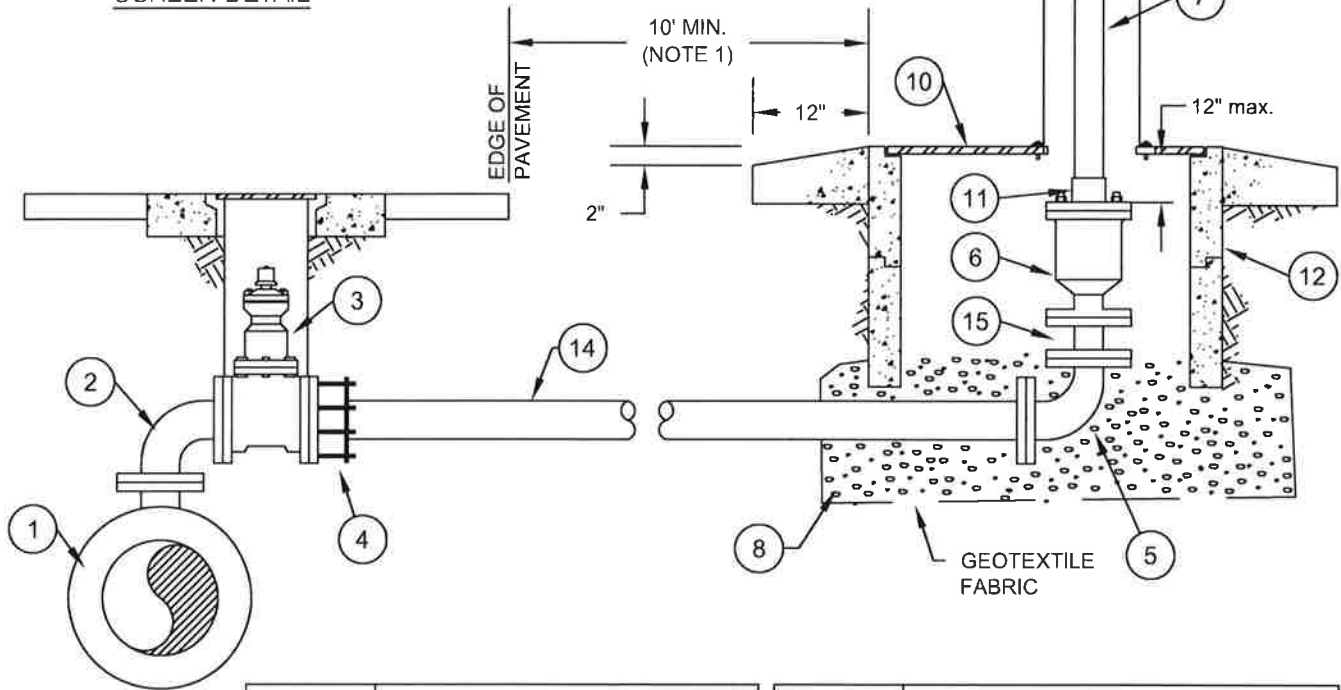
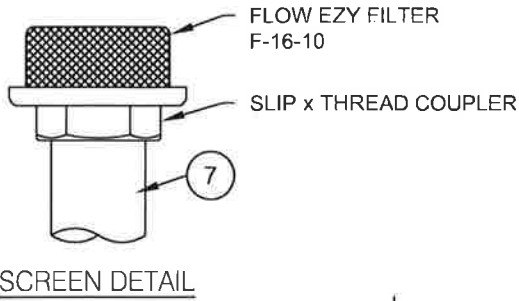


