

DOCUMENTS FOR THE CONSTRUCTION OF
PARADISE IRRIGATION DISTRICT
SERVICE LATERAL REPLACEMENT PROJECT
JOB NUMBER 18-F2

VOLUME 1
TECHNICAL SPECIFICATIONS
(DIVISIONS 00-15)

SEPTEMBER 2019

FINAL DOCUMENTS

ENGINEER:
COLLEEN BOAK



WATERWORKS
ENGINEERS

WATER WORKS ENGINEERS, LLC.

CONTACT:

COLLEEN BOAK
(530) 243-2113 X 318

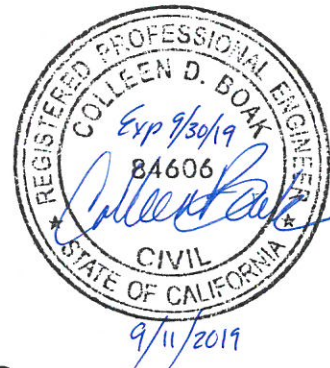


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SECTION 00080

ADVERTISEMENT FOR BIDS

Sealed Bids for construction services for the Service Lateral Replacement Project addressed to Paradise Irrigation District, 6332 Clark Road, Paradise, CA 95969 will be received until 2:00 p.m., local time, on Thursday, October 17, 2019. Any Bids received after the specified time will not be considered. Bids will then be publicly opened and read at 6332 Clark Road.

This is a public works project. The Project contemplated consists of mobilization/demobilization and potholing at up to 850 locations, resulting in the installation of up to 650 new potable water service laterals, including hot taps, traffic control, and asphalt restoration as needed throughout the Paradise Irrigation District (PID) service area. The Project is intended to support rebuilding efforts following the Camp Fire of November 2018, and as a result will be structured to address locations based on community needs.

The ENGINEER's estimate for this project is \$4,960,000.

The Work shall be completed in all respects within 180 calendar days from the date when the Contract Time commences to run.

An optional pre-bid conference is scheduled between ENGINEER, PARADISE IRRIGATION DISTRICT and interested bidders on Wednesday, September 18, 2019 at 2:00 pm. Interested bidders should meet at the Paradise Irrigation District Office, located at 6332 Clark Rd, Paradise, CA 95969, in the PID Board Room at which time the project will be reviewed. All interested bidders are strongly encouraged to attend.

The Work under these Bidding Documents is to be paid for with a combination of local, State and Federal funds. The general Federal prevailing rate of per diem wages, holidays, and overtime work for each craft, classification, or type of workmen needed to execute the contract are established by the Secretary of Labor in accordance with the Davis-Bacon Act and can be found online at <http://www.gpo.gov/davisbacon/>. The general State prevailing rate of per diem wages, holidays, and overtime work for each craft, classification, or type of workmen needed to execute the contract are established by the State of California, Department of Industrial Relations and can be found online at <http://www.dir.ca.gov/DLSR/PWD/>. If there is a difference between the minimum wage rate determined by the Secretary of Labor and the prevailing wage determined by the State of California for similar classifications of labor, the higher wage rate shall prevail. Contractors shall not pay wages less often than once per week. The successful Bidder agrees upon execution of this Agreement to post a copy of both sets of wage rates at the project site.

The following plan room services have received sets of Bidding Documents for the Work contemplated herein:

Humboldt Builders Exchange, Eureka, CA.
North Coast Builders Exchange, Santa Rosa, CA.
Sacramento Builders Exchange, Sacramento, CA.
Redding Builders Exchange, Redding, CA.

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North Valley Builders Exchange, Chico, CA.

Bidding Documents may be examined through the building exchanges listed above, in PARADISE IRRIGATION DISTRICT's office, 6332 Clark Road, Paradise, CA 95969, or at ENGINEER's office, Water Works Engineers, 760 Cypress Ave, Suite 201, Redding, CA 96001 (530-243-2113 Ext. 318, Contact Colleen Boak). In order to bid the work, interested bidders must purchase Bidding Documents from the ENGINEER's office at a cost of \$100 for each set of documents. Bid documents include one volume of Specifications and Standard Details.

Each Bid must be submitted on the prescribed Bid Form and accompanied by Bid security as prescribed in Section 00100, Instructions to Bidders, payable to the PARADISE IRRIGATION DISTRICT in an amount not less than 10 percent of the amount Bid.

The Successful Bidder will be required to furnish the additional Bond(s) prescribed in the Bidding Documents.

In order to Bid and perform public work, the Bidder and Subcontractors shall hold or obtain such licenses as required by State Statutes, Federal and Local laws and regulations. **Bids will be accepted only from Bidders holding a California Contractors' License, Class A. Responsive bidders must be both licensed and registered.** Bidders must include the completed registration form in their bid.

For information concerning the proposed Work, contact Colleen Boak, Water Works Engineers, 760 Cypress Ave, Suite 201, Redding, CA 96001; phone: (530) 243-2113 ext 318; email: colleenb@wwengineers.com

PARADISE IRRIGATION DISTRICT's right is reserved to reject all Bids or any Bid not conforming to the intent and purpose of the Bidding Documents.

Dated this _____ day of _____, 2019.

Paradise Irrigation District

By _____
Kevin Phillips, District Manager

++ END OF SECTION ++

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SECTION 00100

INSTRUCTIONS TO BIDDERS

PART 1 - DEFINED TERMS

Terms used in these Instructions to Bidders have the meanings assigned to them in the General Conditions.

Certain additional terms used in the Bidding Documents have the meanings indicated below which are applicable to both the singular and plural thereof.

1.1 Bidder—one who submits a Bid to OWNER as distinct from a subbidder, who submits a Bid to a Bidder.

1.2 Apparent Low Bidder—that Bidder whose Bids as offered in the Bid Form represents the lowest total as determined by the Base Bid.

1.3 Base Bid:

1.3.1 Base Bid—Includes Bid for all Lump Sum and Unit Price Work.

1.4 Successful Bidder—lowest, responsible and responsive Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

PART 2 - BIDDING DOCUMENTS

2.1 Complete sets of Bidding Documents must be used in preparing Bids. Neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.

2.3 Bidding Documents made available on the above terms are only for the purpose of obtaining Bids for the Work and shall not be used for any other purpose.

PART 3 - QUALIFICATIONS OF BIDDERS

3.1 To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within 5 days after Bid opening and upon OWNER's written request evidence, such as financial data, previous experience, present commitments, and other such data as may be called for below. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to contract award.

3.2 Nothing indicated herein will prejudice OWNER's right to seek additional pertinent information as is provided in Article AWARD OF CONTRACT.

PART 4 - LICENSE REQUIREMENTS

4.1 The classification of Contractor's License a Bidder must hold to be eligible for an award of a contract for the Work is listed in the Advertisement for Bids.

PART 5 - EXAMINATION OF CONTRACT DOCUMENTS AND SITE

5.1 It is each Bidder's responsibility, before submitting a Bid, to:

5.1.1 Examine thoroughly the Bidding Documents and other related data identified in the Bidding Documents (including "technical data" referred to below).

5.1.2 Inspect the site to become familiar with and satisfy Bidder as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work.

5.1.3 Consider federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the Work.

5.1.4 Study and carefully correlate Bidder's knowledge and observations with the Bidding Documents and such other related data.

5.1.5 Promptly notify ENGINEER of all conflicts, errors, ambiguities, or discrepancies which Bidder has discovered in or between the Bidding Documents and such other related documents.

5.2 Reference is made to the Supplementary Conditions for identification of:

5.2.1 Those reports, if any, of explorations and tests of subsurface conditions at the site which have been utilized by ENGINEER in preparation of the Bidding Documents.

5.2.2 Those drawings, if any, of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site which have been utilized by ENGINEER in preparation of the Bidding Documents.

Copies of such reports and drawings that are not included with the Bidding Documents may be examined at the office of OWNER or ENGINEER during regular business hours.

5.3 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in paragraphs 4.02 and 4.03 of the General Conditions.

5.4 Before submitting a Bid, each Bidder will be responsible to make or obtain such additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise and which may affect cost, progress, performance, or furnishings of the Work and which Bidder deems necessary to determine its Bid.

5.5 On request, OWNER will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests, and studies as each 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.

5.6 Reference is made to the General Requirements for identification of the general nature of work that is to be performed at the site by OWNER or others and that relates to Work for which a Bid is to be submitted. 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 work by others.

5.7 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this article; that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying the specific means, methods, techniques, sequences, or procedures of construction (if any) 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 resolution thereof by ENGINEER is 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 and for preparing the Bid.

PART 6 - INTERPRETATIONS AND ADDENDA

6.1 All questions about the meaning or intent of the Bidding Documents are to be directed 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 the office issuing documents as having received the Bidding Documents. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

PART 7 - BID SECURITY

7.1 Each Bid must be accompanied by Bid security made payable to OWNER in an amount of 10 percent of Bidder's maximum Bid price and in the form of a certified or cashier check or a Bid Bond on form attached, issued by a surety meeting the requirements of paragraph 5.01 and 5.02 of the General Conditions.

7.2 The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required Performance and Payment Bond(s), certificates of insurance, and met the other conditions of the Bidding Documents. If the Successful Bidder fails to sign and deliver the Agreement and furnish the required Bond(s) and certificates of insurance within the time period specified in Article EXECUTION OF AGREEMENT, OWNER may annul the 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 the 10th day after the execution of the Agreement by the Successful Bidder or the rejection of all Bids by OWNER. Bid security submitted with Bids which are not competitive will be returned within 15 days after the Bid opening.

PART 8 - CONTRACT TIMES

8.1 Contract Times are set forth in the Agreement.

PART 9 - LIQUIDATED DAMAGES

9.1 Provisions for liquidated damages are set forth in the Agreement.

PART 10 - SUBSTITUTE AND "OR EQUAL" ITEMS

10.1 The contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application and consideration by ENGINEER is set forth in General Conditions paragraph 6.05 and may be supplemented in Section 01610, General Equipment Requirements.

PART 11 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.1 Bidder shall submit with its Bid the names and business addresses of each proposed Subcontractor who will perform Work under these Bidding Documents in excess of 1/2 of 1 percent of the amount of the total Bid and shall list the portion of the Work (discipline and subcontract dollar amount) which will be done by such Subcontractor. If the Bidder fails to specify a Subcontractor for any portion of the Work to be performed under the Bidding Documents, the Bidder agrees to perform that portion of the Work itself, and further agrees that it is qualified to perform that portion of the Work.

11.2 Subcontractors, business addresses, and the portion of work each subcontractor will perform shall be listed in the table provided in Section 00310, List of Subcontractors, which shall be submitted with each Bid. Failure to submit this List of Subcontractors will be grounds for rejection of the Bid.

PART 12 - MBE/WBE UTILIZATION AND DOCUMENTATION REQUIREMENTS

12.1 Bidders, including prospective Subcontractors, are required to follow certain procedures to ensure compliance with the affirmative action requirements set forth in these Bidding Documents and are hereby advised to familiarize themselves with the requirements and to initiate the compliance procedures at the earliest time possible. State and federal regulations require that certain notices be given and procedures be completed within specific minimum periods of time; compliance with the affirmative action requirements might not be achievable if there is any delay in starting the compliance procedures.

PART 13 - WAGE RATES

13.1 The Work under these Bidding Documents is to be paid for with a variety of State and Federal funds. Therefore, both State and Federal prevailing wage rates are applicable. Where a conflict occurs between the State and Federal prevailing wage rates for any job description, the higher rate shall be used.

13.2 Federal prevailing wage rates information is available at <http://www.wdol.gov/dba.aspx>. The successful Bidder agrees upon execution of this Agreement to post a copy at the site.

13.3 State of California prevailing wage rates information is available at <http://www.dir.ca.gov/OPRL/PWD/>. The successful Bidder agrees upon execution of this Agreement to post a copy at the site.

PART 14 - BID FORM

14.1 The Bid Form and other attachments are included with the Bidding Documents. No substitution of forms will be allowed.

14.2 All blanks on the Bid Form must be completed by typing or printing with black ink. All price information shall be shown in both words and figures where required. No changes shall be made in the phraseology of the forms.

14.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown above the signature.

14.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear on the line below the signature.

14.5 All names must be typed or printed on the line with the signature.

14.6 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

14.7 The address and telephone number for communications regarding the Bid must be shown.

PART 15 - SUBMISSION OF BIDS

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15.1 Bidders must bid on all schedules for their Bid to be considered responsive.