TOP VIEW OF VAULT  
NO SCALE

ELEVATION  
NO SCALE

PLAN  
NO SCALE





ITEM #	DESCRIPTION	ITEM #	DESCRIPTION
1	12" X 4" DUCTILE IRON TEE	8	1/2" CRUSHED ROCK ENCAPSULATED IN GEO-TEXTILE
2	4" DUCTILE IRON 90° FLG BEND	9	FLOW EZY FILTER SEE SCREEN DETAIL
3	4" AWWA GATE VALVE (SEE SPECIFICATIONS)	10	3/16" DIAMOND PLATE 20.25" x 33.25" PLACER WATERWORKS PW/218(1730)
4	4" EBAA MEGA FLANGE OR EQUAL	11	3" SCH 80 THREAD X SOLVENT WELD COUPLING
5	4" X 3" RED 90° EL. DIP FLG X FLG	12	JENSEN PRECAST HT1730 TRAFFIC BOX OR EQUAL
6	3" AIR/SURGE/ VAC VALVE (SEE SPECIFICATIONS)	13	8"X8"X18" AIR VENT TUBE, PLACER WATERWORKS AV-18
7	3" SCH80 PVC (NOTE 3)	14	4" DIP SPOOL FLANGED X PLAIN END
		15	3" DIP SPOOL FOR GRADE ADJUSTMENT

#### NOTES:

- AIR VALVE BOX SHALL NOT BE LOCATED IN DRAINAGE DITCH. FINAL PLACEMENT AND LOCATION SHALL BE APPROVED BY ENGINEER TO SUITE ACTUAL FIELD CONDITIONS, TOPOGRAPHY AND GRADE.
- PIPING INSTALLED PER STANDARD TRENCH DETAIL WITH POLYETHYLENE ENCASEMENT AND TRACER WIRE.
- PRE-WELD PIPE TO COUPLING BEFORE THREADING INTO TOP OF AIR VALVE; SOLVENT MAY DAMAGE AIR VALVE.

## CALAVERAS COUNTY WATER DISTRICT

### WATER DETAILS AIR RELEASE VALVE (HIGH PRESSURE)

DRAWN BY:

CCWD STAFF

SCALE:

NONE

CCWD STANDARD DRAWING NO.

APPROVED:

CHARLES PALMER

DATE:

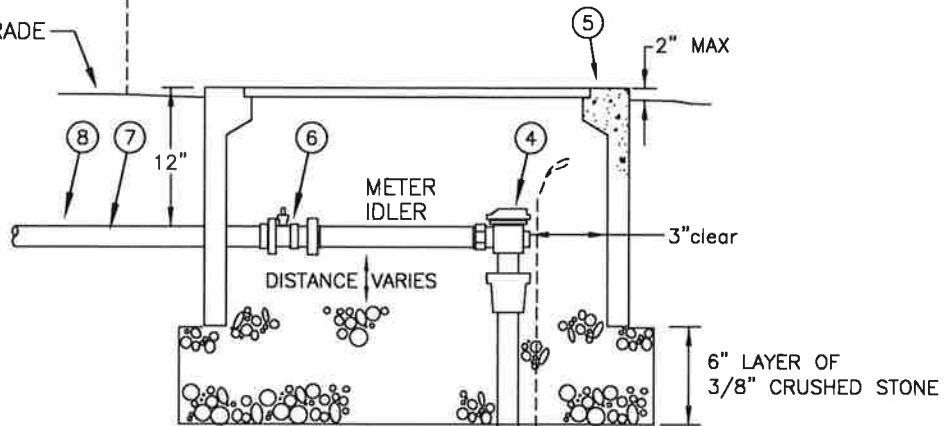
AUG 2018

**W05 (REV)**



SEE STD DWG W07C & W07D  
FOR METER BOX PLACEMENT  
AND CUT/FILL SLOPES

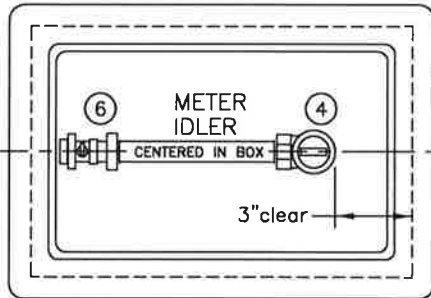
FINISHED GRADE



ELEVATION

R=24"min  
or coil radius

WATER MAIN



PLAN

NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, JOINT, OR FITTING.
2. METER BOXES INSTALLED BY CONTRACTOR PER CCWD STANDARD DETAILS W07C & W07D.
3. SET TOP OF METER BOX FLUSH WITH SIDE-WALK OR AS SHOWN.
4. ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
5. WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
6. P.E. TUBING SHALL BE CONTINUOUS WITH STAINLESS STEEL INSERT STIFFENERS AT ENDS.
7. ALL FITTINGS TO BE NSF-61 APPROVED BRASS.
8. PROVIDE 5/8" X 3/4" METER IDLERS WHEN SETTING WATER VALVES; TRANSFER METERS WHEN PLACING IN SERVICE.
9. AFTER NEW WATER MAIN AND SERVICE LINES ARE TESTED AND DISINFECTED, EXTEND AND CONNECT/ TRANSFER CUSTOMER SERVICE.
10. TRENCH FOR 1" CTS TUBING TO BE MINIMUM 30" DEEP BEFORE METER.

ITEM #	DESCRIPTION*
①	SERVICE SADDLE
②	1" CORPORATION STOP
③	1" P.E. CONTINUOUS SERVICE TUBING, CTS
④	ANGLE BALL METER VALVE FOR 1" CTS TUBING AND 5/8" X 3/4" METER
⑤	METER BOX
⑥	STRAIGHT METER VALVE FOR 1" PVC PIPE AND 5/8" X 3/4" METER
⑦	1" SCH 40 PVC PIPE
⑧	EXTEND/RECONNECT CUSTOMER SERVICE (NOTE 9)
⑨	TRACER WIRE

\*SEE SECTION 15095 FOR MATERIAL SPECIFICATIONS

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS  
1" SERVICE WITH METER BOX**

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

CCWD STANDARD DRAWING NO.

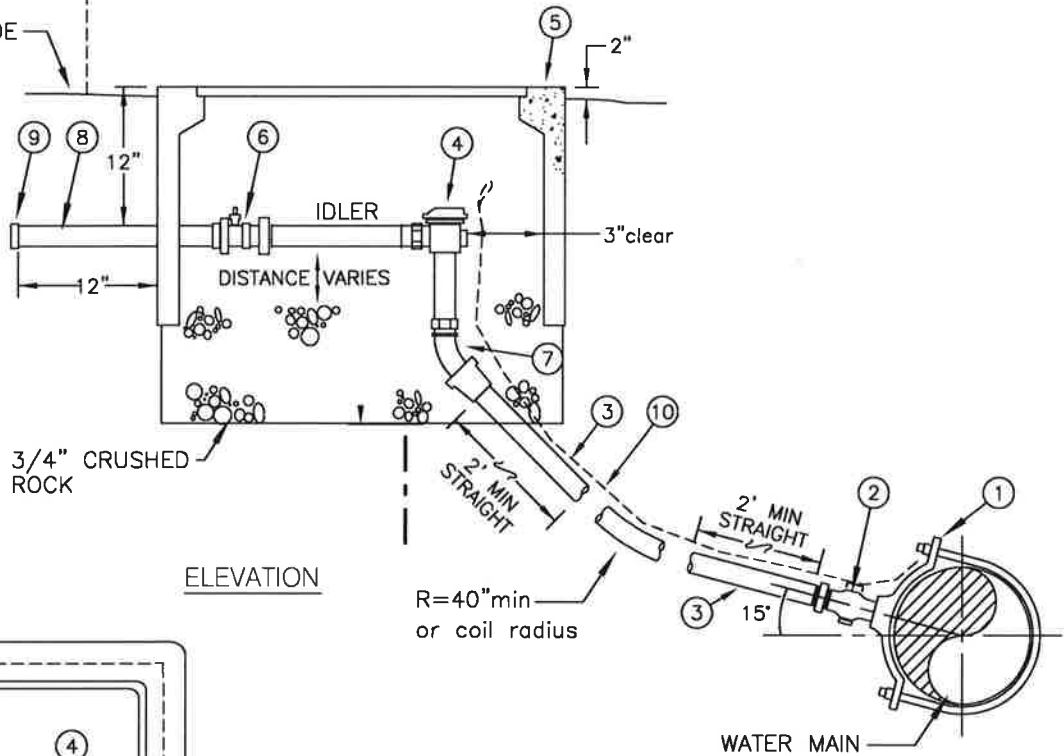
APPROVED:  
C. PALMER

DATE:  
DEC. 2015

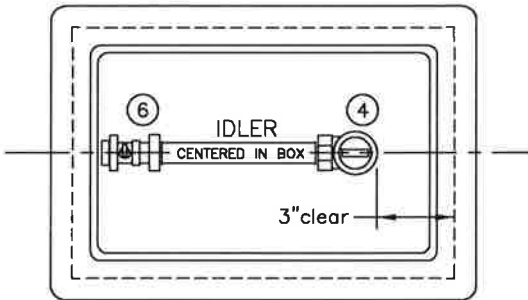
**W07**

SEE STD DWG W07C & W07D  
FOR METER BOX PLACEMENT  
AND CUT/FILL SLOPES

FINISHED GRADE



ELEVATION



PLAN

ITEM #	DESCRIPTION
①	SERVICE SADDLE
②	2" CORPORATION STOP