15.2 Bid Form and attachments may be photocopied for submission of Bids.

15.3 Submit Bids not later than the time prescribed, at the place, and in the manner set forth in the Advertisement for Bids. Enclose Bids in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. Bids must be made on the prescribed Bid Form provided and submitted with the attachments listed below.

15.4 Only one Bid from any individual, firm, partnership, or corporation, under the same or different names, will be considered. Should it appear to OWNER that any Bidder is interested in more than one Bid for Work contemplated, all Bids in which such Bidder is interested will be rejected.

PART 16 - MODIFICATION AND WITHDRAWAL OF BIDS

16.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the same manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

16.2 If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further consideration on the Work to be provided under the Contract Documents.

PART 17 - OPENING OF BIDS

17.1 Bids will be opened and (unless obviously nonresponsive) read aloud publicly. A summary of the amounts of the Base Bids will be made available to Bidders within 7 days after the date of Bid opening.

PART 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.1 All Bids will remain subject to acceptance for 90 days after the date of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

PART 19 - BASIS OF AWARD; AWARD OF CONTRACT

19.1 If the contract is to be awarded, OWNER will give Successful Bidder a Notice of Award within 90 days after the day of the Bid opening.

19.2 OWNER reserves its right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids, and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work. Discrepancies in the quantity multiplied by unit price and the extended total amount will be resolved in favor of the quantity multiplied by unit price. 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.

19.3 In evaluating Bids, OWNER will consider the qualifications of Bidders, 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. OWNER shall have the right to accept alternates in any order or combination unless otherwise provided in the Bidding Documents.

19.4 OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which the identity was required. OWNER also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data are required to be submitted prior to the Notice of Award.

00100-8

19.5 OWNER may conduct such investigations as OWNER deems necessary to assist in Bid evaluation and to establish responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to execute Work in accordance with the Bidding Documents to OWNER's satisfaction within the prescribed time.

19.6 If, at the time this contract is to be awarded, the total of the lowest acceptable Bid exceeds the funds then estimated by OWNER as available, OWNER may reject all Bids or take such other action as best serves OWNER's interests.

19.7 If the contract is to be awarded, it will be awarded to lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of OWNER.

19.8 OWNER may select the lowest Bidder based on the total Base Bid for Schedule A.A single contract shall be awarded by the Owner. Bidders must bid on all schedules for their Bid to be considered responsive.

19.9 In the event of failure of the Successful Bidder to sign the Agreement and provide an acceptable Performance and Payment Bond(s), insurance certificate(s), and other required documents, OWNER may award the contract to the next lowest responsive, responsible Bidder.

PART 20 - EXECUTION OF AGREEMENT

20.1 When OWNER gives a Notice of Award to Successful Bidder, it will be accompanied by unsigned copies of the Agreement and other appropriate documents. Within 15 days thereafter, CONTRACTOR shall sign and deliver the copies of the Agreement and attached documents to OWNER with the required Bonds. Within 10 days thereafter, OWNER shall deliver two fully executed copies to CONTRACTOR.

PART 21 - RETAINAGE

21.1 Provisions concerning retainage and CONTRACTORS' rights to deposit securities in lieu of retainage are set forth in the Agreement.

PART 22 - SALES AND OTHER TAXES

22.1 All taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by CONTRACTOR. Prices quoted in the Bid Form shall include all taxes.

00100-9

PART 23 - PROTESTS

23.1 Any party with a direct financial interest adversely affected by any alleged bid irregularity at the Bid opening may file a protest with OWNER, where such protest is based on alleged violations of federal, state, or local law or ordinance, or alleged bid irregularity. A protest must:

23.1.1 be written

23.1.2 state the specific basis of the appeal.

23.1.3 request a determination of the protest issue, and

23.1.4 be filed no later than 72 hours before the scheduled Award of Contract by OWNER, as determined by the published agenda of the OWNER'S Board of Directors. Any protest filed after this time will not be considered.

23.2 The party filing the protest must concurrently transmit a copy of all protest documents and any attachments to all other parties with a direct financial interest which may be adversely affected by the determination of the protest appeal.

23.3 OWNER will review the protest and make a determination.

+ + END OF SECTION + +

SECTION 00120

BIDDER'S CHECKLIST

This checklist has been prepared and furnished to aid Bidders in including all necessary supporting information with their bid. Bidders' submittals shall include, but are not limited to, the following:

<u>Item</u>	<u>Checked</u>
A. Bid Form	_____
B. PWC-100 Contractor DIR Registration Verification Data Form (Available on the Paradise Irrigation District website)	_____
C. Bid Bond	_____
D. Power-of-Attorney for Surety's Agent to execute Bidder's Bond	_____
E. Authority to Sign Proposal if Signature is by Agent Other Than Officer of Corporation, Partner, or Owner	_____
F. Addenda Acknowledged	_____
G. List of Subcontractors	_____
H. Contractor's License Number and Class Provided	_____
I. Confirmed Bond and Insurance Companies Ratings are in accordance with Supplemental Conditions, Par. SC-5.02.A.	_____

+ + END OF SECTION + +

00120-1

NOTE TO BIDDER: Use typewriter or BLACK ink for completing this Bid Form.

SECTION 00300

BID FORM

To: Paradise Irrigation District

Address: 6332 Clark Road,
Paradise, CA 95969

Project Identification: 18-L2, Service Lateral Replacement Project

1. BIDDER'S DECLARATION AND UNDERSTANDING.

1.1 This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

1.2 In submitting this Bid, Bidder acknowledges and accepts CONTRACTOR's representations as more fully set forth in the Agreement Form.

1.3 In submitting this Bid, Bidder certifies Bidder is qualified to do business in the state where the Project is located as required by laws, rules, and regulations or, if allowed by statute, covenants to obtain such qualification prior to contract award.

2. CONTRACT EXECUTION AND BONDS.

2.1 The undersigned Bidder agrees, if this Bid is accepted, to enter into an Agreement with OWNER on the form included in the Bidding Documents to perform and furnish Work as specified or indicated in the Bidding Documents for the Contract Price derived from the Bid and within the Contract Times indicated in the Agreement and in accordance with the other terms and conditions of the Bidding Documents.

2.2 Bidder accepts the terms and conditions of the Bidding Documents.

00300-1

3. INSURANCE.

3.1 Bidder further agrees that the Bid amount(s) stated herein includes specific consideration for the specified insurance coverages.

4. CONTRACT TIMES.

4.1 Bidder agrees to accept Contract Times set forth in the Agreement Form.

5. LIQUIDATED DAMAGES.

5.1 Bidder accepts the provisions in the Agreement Form as to liquidated damages.

6. ADDENDA.

Bidder hereby acknowledges that it has received Addenda

Nos. _____, _____, _____, _____, _____, _____ (Bidder shall insert number of each Addendum received) and agrees that Addenda issued are hereby made part of the Bidding Documents, and Bidder further agrees that this Bid includes impacts resulting from said Addenda.

7. SUBCONTRACTORS.

7.1 Bidder agrees to submit with their Bid a listing of all subcontracting firms or businesses that will be awarded subcontracts for portions of the Work which equal or exceed one-half of one percent of the Total Contract Price.

8. SALES AND USE TAXES.

8.1 The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated Bid prices for the Work.

9. BASE BID – OPEN CUT TRENCH INSTALLATION

9.1 Unit Price Work – Schedule A

9.1.1 Bidder proposes to accept full payment for the Unit Price Work proposed herein the amount computed under the provisions of the Bidding Documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved. Bidder agrees that the unit prices represent a true measure of the labor, materials, and services required to furnish and install the item, including all allowances for overhead and profit for each type and unit of Work called for in these Bidding Documents.

00300-2

9.1.2 Award will be based on consideration of Open Trench Installation pricing (Item 8a), rather than Trenchless Installation pricing (Item 8b), however please provide unit costs for Item 8b as OWNER may elect to pursue this method of installation.

9.2 Bidder agrees to accept as full payment for the proposed Work within the Bidding Documents, based upon the undersigned's own estimate of quantities and costs and including sales, consumer, use, and other taxes, and overhead and profit, the lump sum of:

(words)

(figures)

_____ \$ _____

_____ Dollars

Schedule A				
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
1.	Initial Project Mobilization and Final Demobilization	1 LS	\$	\$
Item 1 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
2.	Mobilization and Demobilization from a Service Lateral Site Location	850 EA	\$	\$
Item 2 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
3.	Excavation of Corp Stop at a Project Site Location	850 EA	\$	\$
Item 3 Subtotal				\$

00300-3

Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
4.	Shoring Required (per project site location)	200 EA	\$	\$
Item 4 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
5.	Traffic Control Required (per project site location)	850 EA	\$	\$
Item 5 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
6.	Asphalt/Concrete Restoration (per project site location)	850 EA	\$	\$
Item 6 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
7.	Soils Testing Required (per project site location)	850 EA	\$	\$
Item 7 Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
8a.	Furnish and Install Replacement Service Laterals – Open Trench Installation <i>Assume an average buried depth of 5 ft and an average length of 35 ft.</i>			
	High-density Polyethylene (HDPE)			
	1. 1"	21,000 LF	\$	\$
	2. 1.5"	4,050 LF	\$	\$
	3. 2"	1,250 LF	\$	\$
Item 8a Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount

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8b.		Furnish and Install Replacement Service Laterals - Trenchless Installation (Bid Alternate, not considered in Award process) <i>Assume an average buried depth of 5 ft and an average length of 35 ft.</i>		
		High-density Polyethylene (HDPE)		
	1"	21,000 LF	\$	\$
	1.5"	4,050 LF	\$	\$
	2"	1,250 LF	\$	\$
Item 8b Subtotal				\$
Item No.	Description	Quantity and Unit	Unit Price	Extended Total Amount
9.		Furnish and Install Hot Tap Saddle Connections (up to 400 locations)		
	9a.	4" Water Main		
	1.	1" Service Lateral	64 EA	\$
	2.	1.5" Service Lateral	12 EA	\$
	3.	2" Service Lateral	4 EA	\$
	9b.	6" Water Main		
	1.	1" Service Lateral	100 EA	\$
	2.	1.5" Service Lateral	24 EA	\$
	3.	2" Service Lateral	12 EA	\$
	9c.	8" Water Main		
	1.	1" Service Lateral	64 EA	\$
	2.	1.5" Service Lateral	12 EA	\$
	3.	2" Service Lateral	4 EA	\$
	9d.	10" Water Main		
	1.	1" Service Lateral	10 EA	\$
	2.	1.5" Service Lateral	3 EA	\$
	3.	2" Service Lateral	3 EA	\$

00300-5

	9e.	12" Water Main			
		1. 1" Service Lateral	48 EA	\$	\$
		2. 1.5" Service Lateral	8 EA	\$	\$
		3. 2" Service Lateral	4 EA	\$	\$
	9f.	14" Water Main			
		1. 1" Service Lateral	4 EA	\$	\$
		2. 1.5" Service Lateral	2 EA	\$	\$
		3. 2" Service Lateral	2 EA	\$	\$
	9g.	16" Water Main			
		1. 1" Service Lateral	12 EA	\$	\$
		2. 1.5" Service Lateral	4 EA	\$	\$
		3. 2" Service Lateral	4 EA	\$	\$
	Item 9 Subtotal				
	\$				
Total (Combine Items 1-9)				\$	

All other associated items of work and incidentals that are required to complete this project and provide a fully functioning facility in accordance with the contract documents are considered to be included in the Bid Schedule items and no additional compensation will be made by the District.

10. SURETY.

10.1 If Bidder is awarded a construction contract from this Bid, the surety who provides the Performance and Payment Bond(s) shall be:

Whose address is

Street City State Zip

11. LICENSE.

11.1 Class ____, California Contractor License No.: _____.

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12. BIDDER.

An Individual

By _____

(Individual's name and signature)

A Partnership

By _____

(Partnership name)

(Name and signature of general partner)

(Title)

A Corporation

By _____

(Corporation name)

(State of incorporation)

By _____

(Name and signature of person authorized to sign)

(Title)

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(Corporate Seal)

A Joint Venture

By _____

(Business name)

(Name and signature of person authorized to sign)

By _____

(Business name)

(Name and signature of person authorized to sign)

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

Name, Phone Number, and Address for receipt of official communications and for additional information on this Bid:

SUBMITTED ON _____, 2019.