③	2" P.E. CONTINUOUS SERVICE TUBING, CTS
④	2" BRASS ANGLE METER
⑤	METER BOX, TYPE BASED ON ELEVATION
⑥	2" BALL VALVE
⑦	2" 45° PACK JOINT
⑧	SCH 40 PVC PIPE
⑨	EXTEND PVC PIPE 12" BEYOND METER BOX CAP PIPE WITH PERMANENT CAP
⑩	TRACER WIRE

**NOTES:**

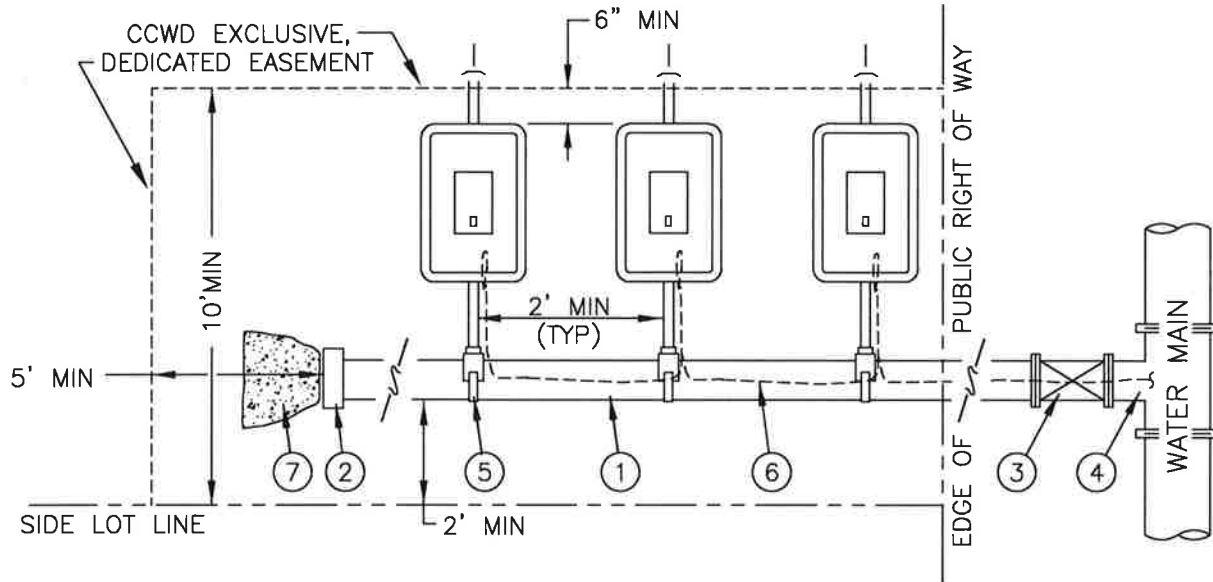
- SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, JOINT, OR FITTING.
- METER BOXES INSTALLED BY CONTRACTOR PER CCWD STANDARD DETAILS W07C & W07D.
- SET TOP OF METER BOX FLUSH WITH SIDE-WALK OR AS SHOWN.
- ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
- WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
- ALL FITTINGS SHALL BE BRASS.
- IDLER SIZED TO FIT FUTURE METER.
- CUSTOMER RESPONSIBLE FOR INSTALLATION OF P.R.V. &/OR BACKFLOW DEVICE IF REQUIRED.
- SERVICE LINE TO 18" DEEP AFTER METER, P.R.V. &/OR BACKFLOW DEVICE IF INSTALLED.

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS  
2" SERVICE WITH METER BOX**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W07A</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	

FINAL DEDICATION AND ACCEPTANCE OF EASEMENT  
REQUIRED PRIOR TO SERVICE INITIATION.



MULTIPLE SERVICE METERS

NOTES:

1. MANIFOLD LENGTH SHALL NOT EXCEED 40' EXCEPT BY WRITTEN PERMISSION FROM DISTRICT ENGINEER.
2. NUMBER OF METERS ALLOWED ON MANIFOLD SHALL BE DETERMINED & APPROVED BY DISTRICT ENGINEER.
3. MANIFOLDS EXCEEDING 40' REQUIRE IN-GROUND BLOWOFF.
4. METER BOXES INSTALLED BY CONTRACTOR PER CCWD STANDARD DETAILS W07C & W07D.
5. SET TOP OF METER BOX FLUSH WITH SIDE-WALK OR AS SHOWN ON W07 & W07A.
6. ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
7. WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE MANIFOLD FROM THE MANIFOLD TO THE METER STOP.
8. ALL FITTINGS SHALL BE BRASS.
9. MULTIPLE METERS REQUIRE AN EXCLUSIVE DEDICATED CCWD EASEMENT.
10. CUSTOMER RESPONSIBLE FOR INSTALLATION OF P.R.V. &/OR BACKFLOW DEVICE IF REQUIRED.
11. SERVICE LINE TO 18" DEEP AFTER METER, P.R.V. &/OR BACKFLOW DEVICE IF INSTALLED.

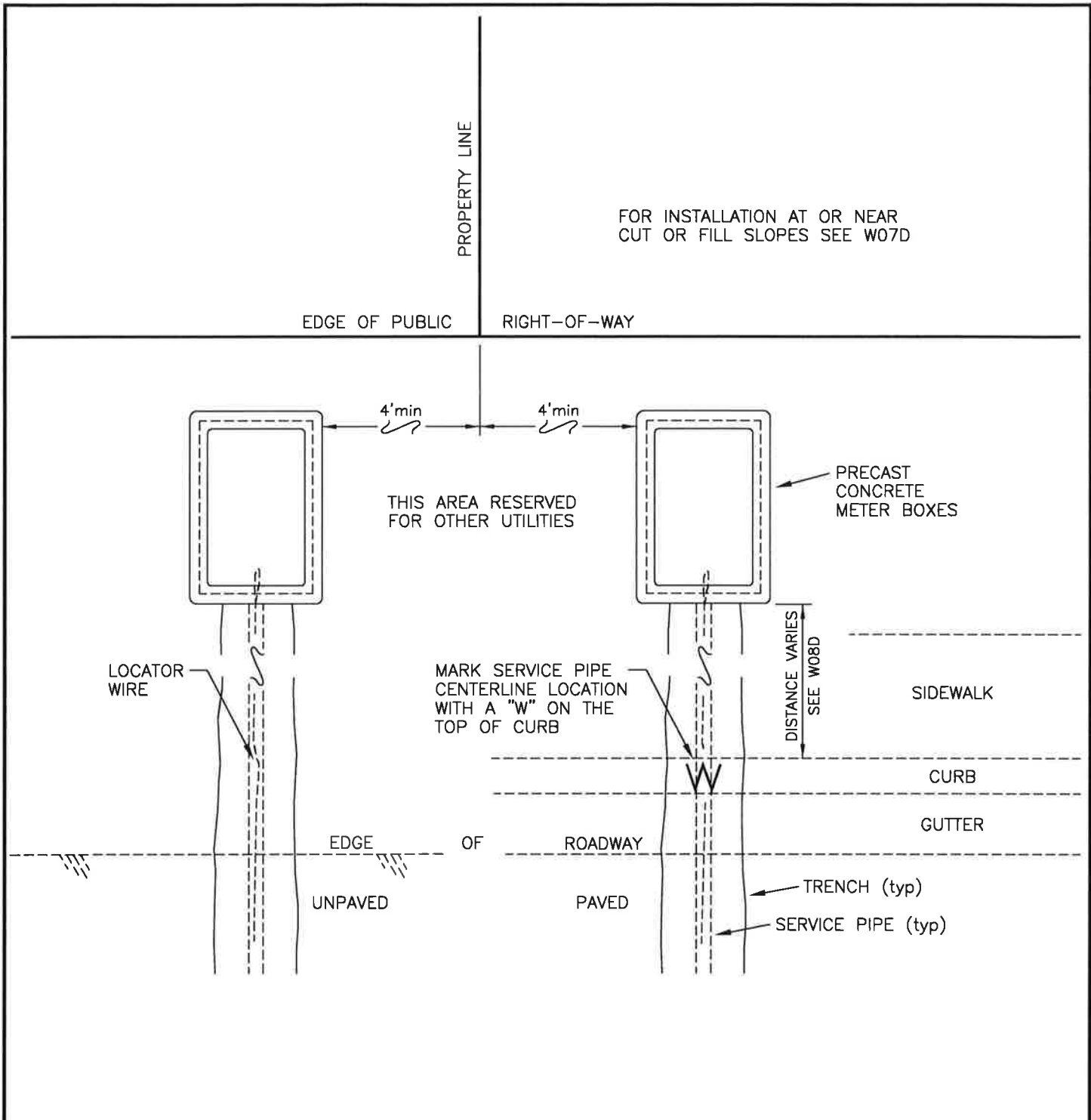
ITEM #	DESCRIPTION
①	4" C-900 PVC MANIFOLD
②	END CAP
③	MJ x FLG GATE VALVE
④	1/2" x 4" MJxFL TEE CONNECTION TO MAIN LINE
⑤	SERVICE CONNECTION
⑥	TRACER WIRE
⑦	THRUST BLOCK