+ + END OF SECTION + +

00300-8

SECTION 00310

LIST OF SUBCONTRACTORS

PART 1 - GENERAL

1.1 GENERAL

- A. In accordance with the provisions of Section 4100 et seq. of the Public Contract Code of the State of California, each bidder shall list below the name and location of place of business of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent of the total contract price. In each such instance, the nature (discipline) and extent (subcontract dollar amount) of the work to be sublet shall be listed in the table below:

		Portion of Work	
Subcontractor Name	Business Address	Discipline	Amount (\$)

+ + END OF SECTION + +

SECTION 00400

BID BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____

hereinafter called the PRINCIPAL, and _____

a corporation duly organized under the laws of the State of _____

having its principal place of business at _____

_____ in the State of _____

and authorized to do business in the State of California, as SURETY,

are held and firmly bound unto _____,

as OWNER, hereinafter called the OBLIGEE, in the sum of _____

_____ DOLLARS (\$_____)

for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the PRINCIPAL is herewith submitting his or its Bid for _____

_____ said Bid, by reference thereto, being hereby made a part hereof.

NOW, THEREFORE, if said Proposal shall be rejected, or in the alternate, if said Proposal shall be accepted and the PRINCIPAL shall sign and deliver a Contract to OBLIGEE, in the form of Contract attached hereto and shall execute and deliver Performance and Payment Bonds in the forms attached hereto (all completed in accordance with said Proposal) to OBLIGEE, and shall in all other respects perform the agreement created by the acceptance of said Proposal;

Then, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the SURETY for any and all default of the PRINCIPAL hereunder shall be the amount of this obligation as herein stated.

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The SURETY, for value received, hereby stipulates and agrees that the obligations of said SURETY and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Proposal, and said SURETY does hereby waive notice of any such extension.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed and sealed this _____ day of _____, 2019.

PRINCIPAL

By _____

SURETY

By _____
Attorney-In-Fact

The rate of premium on this bond is _____ per thousand.

Total amount of premium charged \$ _____.

+ + END OF SECTION + +

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SECTION 00500

AGREEMENT FORM

THIS AGREEMENT is between Paradise Irrigation District, (hereinafter called

OWNER) and _____
_____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

1. WORK.

1.1 CONTRACTOR shall complete Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Potable Water Service Lateral Replacement at up to 650 locations throughout the PID Service Area. The scope encompasses mobilization/demobilization and excavation of corporation stops at up to 850 locations, allowing for approximately 30% that will be discovered to have conditions not conducive to completing the service lateral replacement under this contract.

Each site will be field-evaluated and may be determined to require shoring, traffic control, compaction testing, and asphalt/concrete restoration.

Locations selected for service lateral replacement under this contract will be determined by the OWNER in collaboration with the Town of Paradise and communicated to the CONTRACTOR in order of priority. Sequential locations will not necessarily be contiguous parcels, or in common areas where multiple sites may be addressed concurrently

2. ENGINEER.

2.1 Water Works Engineers, LLC is hereinafter called ENGINEER and is to act as OWNER's representative, assume duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

3. CONTRACT TIMES AND LIQUIDATED DAMAGES.

3.1 Contract Times:

3.1.1 CONTRACTOR will achieve Substantial Completion within 180 days from the date Notice to Proceed is issued, when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and Work will be completed and ready for final payment and

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acceptance in accordance with paragraph 14.07 of the General Conditions within 200 days from the date when the Contract Times commence to run.

3.2 Liquidated Damages:

3.2.1 OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph Contract Times above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. OWNER and CONTRACTOR also recognize the delays, expense, and difficulties involved in proving in a legal or other dispute resolution 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) CONTRACTOR shall pay OWNER Five Thousand dollars (\$5,000) for each day that expires after the time specified in paragraph Contract Times above, for Substantial Completion until the Work is substantially complete.

3.2.2 After Substantial Completion, if CONTRACTOR neglects, refuses, or fails to complete the remaining Work within the Contract Times or any proper OWNER-granted extension thereof, CONTRACTOR shall pay OWNER Five Thousand dollars (\$5,000) for each day that expires after the time specified in paragraph Contract Times above for completion and readiness for final payment.

3.2.3 OWNER shall recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by OWNER.

4. CONTRACT PRICE.

4.1 OWNER shall pay CONTRACTOR for completion of the Work and in accordance with the conformed Bid, which is included as an Exhibit to this Agreement, an amount equal to the sum of the amounts determined pursuant to the following:

4.1.1 TOTAL CONTRACT PRICE:

_____ Dollars

(Words)

and _____ Cents \$ _____

(Words)

(Figures)

5. RETAINAGE.

5.1 OWNER shall withhold not more than 5 percent of the contract price until final completion and acceptance of the project. However, at any time after 95 percent of the work has been completed, the OWNER may reduce the funds withheld to an amount not less than 125 percent of the estimated value of the

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Work yet to be completed, as determined by the OWNER, if the reduction has been approved, in writing, by the surety on the performance bond and by the surety on the payment bond.

5.2 CONTRACTOR may elect to substitute securities of equivalent value in accordance with the requirements and procedures of State law.

6. CONTRACTOR'S REPRESENTATIONS.

6.1 In order to induce OWNER to enter into this Agreement, CONTRACTOR's representations are as set forth as follows:

6.1.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, general nature of work to be performed by OWNER or others at the site that relates to Work required by the Contract Documents and local conditions and federal, state, and local Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of Work.

6.1.2 CONTRACTOR has studied carefully reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and accepts the determination set forth in paragraph 4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents.

6.1.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) examinations, investigations, explorations, tests, studies, and reports (in addition to or to supplement those referred to above) which pertain to the conditions (subsurface or physical) at or contiguous to the site or otherwise and which may affect the cost, progress, performance, or furnishing of the Work as CONTRACTOR deems necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.02 of the General Conditions; and no additional or supplementary examinations, investigations, explorations, tests, reports, or similar information or data are or will be required by CONTRACTOR for such purposes.

6.1.4 CONTRACTOR has reviewed and checked information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and has included costs as defined by paragraph 4.04 of the General Conditions.

6.1.5 CONTRACTOR has correlated information known to CONTRACTOR and results of such observations, familiarizations, examinations, investigations, explorations, tests, studies, and reports with Contract Documents.

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6.1.6 CONTRACTOR has given ENGINEER written notice of conflicts, errors, ambiguities, or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of terms and conditions for performing and furnishing Work.

7. CONTRACT DOCUMENTS.

7.1 The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning Work are defined as follows:

Volume 1: Specifications and Standard Details

8. WORKERS COMPENSATION INSURANCE.

8.1 By signing this Agreement I, CONTRACTOR, hereby attest that I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Agreement.

9. MISCELLANEOUS.

9.1 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are 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.

9.2 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpoint each has been delivered to OWNER, CONTRACTOR, AND ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR.

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OWNER _____

CONTRACTOR _____

By _____

By _____

Date _____

Date _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Address for giving notices

Address for giving notices

(If OWNER is a public body, attach
evidence of authority to sign and
resolution of other documents
authorizing execution of Agreement.)

License No. _____

Agent for service of process: _____

(If CONTRACTOR is a corporation, attach
evidence of authority to sign.)

+ + END OF SECTION + +

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SECTION 00600
PERFORMANCE BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

of _____

hereinafter called the CONTRACTOR (Principal), and _____

a corporation duly organized and existing under and by virtue of the laws of the State
of _____,

hereinafter called the SURETY, and authorized to transact business within the State of
California, as SURETY, are held and firmly bound unto

as OWNER (Obligee), in the sum of: _____

_____ DOLLARS (\$ _____),

lawful money of the United States of America, for the payment of which, well and truly
be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of
their heirs, executors, administrators, successors, and assigns, jointly and severally,
firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract

hereto attached, with the OWNER, dated _____, 20____, for:

NOW, THEREFORE, if the CONTRACTOR shall well and truly perform and fulfill all the
undertakings, covenants, terms, conditions and agreements of said Contract during the
original term of said Contract and any extensions thereof that may be granted by the
OWNER, with or without notice to the SURETY, and during the life of any guarantee
required under the Contract, and shall also well and truly perform and fulfill all the

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undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may thereafter be made, then this obligation shall be void, otherwise the same shall remain in full force and virtue.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 2019, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____(Seal)

Attest

SURETY

By _____ (Seal)

Attest

APPROVED AS TO FORM: _____, 20__.

_____, OWNER

The rate of premium on this bond is \$ _____ per thousand.

Total amount of premium charged \$ _____

+ + END OF SECTION + +

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SECTION 00605

PAYMENT BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

of _____

hereinafter called the CONTRACTOR (Principal), and _____

a corporation duly organized and existing under and by virtue of the

laws of the State of _____,

hereinafter called the SURETY, and authorized to transact business
within the State of California, as SURETY, are held and firmly bound unto

as OWNER (Obligee), in the sum of: _____

_____ Dollars (\$ _____),

lawful money of the United States of America, for the payment of which, well and truly
be made to the OWNER, the CONTRACTOR and the SURETY bind themselves and each of
their heirs, executors, administrators, successors, and assigns, jointly and severally,
firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract

hereto attached, with the OWNER, dated _____, for:

That, if said CONTRACTOR, his or its heirs, executors, administrators, successors or
assigns, or subcontractors, shall fail to pay any of the persons named in Civil Code
Section 3181, or amounts due under the Unemployment Insurance Code with respect to
work or labor performed by any such claimant, or for any amounts required to be
deducted, withheld, and paid over to the Franchise Tax Board from the wages of

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employees of the CONTRACTOR and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such work and labor that the Surety or Sureties will pay for the same, in an amount not exceeding the sum specified in the bond, and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court.

That, this bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Now therefore, if the CONTRACTOR shall promptly make payment to all persons supplying labor and materials in the prosecution of the work provided for in said Contract, and any and all duly authorized modifications of said Contract that may hereinafter be made, except that no change will be made which increases the total Contract amount more than 20 percent in excess of the original Contract amount without notice to the Surety, then this obligation shall be void; otherwise the same shall remain in full force and virtue.

IN WITNESS WHEREOF, the above parties bounded together have executed this

instrument this _____ day of _____, 2019, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By _____ (Seal)

Attest

SURETY

By _____ (Seal)

Attest

APPROVED AS TO FORM: _____, 20__.

_____, OWNER

The rate of premium on this bond is \$_____ per thousand.

Total amount of premium charged \$_____.

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+ + END OF SECTION + +

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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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 and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
 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. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

- A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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 14.04 or 14.05).

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. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.
- 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. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *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 Agreement 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

Agreement. 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 Agreement, whichever date is earlier.

2.04 *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 the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
 - 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.

2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *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 2.05.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 component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement 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, 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 Contract Documents. 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 Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier 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
 - 2. 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.
- 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.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

4.02 *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 contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
 - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for 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 such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *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.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds 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 each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 5. 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; and
 6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 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, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- 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.

6.02 *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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *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.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and “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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. “Or-Equal” Items: If in Engineer’s sole discretion 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, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and
 - 3) it has a proven record of performance and availability of responsive service.
- 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.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. 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:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) 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
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.

- F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
- C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *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.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
 3. 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 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 by or based upon Contractor's performance of the Work.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *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.

6.15 *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.

6.16 *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.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- 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 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
 - b. 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 6.17.D.
- B. 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. Submittal Procedures:

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each 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 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

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.

6.18 *Continuing the Work*

- A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 representation of 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 or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. 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 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 6.20.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 6.20.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.

6.21 *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 law.
- 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, Shop Drawings 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 6.21, 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 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and

other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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.

8.12 *Compliance with Safety Program*

- 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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *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 Documents.

9.02 *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 9.09. 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.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with 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, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability

of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. 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; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *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.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor

invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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 11.01.

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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor is required by the Contract Documents to purchase and maintain.

B. *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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work 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 or when a Claim for an 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 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

11.02 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:*

1. Contractor agrees that:
 - a. 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

- b. 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:*

1. 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.

11.03 *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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- 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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the

Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *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, 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.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *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 land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 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 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. 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) will be paid by Contractor.
- 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 13.07, 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 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as

provided in Paragraph 10.05. 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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

14.02 *Progress Payments*

A. *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 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.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. 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;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
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 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment

(for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
 1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. 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
 3. complete the Work as Owner may deem expedient.
 - C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
 - D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
 - E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
 - F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *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;
 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.
- 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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *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 to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents 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.

17.03 *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 Documents. 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.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00825

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions of the Contract Documents. All provisions that are not so amended or supplemented remain in full force and effect.

SC-1.01A.10 Delete "owner or"

SC-1.01.A.19 Supplement paragraph 1.01.A.19 of the General Conditions as follows:

ENGINEER or ENGINEER's Consultant(s): Water Works Engineers, LLC or any subcontractor thereof.