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS  
MULTI-METER MANIFOLD SERVICE**

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W07B</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	

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FOR INSTALLATION AT OR NEAR CUT OR FILL SLOPES SEE W07D

**NOTES:**

1. METER BOXES SHALL BE INSTALLED OUTSIDE OF PAVEMENT, DRIVEWAY OR SIDEWALK AND WITHIN EXISTING RIGHT OF WAY OR PUBLIC UTILITY EASEMENT.
2. FOR SERVICE & METER INSTALLATION SEE W07, W07A, & W07D.
3. FOR INSTALLATION AT OR NEAR CUT/FILL SLOPES SEE W07D.
4. CUSTOMER RESPONSIBLE FOR INSTALLATION OF P.R.V. &/OR BACKFLOW DEVICE IF REQUIRED.
5. SERVICE LINE TO 18" DEEP AFTER METER, P.R.V. &/OR BACKFLOW DEVICE IF INSTALLED.

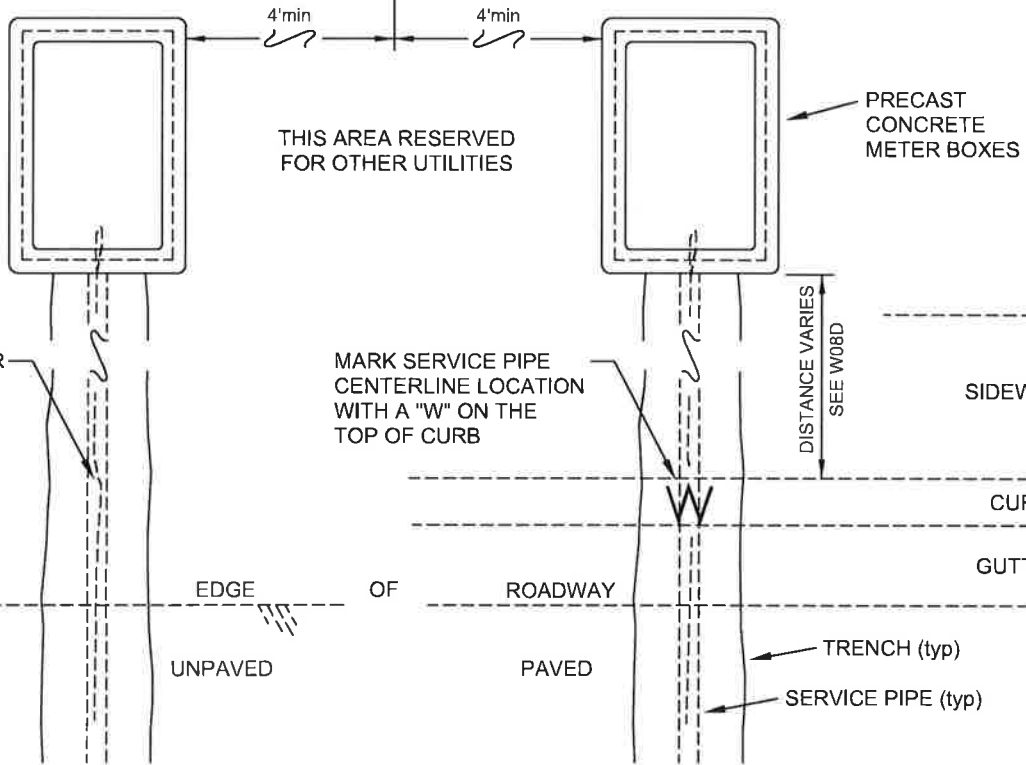
<b>CALAVERAS COUNTY WATER DISTRICT</b>		
WATER DETAILS METER BOX PLACEMENT - STANDARD		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W07C</b>
APPROVED: S.HUTCHINGS	DATE: DEC 2008	

PROPERTY LINE

FOR INSTALLATION AT OR NEAR  
CUT OR FILL SLOPES SEE W07D

EDGE OF PUBLIC

RIGHT-OF-WAY



**NOTES:**

1. METER BOXES SHALL BE INSTALLED OUTSIDE OF PAVEMENT, DRIVEWAY OR SIDEWALK AND WITHIN EXISTING RIGHT OF WAY OR PUBLIC UTILITY EASEMENT.
2. FOR SERVICE & METER INSTALLATION SEE W07, W07A
3. FOR INSTALLATION AT OR NEAR CUT/FILL SLOPES SEE W07
4. CUSTOMER RESPONSIBLE FOR INSTALLATION OF P.R.V. &/OR BACKFLOW DEVICE IF REQUIRED.
5. SERVICE LINE TO 18" DEEP AFTER METER, P.R.V. &/OR BACKFLOW DEVICE IF INSTALLED.

**CALAVERAS COUNTY WATER DISTRICT**

**WATER DETAILS  
METER BOX PLACEMENT - STANDARD**

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

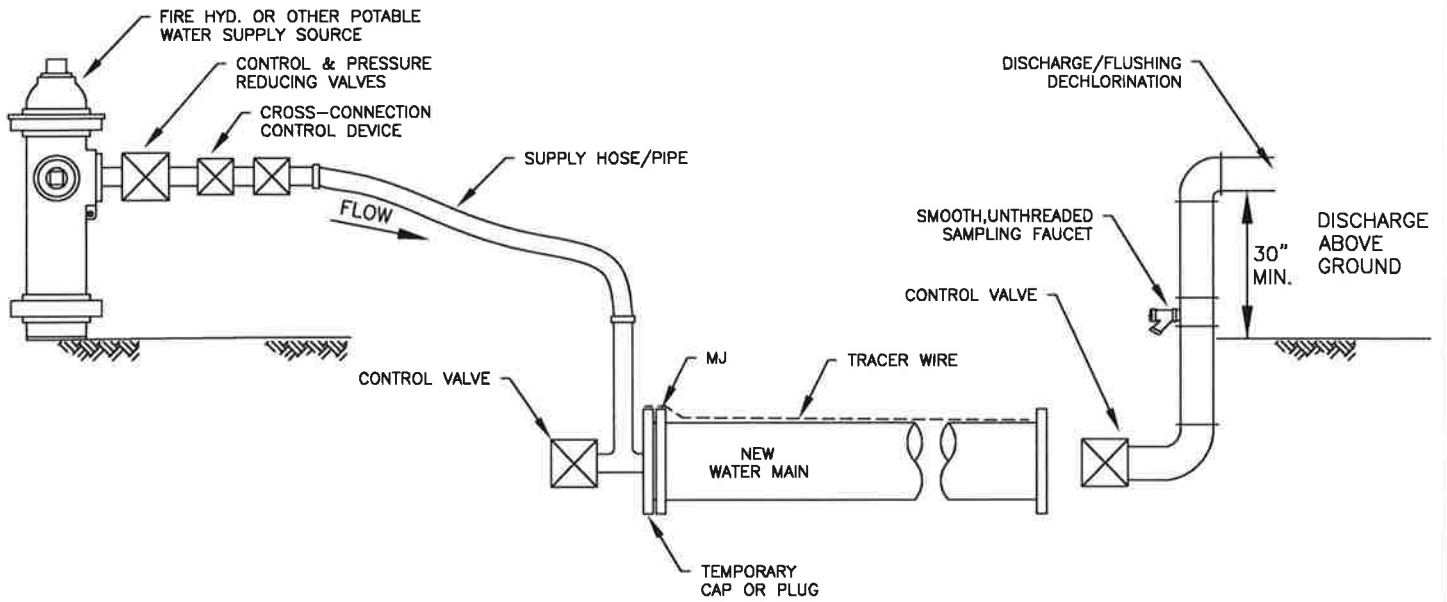
CCWD STANDARD DRAWING NO.