SC-1.01.A.28. Delete paragraph 1.01.A.28 of the General Conditions and replace it as follows:

1.01.A.28. *Notice to Proceed* – A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run.

SC-1.01.A.42. Renumber paragraph 1.01.A.42 of the General Conditions to 1.01.A.42.a, and add a new paragraph as follows:

1.01.A.42.b. *Standard Specifications*—Wherever in these Contract Documents reference is made to the Standard Specifications, said reference shall be understood as referring to the technical portions only of the Standard Specifications, dated May 2006, of the Department of Transportation of the State of California, which applicable parts are incorporated herein and made a part of these Documents by specific reference thereto. If requirements contained in the Standard Specifications are modified by or are in conflict with supplemental information in these Contract Documents, the requirements of these Contract Documents shall prevail.

SC-1.01.A.44. Supplement paragraph 1.01.A.44 of the General Conditions as follows:

Substantial Completion is further defined as (i) that degree of completion of the Project's operating facilities or systems sufficient to provide OWNER the full time, uninterrupted, and continuous beneficial operation of the Work; and (ii) all required functional, performance and acceptance or startup testing has been successfully demonstrated for all components,

devices, equipment, and instrumentation and control to the satisfaction of ENGINEER in accordance with the requirements of the Specifications.

SC-1.01.A.51. Add a new paragraph immediately following paragraph 1.01.A.51 of the General Conditions as follows:

1.01.A.52. *Specialist*—The term Specialist refers to a person, partnership, firm, or corporation of established reputation (or if newly organized, whose personnel have previously established a reputation in the same field), which is regularly engaged in, and which maintains a regular force of workers skilled in either (as applicable) manufacturing or fabricating items required by the Contract Documents, or otherwise performing Work required by the Contract Documents. Where the Specifications require the installation by a Specialist, that term shall also be deemed to mean either the manufacturer of the item, a person, partnership, firm, or corporation licensed by the manufacturer, or a person, partnership, firm, or corporation who will perform the Work under the manufacturer's direct supervision.

SC-2.02. Delete first sentence in paragraph 2.02.A of the General Conditions and insert the following in its place:

OWNER shall furnish to CONTRACTOR 2 copies of the Contract Documents

SC-2.03.A. Delete the third sentence of paragraph 2.03.A *Commencement of Contract Times: Notice to Proceed* of the General Conditions in its entirety.

SC-2.04.A. Delete paragraph 2.04.A of the General Conditions and replace it as follows:

2.04 Starting the Work

- A. CONTRACTOR may start to perform off-site Work following the effective date of the Agreement but no Work shall be done at the site prior to the date on which the Contract Times commence to run.

SC-2.05.B. Add the following immediately following Paragraph 2.05.A of the General Conditions:

- B. CONTRACTOR shall also have prepared CONTRACTOR's written plan for project-specific safety precautions and programs in accordance with Paragraph 6.13.

SC-3.01.A. Add the following immediately following Paragraph 3.01.A of the General Conditions:

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In resolving inconsistencies among two or more components of the Contract Documents, precedence shall be given in the following order:

1. Agreement
2. Supplementary Conditions
3. General Conditions
4. Specifications – Division 01
5. Specifications – Division 02, 03, 15
6. Standard Details
7. CONTRACTOR's Bid

Figure dimensions on Standard Details will take precedence over scale dimensions. Detailed Drawings will take precedence over general Drawings.

SC-4.03.A. Change paragraph 4.03.A of the General Conditions as follows:

Change the word "promptly" to "within 24 hours" wherever it appears in the paragraph.

SC-4.04.B.1. Change paragraph 4.04.B.1 of the General Conditions as follows:

Change the word "promptly" to "within 24 hours" wherever it appears in the paragraph.

SC-4.04 is modified to the extent it is inconsistent with the new paragraph C:

C. Existing Utilities

1. Owner shall assume the responsibility, between the parties of the Contract, for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the site of any construction project that is a subject of this Contract, if such utilities are not identified by Owner in this Contract. Contractor shall be compensated for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Contract Documents with reasonable accuracy and for equipment on the project necessarily idled during such work. Contractor shall not be assessed damages for delay in completion of the Work, when such delay was caused by the failure of

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Owner to provide for removal or relocation of such utility facilities either by others or as part of this Contract.

2. Nothing herein shall be deemed to require Owner to indicate the presence of existing laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities such as buildings, meter and junction boxes, on or adjacent to the site of the construction; provided however, nothing herein shall relieve Owner from identifying main or trunklines in this Contract.

3. If Contractor while performing this Contract discovers utility facilities not identified by Owner in this Contract, it shall immediately notify Owner in writing.

4. This section does not relieve Contractor of its obligations under the Regional Notification Center System, Government Code section 4216, et. seq.

SC-4.06.A. Supplement paragraph 4.06.A of the General Conditions as follows:

In preparing Drawings and Specifications, neither ENGINEER nor ENGINEER's Consultant utilized any reports or drawings relating to a Hazardous Environmental Condition.

Sections GC 4.02, 4.03 and 4.06 are modified to the extent they are inconsistent with the following:

A. Undisclosed or Materially Different Sub-Surface Conditions.

1. Contractor shall, within 24 hours, and before the following conditions are disturbed, notify Owner in writing of any:
 - a. Material that Contractor believes may be material that is Hazardous Waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
 - b. Subsurface or latent physical conditions at the site differing from those indicated by information about the Site made available to Bidder prior to the deadline for submitting Bids.
 - c. Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

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2. Owner shall investigate the conditions within 24 hours, and if it finds the at the conditions do materially so differ, or do involve Hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of the Work shall issue a Change Order under the procedures described in the Contract.
3. In the event that a dispute arises between Owner and Contractor whether the conditions materially differ, or involve Hazardous Waste, or cause a decrease or increase in Contractor's cost of or time required for performance of any part of the Work, Contractor shall not be excused from any scheduled completion date provide for by the Contract, but shall proceed with all work to be performed under the Contract. Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting Parties.

SC-4.07 Add the following after 4.06 of the General Conditions:

SC 4.07 Undisclosed or Materially Different Sub-Surface Conditions

SC-5.01 Add the following paragraph before paragraph A:

Promptly upon notification of the award of the Contract, and before commencement of Work, the Contractor shall deliver to the Owner a Payment Bond (labor and material) and a Performance Bond satisfying all of the requirements of this section.

Add the following in between paragraphs B and C:

The Payment Bond shall in the form supplied by the Owner and shall comply with the requirements of Title 14, Chapter 7, of the Civil Code, commencing with section 9550. It shall provide that if the Contractor or a subcontractor fails to pay the amounts due persons named in Civil Code section 9100, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Contractor and subcontractors, the surety will pay the obligation and, if an action is brought to enforce the liability on the bond, it will pay a reasonable attorneys fee to be fixed by the court. The bond shall inure to the benefit of persons performing labor or furnishing material in connection with the Work, or that persons assigns.

Add the following paragraphs after paragraph C:

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5.01 D. The bonds shall be executed in the name of the surety insurer under penalty of perjury or the fact of execution of the bond shall be duly acknowledged before an officer authorized to take and certify acknowledgments, and either:

1. A copy of the transcript or record of the unrevoked appointment, power of attorney, bylaws, or other instrument, duly certified by the proper authority and attested by the seal of the insurer entitling or authorizing the person who executed the bond to do so for and in behalf of the insurer, is filed in the office of the clerk of the county of Butte.
2. A copy of a power of attorney is attached to the bond.

The Contractor shall obtain from the clerk of the county of Butte, and provide to the Owner, a certificate under Code of Civil Procedure section 995.640 stating that the surety is authorized by the Insurance Commissioner to transact surety business.

5.01 E. The premiums for the bonds shall be paid by the Contractor.

5.01 F. Failure to provide any of the bonds required by these Contract Documents is a material breach by the Contractor giving rise to a right of termination on the part of Owner.

5.01 G. In the event of any conflict between the terms of the Contract and the terms of the bonds, the terms of the Contract shall control and the bonds shall be deemed to be amended thereby. Without limiting the foregoing, the OWNER shall be entitled to exercise all rights granted to it by the Contract in the event of default, without control thereof by the surety (or sureties), provided that the Owner gives the surety (or sureties) notice of such default at the time or before the exercise of any such right by the Owner, and, regardless of the terms of the bonds, the exercise of any such right by the Owner shall in no manner affect the liability of the surety (or sureties) under the bonds.

SC-5.02.A. Delete paragraph 5.02.A of the General Conditions and replace it as follows:

5.02.A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions. Surety and insurance companies from which the bonds and insurance for this Project are purchased shall have a Best's rating of no less than A:VII, in addition to the other requirements specified herein.

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SC-5.03 B Delete paragraphs 5.03 B-D of the General Conditions

SC-5.04 Add the following at the end of Paragraph A:

Contractor shall obtain from its carrier a waiver of subrogation endorsement in favor of Owner and Engineer.

SC-5.04.B. Supplement paragraph 5.04.B of the General Conditions as follows:

5.04.B.7. Include the following parties or entities as additional insured:

5.04.B.7.a. Paradise Irrigation District: 6332 Clark Road, Paradise CA, 95969.

5.04.B.7.b. Water Works Engineers, its officers, agents and employees, and subcontractors, Corporate Office: 760 Cypress Avenue, Suite 201, Redding, CA 96001.

SC-5.04.C. Add the following paragraph immediately following paragraph 5.04.B of the General Conditions:

5.04.C. The limits of liability for the insurance required by paragraph 5.04.B.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.04.C.1. Worker's compensation, disability benefits and other similar employee benefit acts, and damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees as provided in paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

5.04.C.1.a. State of California: Statutory.

5.04.C.1.b. Employer's Liability: \$1,000,000

5.04.C.2. CONTRACTOR's Liability Insurance under paragraphs 5.04.A.3 through 5.04.A.5 of the General Conditions shall provide the following minimum limits and conditions:

5.04.C.2.a. General Aggregate Per Project \$3,000,000

5.04.C.2.b. Products-Completed Operations Aggregate \$3,000,000

5.04.C.2.c. Each Occurrence (bodily injury and property damage) \$3,000,000

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5.04.C.2.d. Fire Damage (any one fire) \$250,000

5.04.C.2.e. Medical Expenses (any one person) \$5,000

5.04.C.2.f. Property Damage liability insurance will remove the explosion, collapse, and underground exclusion and provide broad form property damage coverage.

5.04.C.3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions, providing for Combined Single Limit (bodily injury and property damage) for owned, nonowned, rented, or hired vehicles \$3,000,000

5.04.C.4. Provide Excess Liability or Umbrella insurance providing protection for at least the hazards insured under the primary liability policies with the following limits:

5.04.C.4.a. Each Occurrence \$3,000,000

5.04.C.5. Additional coverages CONTRACTOR shall provide are as follows:

5.04.C.5.a. CONTRACTOR shall provide pollution liability insurance as follows:

General Aggregate \$2,000,000

Each Occurrence (Bodily Injury and property damage) \$2,000,000

5.04.C.5.b. OWNER's and CONTRACTOR's Protective Liability (OWNER as named insured with ENGINEER as additional insured) \$1,000,000

SC-5.05 Delete paragraph 5.05 in its entirety.

SC-5.06 Replace paragraph 5.06 in its entirety and replace with:

5.06 CONTRACTOR'S ALL RISK INSURANCE. The Contractor shall secure "All Risk" Type Builder's Risk Insurance (or installation floater) covering all risks of direct physical loss, damage, or destruction to the work to be performed, to insure against such losses until final acceptance of the work by the OWNER. Said insurance shall be placed with insurers meeting the requirements of Section above. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the Contract amount. The policy shall cover not less than the losses due to fire, explosion, vehicle damage, theft, flood,

earthquake, civil commotion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the contract time, and until the work is accepted by the OWNER. The policy shall name as the insured the Contractor, the OWNER, the Engineer and their respective directors, officers, employees, or authorized volunteers. The insurance premium amount shall be stated as a separate bid or proposal item.

SC-5.07 Delete paragraph 5.07 of the General Conditions in its entirety.

SC-5.08 Delete paragraph 5.08 of the General Conditions in its entirety.

SC-5.09 Delete paragraph 5.09 of the General Conditions in its entirety.

SC-5.10.A. Supplement paragraph 5.10.A of the General Conditions as follows:

The property insurance shall contain no partial occupancy restriction for utilization of the Project by OWNER for the purpose intended.

SC-6.01.B. Supplement paragraph 6.01.B of the General Conditions as follows:

If at any time during the Project, the superintendent leaves the Project site while Work is in progress, ENGINEER shall be notified and provided with the name of the CONTRACTOR's representative having responsible charge. CONTRACTOR shall also designate the person responsible for CONTRACTOR's quality control while Work is in progress. ENGINEER shall be notified in writing prior to any change in quality control representative assignment

SC-6.01.C. Add paragraph 6.01.C immediately following paragraph 6.01.B of the General Conditions as follows:

6.01.C. If any person employed by CONTRACTOR or any subcontractor shall fail or refuse to carry out the directions of the ENGINEER, or is, in the opinion of the ENGINEER, incompetent, unfaithful, intemperate or disorderly, or uses threatening or abusive language to any person on the Work representing OWNER, or is otherwise unsatisfactory, he or she shall be discharged immediately, and shall not again be employed on the Work except with the consent of the ENGINEER.

SC-6.02.B. Supplement paragraph 6.02.B of the General Conditions as follows:

CONTRACTOR (and Subcontractor) regular working hours consist of 8 working hours within an 11-hour period between 7:00 a.m. and 6:00 p.m., excluding Sundays and holidays. Overtime work is work in excess of 8 hours per day or 40 hours per week or work not within the regular working hours.

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SC-6.02.C. Add the following paragraph immediately following paragraph 6.02.B of the General Conditions:

6.02.C. CONTRACTOR shall reimburse OWNER for ENGINEER's additional extraordinary costs, as determined by ENGINEER, for onsite personnel overtime work resulting from CONTRACTOR's overtime operations. Reimbursement shall be on the cost basis defined in paragraph 14.02.D. of these Supplementary Conditions. SC-6.02.D. Add the following immediately following paragraph 6.02.C. of the General Conditions:

6.02.D. The following wage and hour requirements shall apply:

1. This is a public work. Contractor and its subcontractors are subject to the requirements of Chapter 1, Part 7 of the Labor Code, commencing with section 1720, pertaining to public works, and are responsible for ascertaining and complying with those requirements. Any person who willfully violates Article 2 of Chapter 1 (Wages) is guilty of a misdemeanor. See Labor Code section 1777. Violations may also result in debarment. See Labor Code section 1777.1.
2. Not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in Chapter 1, Part 7 of the Labor Code, shall be paid for each craft, classification, or type of worker needed to execute this Contract. Contractor, and any subcontractor under it, shall be subject to penalties under Labor Code section 1775 for paying less than the prevailing wage rates.
3. Copies of the prevailing rates of per diem wages are on file at District's office and shall be made available on request. Alternatively, the rates are accessible on the INTERNET under the heading "General Prevailing Wage Determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1." The Internet address is <http://www.dir.ca.gov/>.
4. Contractor shall cause a copy of the prevailing rate of per diem wages to be posted at the Work site.
5. Contractor and any subcontractor under it shall keep accurate payroll records showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by it in connection with the Work and shall certify and make those records available for inspection and otherwise comply with the provisions of Labor Code sections 1776 and 1812. Contractor and its subcontractors are subject to a penalty assessment for a failure to comply with these requirements. Any person who neglects to comply with the provisions of section 1776, pertaining to

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payroll records, is guilty of a misdemeanor. See also Labor Code section 1814.

6. Contractor and any subcontractor under it shall be subject to the provisions of Labor Code section 1777.5 pertaining to the employment of apprentices. Contractor and its subcontractors shall pay every apprentice employed in the execution of this Contract the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall otherwise comply with the provisions of that section. Contractor and its subcontractors are subject to penalty assessments under Labor Code sections 1777.6 and 1777.7 for a failure to comply with these requirements. Contractor and any subcontractors working under it shall not refuse to accept qualified employees as registered apprentices on any basis listed in subdivision (a) of section 12940 of the Government Code.
7. Contractor warrants that neither it nor any of its subcontractors is ineligible to work on public works projects under sections 1777.1 or 1777.7 of the Labor Code. Contractor is prohibited from performing work on this Contract with an ineligible subcontractor.
8. Contractor and its subcontractors shall not discriminate in the employment of persons upon this Work on any basis listed in subdivision (a) of section 12940 of the Government Code. Contractor and its subcontractors shall be subject to penalties for violations of this prohibition, as provided in Labor Code section 1735.
9. The time of service of any worker employed in the execution of this Contract is limited and restricted to 8 hours during any one calendar day, and 40 hours during any one calendar week, except that work performed by Contractor's employees in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than 1 1/2 times the basic rate of pay, or at any higher rate of overtime pay that may be required pursuant to a Department of Industrial Relations prevailing wage determination. Contractor, or any subcontractor working under it, shall be subject to penalties under Labor Code section 1813 for violations of these limitations.
10. Contractor shall secure the payment of worker's compensation to its employees performing the Work, in accordance with the provisions of Sections 1860 and 3700 of the Labor Code and, in case any such Work is sublet, the Contractor shall require the subcontractor similarly to comply with those provisions.
11. Prior to engaging in the performance of the Work, Contractor and its subcontractors shall register with and provide evidence, disclosures, or releases to the Department of Industrial Relations, under Labor Code section 1725.5. Contractor shall provide District with proof of compliance with the requirements of section 1725.5. Contractor and its subcontractors shall renew and otherwise maintain their registration for

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the duration of the Work. A failure by Contractor or its subcontractors to comply with the requirements of this provision and Labor Code section 1725.5 constitutes grounds for the cancellation of this contract.

12. The Work is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post job site notices, as prescribed by regulation. Contractor and its subcontractors shall retain records specified in Labor Code section 1776 (see subdivision (E), above) for at least three years after completion of the Work. Contractor and its subcontractors shall furnish payroll and other records specified in Labor Code section 1776 to the Labor Commissioner, in the manner set forth in Labor Code section 1771.4.

SC-6.03.B. Change paragraph 6.03.B of the General Conditions as follows:

In the second sentence, change the word "Specifications" to "Contract Documents".

SC-6.05.A.1.a. Delete paragraph 6.05.A.1.a of the General Conditions and replace it as follows:

- a. in the exercise of reasonable judgement, ENGINEER determines that it is equivalent to or better than the product named in form, function, performance, reliability, quality, features, materials of construction, operation and maintenance cost, static and dynamic loads, general dimensional configuration, size weight and appearance, and;

SC-6.05.A.2.d. Supplement paragraph 6.05.A.2.d of the General Conditions as follows:

All data to be provided by CONTRACTOR in support of any proposed "or-equal" or substitute item will be at CONTRACTOR's expense.

SC-6.05.E. Supplement paragraph 6.05.E of the General Conditions as follows:

Reimbursement rates for ENGINEER or ENGINEER's Consultants for evaluation of proposed substitutes shall be on the basis as established in paragraph 14.02.D.4 of these Supplementary Conditions.

SC-6.06.A. Supplement paragraph 6.06.A of the General Conditions as follows:

CONTRACTOR shall perform a minimum of 50 percent of the onsite labor with its own employees.

The provisions of GC-6.06 are subject to the Subletting and Subcontracting Fair Practices Act, Division 2, Part 1, Chapter 4 of the California Public Contract Code.

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SC-6.06.B. Supplement paragraph 6.06.B of the General Conditions as follows:

If any branch of Work equals one-half of one percent of the Total Contract Price and is to be accomplished by persons or companies other than the General Contractor, these persons or companies will be considered a subcontractor and their names and addresses must be submitted with the Bid at the time of Bid.

SC-6.08.A. Supplement paragraph 6.08.A of the General Conditions as follows:

For trenches or excavations 5 feet or deeper, CONTRACTOR shall obtain from the State Division of Occupational Safety and Health or as otherwise may be required, permit(s) authorizing such construction, prior to starting excavation Work required under the Contract Documents.

SC-6.09.D. Add a new paragraph immediately after paragraph 6.09.C of the General Conditions as follows:

6.09.D. While not intended to be inclusive of all Laws or Regulations for which CONTRACTOR may be responsible under paragraph 6.09, the following Laws or Regulations are included as mandated by statute or for the convenience of CONTRACTOR:

6.09.D.1. Prevailing Wages and Payroll Records:

6.09.D.1.a. In accordance with the provisions of Section 1770 et. seq. of the California Labor Code, the general prevailing wage rates applicable to the Work have been determined by Director of Industrial Relations, State of California. Such determination is on file at the office of OWNER, and a copy will be made available to any interested party on request.

6.09.D.1.b. Prior to starting any Work on the Project, CONTRACTOR shall obtain copy of wage determination from OWNER and post it on the site.

6.09.D.1.c. CONTRACTOR shall comply with provisions of Section 1775 of the California Labor Code, one of which is that CONTRACTOR shall forfeit as penalty to OWNER not more than \$50 for each calendar day or portion thereof for each worker, whether employed by CONTRACTOR or Subcontractor, paid less than stipulated prevailing rates for any work done under the Contract in violation of provisions of the California Labor Code and, in particular, Sections 1770 to 1780, inclusive.

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6.09.D.1.d. The OWNER will not recognize a claim for additional compensation because of the payment by the CONTRACTOR of any wage rate in excess of the prevailing wages set forth in the Contract Documents. The possibility of wage increases is one of the elements to be considered by the CONTRACTOR in determining its Bid and will not under any circumstances be considered the basis of a claim against the OWNER.

6.09.D.1.e. Section 1776 of the Labor Code enumerates certain requirements concerning Contractors' and Subcontractors' payroll records. This section stipulates that responsibility for compliance shall be fixed upon CONTRACTOR. Payroll records shall be maintained, be available for inspection and copies furnished in accordance with Section 1776, and in the event of noncompliance with the requirements, CONTRACTOR is subject to the penalties as described in Section 1776.

6.09.D.2. Assignment of Claims: California Government Code Section 4552 and Section 7103.5 of the California Public Contract Code requires that the following provision be included in public works contracts:

"In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, CONTRACTOR or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2) commencing with Section 16700 (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 CONTRACTOR, without further acknowledgment by the parties."

6.09.D.3. Notification Requirements for Excavations:

6.09.D.3.a. In part, Government Code Section 4216.2 provides that, "Except in an emergency, every person planning to conduct any excavation shall contact the appropriate regional notification center at least 2 working days, but no more than 14 calendar days, prior to commencing that excavation, if the excavation will be conducted in an area which is known, or reasonably should be known, to contain subsurface installations other than the Underground Facilities owned or operated by the excavator and, if practical excavator shall delineate with white paint or other suitable

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markings the area to be excavated. The regional notification center shall provide an inquiry identification number to the person who contacts the center pursuant to this Section and shall notify any member, if known, who has a subsurface installation in the area of the proposed excavation.”

6.09.D.3.b. CONTRACTOR shall contact the regional notification center, “Underground Service Alert”, and schedule the Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities.

SC-6.11.A. Supplement paragraph 6.11.A of the General Conditions as follows:

CONTRACTOR shall not enter upon nor use property not under OWNER control until appropriate easements have been executed and a copy is on file at the site.

SC-6.13.C. Add new paragraphs immediately following paragraph 6.13.F of the General Conditions as follows:

6.13.G. Trench Safety System:

6.13.G.1. CONTRACTOR shall prepare, as part of its safety precautions and programs plan, a Trench Safety System for trench excavation exceeding 5 feet in depth meeting the requirements of applicable local, state construction safety orders and federal requirements.

6.13.H. Construction Site Safety Inspections:

6.13.H.1. In accordance with generally accepted construction practices, the CONTRACTOR shall be solely and completely responsible for conditions of the site, including safety of all persons and property during performance of the Work, and the CONTRACTOR shall comply fully with all local, state, and federal laws, rules, regulations, and orders relating to the safety of the public and workers.

6.13.H.2. The right of the OWNER to conduct construction review or inspection of the CONTRACTOR’s performance is not intended to include review or inspection of the CONTRACTOR’s safety measures in, on, or near the site. The OWNER and ENGINEER will coordinate the activities of the various contractors and entities working at the site and will provide information regarding site-wide safety coordination issues that will need to be included in the CONTRACTOR’s site-specific safety and accident prevention plan.

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6.13.H.3. The CONTRACTOR shall designate a safety representative for the Project who shall be responsible for the implementation and execution of the CONTRACTOR's safety plan. The safety representative shall attend weekly site safety coordination (tailgate) meetings.

6.13.H.4. Before any Work at the site is started, the CONTRACTOR shall have prepared and submitted to the ENGINEER a written plan for the Project-specific safety and accident prevention precautions and programs, complete with respect to procedures and actions that the CONTRACTOR intends CONTRACTOR and all parties and individuals that will be on the Work site to follow in order for the CONTRACTOR and all others to comply with all applicable laws and regulations. The CONTRACTOR's plan for safety precautions and programs shall have been approved by the CONTRACTOR's designated safety representative. The CONTRACTOR shall not be allowed to proceed with onsite activity until ENGINEER has received the plan.