APPROVED:  
CHARLES PALMER

DATE:  
SEPT. 2015

**W07D**

F:\CCWD\1-ACAD\_dwg\Details\Nov2007\_Working\_Stds\Final\_Dec2008\Water\SD\_W13.dwg 20090330.1214

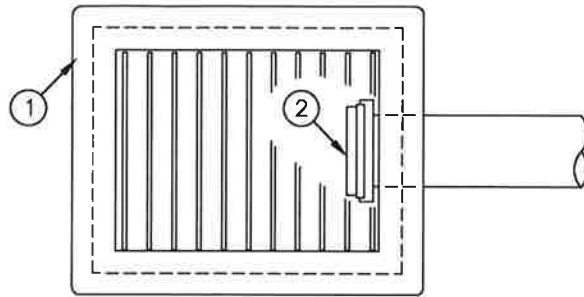


ELEVATION

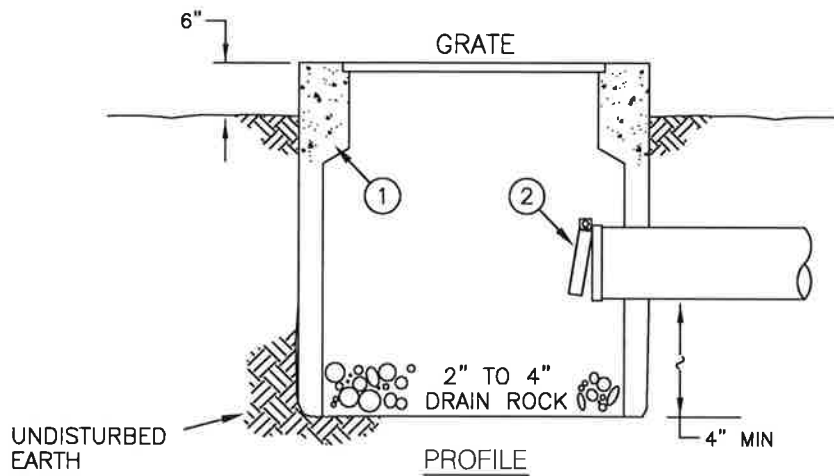
REQUIRED FLOW AND OPENINGS TO FLUSH PIPELINES				
PIPE DIAMETER (IN)	FLOW REQUIRED TO PRODUCE 2.5 ft/sec (APPROX.) IN MAIN (GPM)	NUMBER OF 2" TAPS ON PIPE	NUMBER OF HYDRANT OUTLETS	
			2 1/2-IN	4 1/2 -IN
4-8	100-400	1	1	1
12	900	2	2	1

<b>CALAVERAS COUNTY WATER DISTRICT</b>		
WATER DETAILS JUMPER PIPE INSTALLATION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.  <b>W12 (REV)</b>
APPROVED: CHARLES PALMER	DATE: SEPT. 2015	





PLAN



PROFILE

ITEM #	DESCRIPTION
①	2'x2' DRAINAGE INLET BOX W/ FRAME AND GRATE
②	FLAP VALVE

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS  
DISCHARGE BOX

DRAWN BY:  
CCWD STAFF

SCALE:  
NONE

CCWD STANDARD DRAWING NO.

APPROVED:  
CHARLES PALMER

DATE:  
DEC 2015

W14