6.13.H.5. The CONTRACTOR shall revise their plan for safety precautions and programs at appropriate times to reflect changes in the construction conditions, the Work, the CONTRACTOR's means, methods, techniques, sequences, and procedures of construction. The CONTRACTOR shall disseminate the original plan and revisions to all parties and individuals that will be on the Work site.

6.13.H.6. The CONTRACTOR's plan for safety precautions and programs shall not require more stringent safety requirements, training, or other qualifications for all other than the CONTRACTOR sets forth for comparable activity and responsibility of the CONTRACTOR, Subcontractors, and Suppliers, and their respective employees.

6.13.H.7. The CONTRACTOR shall submit to the ENGINEER, on a weekly basis, copies of all OSHA-required site records and training certificates.

6.13.H.8. While performing Work at the jobsite, CONTRACTOR personnel, or any tier, shall be identified with the employee's company name or logo affixed to either the employee's hardhat, identification badge, or alternative method approved by the ENGINEER.

6.13.H.9. The CONTRACTOR shall perform a safety inspection at the end of each working day to identify and correct any unsafe conditions prior to leaving the site.

6.13.H.10. Consideration and acceptance of the monthly application for payment by the ENGINEER shall require a monthly submission of the Construction Site Safety Inspection Report. This report shall be the result

of an onsite Cal/OSHA consultation at the Work place. After receiving the onsite consultation from Cal/OSHA, the CONTRACTOR shall arrange monthly reviews of the site safety by independent consultants. Consultations shall include onsite walkthroughs to ensure the Work is being accomplished in a safe manner. The report shall address any job safety or health hazards. The CONTRACTOR is to correct in a timely manner, any reported hazard. The report shall include walkthrough checklist and field notes. A copy of the report shall be transmitted to the ENGINEER at the end of each month.

6.13.I. Incident Reporting:

6.13.I.1. CONTRACTOR shall notify the Resident Project Representative of any accident at the Work site within 24 hours of the event.

6.13.I.2. CONTRACTOR shall notify the Resident Project Representative of any Cal-OSHA complaints and/or inspections at the Work site within 24 hours.

SC-6.17.E.1. Delete the first sentence of paragraph 6.17.E.1 of the General Conditions and replace it as follows:

ENGINEER will review all Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Samples as acceptable to the ENGINEER. Specifics regarding review times are included in the Specifications.

SC-6.17.F. Add paragraph 6.17.F immediately following paragraph 6.17.E of the General Conditions as follows:

6.17.F. Excessive submittal resubmission: ENGINEER will record time required by ENGINEER for excessive submittal review occasioned by CONTRACTOR's resubmission, in excess of one resubmission of a required submittal, caused by unverified, unchecked, unreviewed, incomplete, inaccurate or erroneous or nonconforming submittals. Upon receipt of ENGINEER's accounting of time and costs, CONTRACTOR will reimburse OWNER for the charges of ENGINEER review for excessive resubmission through set-offs from the recommended OWNER payments to CONTRACTOR as established in paragraph 14.02.D.4 of these Supplementary Conditions.

SC-7.01.D. through 7.01.F. Add new paragraphs immediately following paragraph 7.01.C of the General Conditions as follows:

7.01.D. Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of or resulting from CONTRACTOR's performance of the Work at the site be made by any

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separate contractor against CONTRACTOR, OWNER, ENGINEER, or ENGINEER's Consultants or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by mediation, arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER, and ENGINEER's Consultants and the officers, directors, employees, agents, and other consultants of each and any of them harmless 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 directly, indirectly or consequentially out of or resulting from any action, legal or equitable, brought by a separate contractor against OWNER, ENGINEER, or ENGINEER's Consultants or the officers, directors, employees, agents, or other consultants of each and any of them to the extent based on a claim caused by, arising out of, or resulting from CONTRACTOR's performance of the Work.

7.01.E. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or ENGINEER's Consultants or the officers, directors, employees, agents, or other consultants of each and any of them or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any mediator or arbitrator which seeks to impose liability on or to recover damages from OWNER, ENGINEER, or ENGINEER's Consultants or the officers, directors, employees, agents, or other consultants of each and any of them on account of any such damage or claim.

7.01.F. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of time in accordance with Article 12. An extension of the Contract Times shall be CONTRACTOR's exclusive remedy with respect to OWNER, ENGINEER, or ENGINEER's Consultants or the officers, directors, employees, agents, or other consultants of each and any of them for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, or ENGINEER's Consultants or the officers, directors, employees, agents, or other consultants of each and any of them for activities that are their respective responsibilities.

SC-7.03 A. Add "or government agencies" after "utilities".

SC-8.06. Delete paragraph 8.06 of the General Conditions in its entirety.

SC-8.13 Add to the General Conditions following paragraph 8.12:

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8.13 *Notification of Third Party Claims*

- A. Owner shall make timely notification to Contractor of the receipt of any third-party claim relating to this Contract.

SC-9.03.B. through 9.03.D. Add new paragraphs immediately following paragraph 9.03.A of the General Conditions as follows:

9.03.B. The Resident Project Representative (RPR) will be furnished by ENGINEER. The responsibilities, authority, and limitations of the RPR are limited to those of ENGINEER in accordance with paragraph 9.10 of the General Conditions and as set forth elsewhere in the Contract Documents and are further limited and described below.

9.03.C. Responsibilities and Authority:

9.03.C.1. Schedules: Review and monitor the progress schedule, schedule of Submittals submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

9.03.C.2. Conferences and Meetings: Conduct or attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, Work conferences and other Project related meetings.

9.03.C.3. Liaison: (i) Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; (ii) assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's onsite operations; (iii) assist in obtaining from OWNER additional details or information when required for proper execution of the Work.

9.03.C.4. Submittals: Receive Submittals which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability for examination. Advise ENGINEER and CONTRACTOR of the commencement of any Work or arrival of Products at site, when recognized, requiring a Shop Drawing or Sample if the Submittal has not been approved by ENGINEER.

9.03.C.5. Review of Work, Rejection of defective Work, Inspections and Tests: (i) Conduct onsite observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents; (ii) inform ENGINEER and CONTRACTOR whenever RPR believes that any Work is defective; (iii) advise ENGINEER whenever RPR believes that any Work will not produce a completed Project that conforms generally to the Contract

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Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or whenever RPR believes Work should be uncovered for observation, or requires special testing, inspection, or approval; (iv) monitor that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; (v) and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups; and (vi) accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

9.03.C.6. Interpretation of Contract Documents: Inform ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

9.03.C.7. Modifications: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and provide recommendations to ENGINEER; transmit to CONTRACTOR the decisions issued by ENGINEER.

9.03.C.8. Records: (i) Maintain at the site files for correspondence, conference records, Submittals including Shop Drawings and Samples, reproductions of original Contract Documents including all Addenda, the signed Agreement, Written Amendments, Work Change Directives, Change Orders, Field Orders, additional Drawings issued after the Effective Date of the Agreement, ENGINEER's written clarifications and interpretations, progress reports, and other Project related documents; (ii) keep a diary or log book recording pertinent site conditions, activities, decisions and events.

9.03.C.9. Reports: (i) Furnish ENGINEER periodic reports of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Submittals submissions; (ii) consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work; and (iii) assist in drafting proposed Change Orders, Work Change Directives, and Field Orders, obtain backup material from CONTRACTOR as appropriate.

9.03.C.10. Payment Requests: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of

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values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

9.03.C.11. Certificates, Maintenance and Operation Manuals, Record Documents, and Site Records: During the course of the Work, monitor that these documents and other data required to be assembled, maintained, and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.

9.03.C.12. Substantial Completion: (i) Conduct an inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a list of items to be completed or corrected; (ii) submit to ENGINEER a list of observed items requiring completion or correction.

9.03.C.13. Completion: (i) Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR; and (ii) notify CONTRACTOR and ENGINEER in writing of all particulars in which this inspection reveals that the Work is incomplete or defective; and (iii) observe that all items on final list have been completed, corrected, or accepted by OWNER and make recommendations to ENGINEER concerning acceptance.

9.03.D. Limitations of Authority: Resident Project Representative will not:

9.03.D.1. have authority to authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER; or

9.03.D.2. undertake any of the responsibilities of CONTRACTOR, Subcontractors or CONTRACTOR's superintendent; or

9.03.D.3. accept Submittals from anyone other than CONTRACTOR; or

9.03.D.4. authorize OWNER to occupy the Project in whole or in part; or

9.03.D.5. participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

SC- 9.04 Add the following immediately after Paragraph 9.04(A):

Owner is not bound by Engineer's determination regarding impact on Contract Price or Contract Times. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

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SC-9.07 Delete Paragraph 9.07.A and replace with the following:

- A. 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) on Contractor, subject to the provisions of Paragraph 10.05.
- B. Owner is not bound by Engineer's determinations. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-9.08 Delete paragraphs 9.08.B and 9.08.C and replace with the following new Paragraphs and add the following new paragraph 9.08 E immediately after Paragraph 9.08.D:

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Contractor, subject to the provisions of Paragraph 10.05.
- E. Owner is not bound by Engineer's determinations. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-9.09.F. Add a new paragraph immediately after paragraph 9.09.E of the General Conditions as follows:

9.09.F. Contractors, Subcontractors, Suppliers and others on the Project, or their sureties, shall maintain no direct action against ENGINEER, its officers, employees, affiliated corporations, and subcontractors, for any claim arising out of, in connection with, or resulting from the engineering services performed. Only the OWNER will be the beneficiary of any undertaking by ENGINEER.

SC-10.03.B. Add the following new paragraph immediately after Paragraph 10.03.A:

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- B. Owner is not bound by Engineer's recommendations. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-10.05 Delete this section in its entirety and replace with the following:

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Contractor of any rights or remedies it may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and OWNER promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with Contractor. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and OWNER within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event.
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

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- E. Engineer's written action under Paragraph 10.5.C or denial pursuant to paragraphs 10.05C.3 or 10.05.D will be final and binding upon Contractor, unless Contractor invokes the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.
- G. The claims procedure is not available to Owner. Owner is not bound by Engineer's claims determinations. Owner, if it rejects Engineer's determination, shall notify Contractor in writing of its determination of Contractor claims. If Contractor disagrees with Owner determinations, it may invoke the dispute resolution procedure set forth in Article 16 within 30 days of written notification of the disputed determination.

SC-11.03.C. Delete paragraph 11.03.C of the General Conditions in its entirety and insert the following in its place.

11.03.C. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

11.03.C.1. if the total cost of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price at the time of award and the variation in the quantity of that particular item of Unit Price Work performed by CONTRACTOR differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

11.03.C.2. if there is no corresponding adjustment with respect to any other item of Work; and

11.03.C.3. if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-11.03. Delete Paragraph 11.03.D and replace with the following:

D. Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

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

Add the following: OWNER Is not bound by Engineer's determinations. If Contractor disagrees with Engineer or OWNER determinations, it may pursue a claim under Paragraph 10.05.

SC-12.01.B.2. Delete paragraph 12.01.B.2 of the General Conditions and replace it as follows:

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, by another mutually agreed on payment basis, including Lump Sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2), or new unit price items not necessarily derived in accordance with Article 11.

SC-12.01.C. Delete the semicolon at the end of GC12.01.C.2.c, and add the following language:

provided, however, that on any subcontracted work the total maximum fee to be paid by Owner under this subparagraph shall be no greater than 27 percent of the costs incurred by the Subcontractor who actually performs the work;

SC-13.03.B. Delete paragraph 13.03.B of the General Conditions, and its subparagraphs, in its entirety and insert the following in its place:

13.03.B. CONTRACTOR shall employ an independent testing laboratory or testing agency and shall be responsible for arranging and shall pay for all specified tests, inspections, and approvals required for OWNER's and ENGINEER's acceptance of the Work at the site.

SC-13.04.C. Delete the last sentence of Paragraph 13.04.C.

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SC-13.07.C. Supplement paragraph 13.07.C of the General Conditions as follows:

Repetitive malfunction of an equipment or product item shall be cause for replacement and an extension of the correction period to a date one year following acceptable replacement. A repetitive malfunction shall be defined as the third failure of an equipment or product item following original acceptance.

SC-13.08 Delete the fourth sentence in paragraph 13.08 and replace with the following: OWNER is not bound by Engineer's determinations regarding the appropriate decrease in Contract Price. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-13.09. Delete Paragraph 13.09.C and replace with the following:

- C. 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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, Owner shall be entitled to an appropriate decrease in the Contract Price.

SC-14.02. Delete the Section and replace it with the following paraphrase of statutes pertaining to progress payments:

- A. Progress payments shall be made at a rate of 95 percent of the portion of Contract Price corresponding to the percentage of actual work completed plus a like percentage of the value of material delivered on the ground or stored subject to, or under the control of, Owner, and unused, as determined by Owner. Owner shall withhold 5 percent from each progress payment until final completion of the work.
- B. Owner shall make progress payments in accordance with Public Contract Code section 20104.50. The provisions of that section are summarized below.
 - 1. Owner shall make each progress payment within 30 days after receipt of an undisputed and properly submitted payment request from Contractor, or shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of section 685.010 of the Code of Civil Procedure.
 - 2. Upon receipt of a payment request, Owner shall act in accordance with both of the following:

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- a. Each payment request shall be reviewed by Owner as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.
 - b. Any payment request determined not to be a proper payment request suitable for payment shall be returned to Contractor as soon as practicable, but not later than seven days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.
3. The number of days available to Owner to make a payment without incurring interest pursuant to section 20104.50 of the Public Contract Code shall be reduced by the number of days by which Owner exceeds the seven-day return requirement.
 4. Contractor shall certify with each Application for Progress Payment that the Submittals and Project record documents are current with the progress of the Work. Engineer shall have the right to refuse recommendation for payment if inspection reveals that Submittals or Project record documents are not current.

SC-14.04.A. Delete paragraph 14.04.A. and replace it as follows:

14.04.A. Work shall be Substantially Complete at the time of final payment and acceptance. No interim Substantial Completion will be considered. Contractor shall notify Owner and Engineer in writing when Contractor considers entire Work to be ready for its intended use and requests Final Inspection having completed all remaining work and punchlist items.

SC-14.04.C Delete paragraph 14.04.C. and replace it as follows:

14.04.C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

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SC-14.04.D Delete paragraph 14.04.D.and replace it as follows:

14.04.D Owner is not bound by Engineer's determination of substantial completion. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-14.07. Following Item C, add the following paraphrase of statutes:

- D. The retention proceeds withheld from any payment to Contractor by Owner, or by Contractor from any subcontractor, shall be subject to the following:
 - 1. Within 60 days after the date of completion of the Work, the retention withheld by OWNER shall be released. In the event of a dispute between OWNER and Contractor, OWNER may withhold from the final payment an amount not to exceed 150 percent of the disputed amount. For purposes of this requirement, "completion" means any of the following:
 - a. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or commissioning, by OWNER, or its agent, accompanied by cessation of labor on the work of improvement.
 - b. The acceptance by OWNER, or its agent, of the work of improvement.
 - c. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 days or more, due to factors beyond the control of Contractor.
 - d. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 days or more, if OWNER files for record a notice of cessation or a notice of completion.

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2. Except as provided below, within seven days from the time that all or any portion of the retention proceeds are received by Contractor, Contractor shall pay each of its subcontractors from whom retention has been withheld, each subcontractor's share of the retention received. However, if a retention payment received by Contractor is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor, if the payment is consistent with the terms of the subcontract.
 3. Contractor may withhold from a subcontractor its portion of the retention proceeds if a bona fide dispute exists between the subcontractor and Contractor. The amount withheld from the retention payment shall not exceed 150 percent of the estimated value of the disputed amount.
 4. In the event that retention payments are not made within the time periods required by this section, Owner or Contractor withholding the unpaid amounts shall be subject to a charge of 2 percent per month on the improperly withheld amount, in lieu of any interest otherwise due. Additionally, in any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to attorney's fees and costs.
- E. Contractor may substitute security for moneys withheld by Owner to ensure performance under the Contract, or Contractor may direct payment of retentions to an escrow agent pursuant to Public Contract Code section 22300.

SC-14.08. Delete the section.

SC 15.02. Add the following to the end of paragraph 15.02.C:

Owner is not bound by Engineer's determination of claims, costs, losses, and unpaid balance under Subparagraph C. If Contractor disagrees with Engineer or Owner determinations, it may pursue a claim under Paragraph 10.05.

SC-15.03. Delete Paragraph 15.03.B and replace with the following:

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- B. Owner shall not be responsible for any claim by Contractor or Subcontractor making a claim on Contractor for any loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

SC-15.04. Delete the Section.

SC-16.01. Delete this section and replace with the following statutory procedures:

- A. Except as provided in 16.02, resolution of public works claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between a contractor and a local agency (the OWNER) shall be in accordance with the provisions of Article 1.5, Part 3, Division 2 of the Public Contract Code (Section 20104 et seq.), including the following:

- 1. Claim Defined.

“Claim” means a separate demand by the contractor for (a) a time extension, (b) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (c) an amount the payment of which is disputed by the local agency.

- 2. Administrative Procedures.

For any claim, as defined herein, the following requirements apply:

- (a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims with supporting documents must be filed within 15 days of the occurrence giving rise thereto. Failure to do so shall be deemed a waiver of the claim.
- (b)
 - (1) For claims of less than fifty thousand dollars (\$50,000), the local agency (the OWNER) shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.
 - (2) The local agency’s (the OWNER’s) written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further

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documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

- (c) (1) For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency (the OWNER) may have against the claimant.

(2) The local agency's (the OWNER's) written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

- (d) If the claimant disputes the local agency's written response, or the local agency (the OWNER) fails to respond within the time prescribed, the claimant may so notify the local agency (the OWNER), in writing, either within 15 days of receipt of the local agency's (the OWNER's) response or within 15 days of the local agency's (the OWNER's) failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency (the OWNER) shall schedule a meet-and-confer conference within 30 days for settlement of the dispute.

- (e) Following the meet-and-confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For the purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet-and-confer process, including any period of time utilized by the meet-and-confer process. Failure to present a timely claim pursuant to the

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Government Code provisions shall bar and preclude the filing of a civil action to resolve the dispute.

3. Civil Actions Filed to Resolve Claims.

- (a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.
- (b)
 - (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.
 - (2) Notwithstanding any other provision of law, arbitrators appointed for purposes of this article shall be experienced in construction law, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division.
 - (3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgement shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

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- (c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

B. Resolution of public works claims of more than three hundred seventy-five thousand dollars (\$375,000) shall be as set forth above for claims of \$50,000 to \$375,000.

SC-16.02. Add paragraph 16.02 immediately following paragraph 16.01 of the General Conditions as follows:

16.02 Contractor Claim

- A. Notwithstanding any provision to the contrary in section 16.01, Contractor claims, as defined below, shall be governed by Public Contract Code section 9204. Key provisions of that section are summarized below:
- B. "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
 - 1. A time extension, including, without limitation, for relief from damages or penalties for delay assessed by the OWNER under this Contract.
 - 2. Payment by the OWNER of money or damages arising from work done by, or on behalf of, the Contractor pursuant to this Contract and payment for which is not otherwise expressly provided or to which the Contractor is not otherwise entitled.
 - 3. Payment of an amount that is disputed by the OWNER.
- C. Upon receipt of a claim pursuant to this section, the OWNER shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the OWNER and the Contractor may, by mutual agreement, extend the time period provided in this subdivision.
- D. The Contractor shall furnish reasonable documentation to support the claim.
- E. Any payment due on an undisputed portion of the claim shall be

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processed and made within thirty (30) days after the OWNER issues its written statement.

- F.* If the Contractor disputes the OWNER's written response, or if the OWNER fails to respond to a claim, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the OWNER shall schedule a meet and confer conference within 30 days for settlement of the dispute.
- G.* Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the OWNER shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 30 days after the OWNER issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the OWNER and the Contractor sharing the associated costs equally. If the mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to section 5-123.
- H.* Failure by the OWNER to respond to a claim from the Contractor within the time periods described herein or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety.
- I.* Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.
- J.* The Contractor may present to the OWNER a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the Contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the OWNER shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor presented the claim to the OWNER and, if the Contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

- 1.* Nothing in this section creates or acknowledges a contractual

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or other legal relationship between the OWNER and any subcontractor.

2. Nothing in this section creates or acknowledges in a subcontractor a direct claim or cause or right of action against the OWNER.
 3. Nothing in this section imposes on the OWNER an obligation to review claims presented directly by a subcontractor or, with regard to claims made by the Contractor on behalf of a subcontractor, to issue written statements to the subcontractor, or to meet and confer with the subcontractor, or to mediate claims with the subcontractor, or to make payments to the subcontractor.
- K. Except as provided herein, this section does not alter extra work, change order, claim, or dispute resolution procedures and requirements set forth in this Contract.
- L. The OWNER will only pay for work that is directed, ordered, or approved in writing prior to the beginning of the work by the OWNER. Contractor will not be compensated for any work that is not directed, ordered or approved by the OWNER, in writing, in advance, including any work performed pursuant to an oral request, directive, or commitment by anyone representing the OWNER.

SC-17.02.B. Add paragraph 17.02.B immediately following paragraph 17.02.A of the General Conditions as follows:

- B. Any reference to a day in the Contract Documents is a calendar day of twenty-four hours measured from midnight to the next midnight unless otherwise specifically defined.

+ + END OF SECTION + +

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SECTION 01110

SUMMARY OF WORK

PART 1 - GENERAL

1.1 LOCATION AND DESCRIPTION OF WORK

- A. The Work covers the replacement of up to 650 potable water service laterals throughout the Paradise Irrigation District (PID) Service Area, and performing related required work, as shown on the included Standard Details.
- B. Up to 850 locations will require mobilization and potholing of corporation stops to allow determination by the OWNER'S representative whether work may proceed at that sight. Each site will be assessed for the appropriate application of the included Standard Details, including the use of hot taps, adaptation of existing corporation stops, and termination location of new service laterals.
- C. It is assumed that 50% of locations will be installed with Trenchless methodology and 50% installed by trenching.
- D. The Work is located in Paradise, CA at various locations throughout the PID Service Area, as designated by PID staff or their representatives. The Project will support rebuilding efforts in the Town of Paradise, following the Camp Fire of 2018. Locations will be prioritized in collaboration between the OWNER and the Town of Paradise. Consecutive project sites may not be contiguous.
- E. The CONTRACTOR shall be responsible for the execution of Traffic Control and Shoring as necessary, in order to complete the Work safely, in compliance with all local, State, and Federal regulations.
- F. The CONTRACTOR shall staff the project at a level to support of the installation of an average 6 service laterals per day, assuming an average of 35 linear feet per service.
- G. The Work will be constructed under one contract. The Contract Documents include the following:

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1. Volume 1 – Bid Documents, Specifications, and Standard Details.

1.2 122COORDINATION

- A. The CONTRACTOR shall be solely responsible for coordination of all of the Work of this Contract.
- B. The CONTRACTOR shall supervise, direct and cooperate fully with all Subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and all others whose services, materials or equipment are required to ensure completion of the Work within the Contract Time.
- C. Work of Others:
 1. The CONTRACTOR shall cooperate with and coordinate CONTRACTOR's Work with the work of any other contractor, utility service companies, or OWNER's employees performing work at the site.
 2. The CONTRACTOR shall also coordinate their Work with the work of others to assure compliance with schedules.
 3. The CONTRACTOR shall attend and participate in all project coordination or progress meetings and report on the progress of all Work and compliance with schedules.
 4. If any part of the work depends upon the work of others for proper execution or results, the CONTRACTOR shall inspect and promptly report to the ENGINEER any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results.
 5. Failure of the CONTRACTOR to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the work by the CONTRACTOR.
- D. Interference with work on utilities:
 1. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the work.
 2. The CONTRACTOR shall schedule the work so as to minimize interference with said relocation, altering, or other rearranging of facilities.

E. Responsibility for Damage:

1. The CONTRACTOR shall not be responsible for damage done by CONTRACTORS not under their jurisdiction.
2. The CONTRACTOR will not be liable for any such loss or damage, unless it is through the negligence of the CONTRACTOR.

1.3 SITE CONDITIONS

A. Site Investigation and Representation

1. The CONTRACTOR acknowledges that it has satisfied itself as to the nature and general location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, tide stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.
2. The CONTRACTOR further acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by the OWNER or included in these Contract Documents. Any failure by the CONTRACTOR to become acquainted with all the available information will not relieve the CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the work.
3. Field Verification:
 - a. Before undertaking each part of the work, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements.
 - b. As the work proceeds, the CONTRACTOR shall field verify the depth and location of all buried utilities, and existing systems, and location of hazardous waste and contaminants.
 - c. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any work affected thereby.

B. Existing Utilities and Improvements

1. Location of Underground Utilities:

- a. It shall be the responsibility of the CONTRACTOR to determine the exact location of all utilities and their service connections in addition to the demarcation and management of all Underground Service Alerts (USAs)
- b. All potholing or other procedures for verifying utility location shall be performed by the CONTRACTOR as necessary to prepare for excavation
- c. The CONTRACTOR shall ascertain the locations of underground utilities the locations of their service laterals work and of service laterals or appurtenances of any other underground utilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes prior to doing work that may damage such utilities or interfere with their service.
- d. Utilities Not Shown:
 - 1) Attention is directed to the existence of underground utilities not identified in the Contract Documents, located in the vicinity of the Contract Work. It is the responsibility of the CONTRACTOR to make all reasonable efforts to locate, support and protect in place any underground utilities encountered in the course of work.
 - 2) If the CONTRACTOR discovers underground a utility not indicated by USA, the CONTRACTOR shall immediately give the ENGINEER and the Utility Company written notification of the existence of such utility.
 - 3) Such utilities shall be located and protected from damages as directed by the ENGINEER and the cost of such work will be paid for as extra work as provided in the General Conditions.

2. Utility Coordination:

- a. The CONTRACTOR shall notify Underground Service Alert (USA) at least 4 days prior to excavation of each project site location, telephone (800) 642-2444.
- b. The CONTRACTOR shall also contact all utility owners not registered with USA but known to have utilities in the project area to field locate underground utilities at least 4 days prior to excavation.
- c. The CONTRACTOR shall notify all owners of utilities when the Work is in progress and shall make arrangements as are necessary to make any emergency repairs.
- d. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained; and all utilities that are

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constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.

3. Utility Protection and Damage:

- a. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained, and all utilities that are constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.
- b. Should any damage to a utility occur during the progress of the work, the CONTRACTOR shall notify the OWNER or the utility at once and render all assistance possible to repair the damage and restore the service.
- c. No extra compensation will be made for the repair of any services or utility damaged by the CONTRACTOR nor for any damage incurred through neglect or failure to provide adequate protection to existing utilities.
- d. The provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.
- e. Damaged water pipelines will be repaired by the OWNER at the CONTRACTOR's expense. If the CONTRACTOR fails to pay the cost of repairs to water pipelines within thirty days of receipt of the invoice, the OWNER reserves the right to withhold the amount owed from the CONTRACTOR's Progress Payment.
- f. Damage Report:
 - 1) In the event that the CONTRACTOR damages any underground utilities not shown on the Drawings or not depicted on the Drawings with reasonable accuracy (within 3 feet of actual location) or any lateral service the location of which could not be inferred by the CONTRACTOR, a written report thereof shall be made immediately to the ENGINEER.
 - 2) The CONTRACTOR's report shall also advise the ENGINEER of any schedule delays. Compensation for such delays will be determined in accordance with the General Conditions. The CONTRACTOR shall be entitled to no other compensation for any such damage.

4. All utilities encountered along the line of the work shall remain continuously in service during all work under the Contract, unless otherwise shown on the drawings, or unless other arrangements satisfactory to the ENGINEER are made with the owner of said utilities.

C. CONTRACTOR's Responsibility for Utility Facilities and Service

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1. Where the CONTRACTOR's operations could cause damage or inconvenience to railway, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the CONTRACTOR shall make all arrangements necessary for the protection of these utilities and services.
2. The CONTRACTOR shall be solely and directly responsible to the owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
3. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.
4. In no event shall interruption of any utility service be allowed outside working hours unless granted by the owner of the utility.
5. No sand, mud, rocks or other construction debris shall be disposed of in the sanitary sewers or storm sewers.
6. The CONTRACTOR shall replace, at its own expense, any and all existing utilities or structures removed or damaged during construction, to their existing condition unless otherwise provided for in these Contract Documents.
7. The CONTRACTOR shall repair or replace, at its own expense, all pavement damaged during the construction, to its existing condition unless otherwise provided for in these Contract Documents.

D. Names of Known Utilities Serving the Area

1. The following is a list of the known public utilities serving the area:
 - a. Water – Paradise Irrigation District
 - b. Sewer – None
 - c. Telephone – AT&T
 - d. Electric – PG&E
 - e. Gas – PG&E

E. Railroads

1. The CONTRACTOR shall not perform work or occupy any part of railroad property without a permit authorizing the same.

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F. Interfering Structures

1. The CONTRACTOR shall take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.
2. The CONTRACTOR shall protect all existing structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.
3. Where existing fences, gates, buildings, or any other structure must be removed to properly carry out the work, or are damaged during the work, they shall be restored at the CONTRACTOR's expense to their original condition or better.
4. Without additional compensation, the CONTRACTOR may remove and replace in a condition as good as or better than original, any small structures such as fences, and signposts that interfere with the CONTRACTOR's operations.

G. Field Determinations

1. At each project site location, the following shall be determined in the field by the ENGINEER or OWNER Representative:
 - a. Once the Corporation Stop has been exposed, whether conditions are such that the service lateral replacement can be completed by the CONTRACTOR, or must be reburied and completed at a later time by OWNER staff.
 - b. If a new hot tap is necessary or if the existing Corporation Stop may be used.
 - c. Diameter of the new service lateral to be installed.
 - d. Termination location and length of the new service lateral.

H. Field Relocation

1. During the progress of construction, it is expected that minor relocations of the work will be necessary.
2. Such relocations shall be made only by direction of the ENGINEER.
3. If existing structures are encountered that will prevent construction as shown, notify the ENGINEER before continuing with the work in order that the ENGINEER may make such field revisions as necessary to avoid conflict with the existing structures.

4. If the CONTRACTOR shall fail to notify the ENGINEER when an existing structure is encountered, and shall proceed with the work despite this interference, CONTRACTOR shall do so at their own risk.
5. Any CONTRACTOR request(s) for additional compensation or contract time resulting from necessary field relocations will be considered as set forth in the General Conditions.
6. If the CONTRACTOR fails to notify the ENGINEER when a structure which interferes with construction is encountered, and proceeds with the work despite this obstruction, the CONTRACTOR shall do so at their own risk and at no additional cost to the OWNER.

1.4 SEQUENCE AND PROGRESS OF WORK

- A. The CONTRACTOR shall submit a Construction Schedule covering the entire Work in accordance with Section 01320, Progress Schedule.
- B. The CONTRACTOR shall incorporate the requirements of Section 01130, Special Project Constraints, into the Construction Schedule.
- C. Alternate Sequence:
 1. The CONTRACTOR's schedule may use a different sequence from that shown or specified, if techniques and methods known to the CONTRACTOR will result in cost and time savings to the OWNER, and still achieve the required objective.
 2. The ENGINEER's determination on the acceptability of any alternative sequence from that shown or specified shall be final.

1.5 CONTRACTOR'S USE OF WORK AND/OR STORAGE AREAS

- A. The CONTRACTOR shall be solely responsible for obtaining and paying all costs in connection with any additional work area, storage sites, access to the site or temporary right-of-way, which may be required for proper completion of the Work.
 1. It shall be understood that responsibility for protection and safe-keeping of equipment and materials on or near a project site will be entirely that of the CONTRACTOR and that no claim shall be made against the OWNER or their authorized representatives by reason of any act.
- B. The CONTRACTOR shall be required to share use of the premises with other Contractors whose services the OWNER has obtained or will obtain for construction of other facilities on the site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

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SECTION 01130

SPECIAL PROJECT CONSTRAINTS

PART 1 - GENERAL

1.1 LIMIT OF CONSTRUCTION ACTIVITIES ON WORK SITE

- A. Traffic Control:
 - 1. Contractor shall be responsible for traffic control as necessary to safely accomplish all work.
 - 2. During non-work hours, the CONTRACTOR shall keep all lanes of traffic open and clear. All trenches shall be backfilled or covered with suitable steel plates and open to traffic.
 - 3. No equipment, construction material or excavated material that will interfere with traffic shall be stored on streets or roadways at any time.

1.2 SEQUENCE OF WORK

- A. General:
 - 1. OWNER shall provide the CONTRACTOR with a prioritized list of project site locations.
 - 2. The CONTRACTOR shall schedule and sequence their work in order to complete the Work by the specified target date at a minimum average rate of six (6) service laterals/day, assuming an average of 35 linear feet per service lateral.
 - 3. The OWNER's water distribution system must remain operational at all times.
 - 4. Re-vegetation of graded areas shall take place as quickly as possible as weather permits.

1.3 PROJECT CONSTRAINTS

- A. Maintenance of OWNER's Operations:
 - 1. Constraints listed herein involve limits on activities during construction. These limits relate to the critical nature of the existing water system.
 - 2. Continuous operation of OWNER's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
 - 3. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption of OWNER's operations.
 - 4. Shutdowns:
 - a. Coordinate proposed Work with OWNER and facility operations personnel before affecting shutdowns. The CONTRACTOR shall provide written confirmation of the shutdown date and time two (2) working days prior to the actual shutdown.
 - b. Under no circumstances shall the CONTRACTOR cease Work at the end of a normal working day or at the end of a working week if such actions may inadvertently cause a cessation of any facility operating process, in which case, remain onsite until necessary repairs are complete.
 - 5. Do not close lines, open valves, shut down equipment, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after approval of OWNER.

6. Do not proceed with Work affecting a facility's operation without obtaining OWNER's advance approval of the need for and duration of such Work.
- B. Relocation of Existing Facilities:
1. During construction, it is expected that minor relocations of Work will be necessary.
 2. Provide complete relocation of existing structures and Underground Facilities, including piping, utilities, equipment, structures, electrical conduit wiring, electrical duct bank, and other necessary items.
 3. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
 4. Perform relocations to minimize downtime of existing facilities.
 5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by OWNER.
- C. Overtime:
1. Conduct Work outside regular working hours on prior written consent of OWNER to meet Project schedule and avoid undesirable conditions.
 2. All overtime Work by the CONTRACTOR necessary to conform to the requirements of this Section and related Sections shall be performed by the CONTRACTOR, at no cost to the OWNER and shall be performed in accordance with the General Conditions. The CONTRACTOR shall make no claims for extra compensation as a result thereof.
- D. Ongoing Recovery Operations:
- E. Due to the nature of ongoing debris removal and recovery operations within the Town of Paradise, CONTRACTOR will be required to coordinate and adjust work sequencing to accommodate a variety of activities in proximity to project sites. Every effort shall be made by the CONTRACTOR to avoid interrupting or otherwise preventing other entities from completing their work.
- F. In Road Work:
1. Contractor shall be responsible for executing Traffic Control for all in-road work according to all local, state, and federal regulations and safety standards.
 2. Open trench work will not be allowed on Clark Road, south of Pearson.

1.4 CONSTRUCTION SEQUENCING CONSTRAINTS

- A. The 650 Service Laterals included in this CONTRACT will be selected and prioritized by OWNER or their representative in order to support ongoing operations and/or rebuilding of the Town of Paradise following the Camp Fire.
1. The CONTRACTOR will be provided with a prioritized list of service laterals for replacement.
 2. Sequential locations are not likely to be collocated or adjacent to each other.
 3. Adherence to this prioritized list of project locations is of critical importance. CONTRACTOR is required to coordinate with OWNER if any deviation from this prioritized sequence becomes necessary.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01200

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 GENERAL

- A. Payment will be made at the unit price bid for each item listed on the bidding form or as extra work as provided in the General Conditions.
- B. No initial progress payment will be made prior to acceptance by the ENGINEER of the CPM Construction Schedule and the list of anticipated submittals.
- C. No subsequent progress payment will be made prior to receipt by the ENGINEER of the monthly update of the Construction Progress Schedule, as specified in Sections 01310, Project Meetings and 01320, Progress Schedule.
- D. No subsequent progress payment will be made prior to receipt by the ENGINEER of Certified Payrolls for the previous month.

1.2 DESCRIPTION OF UNIT PRICE BID ITEM

- A. Item 1, Initial Project Mobilization and Final Demobilization: Initial Project Mobilization will include all labor and equipment necessary to assemble in the vicinity of the project and stage said labor and equipment in order to make ready to perform the work. Final Demobilization shall include removal of the same once either work had been completed..
 - 1. Measurement and Payment: This item shall be paid as a 60%/40% split between Mobilization prior to commencement of the work and Demobilization following Final Project Completion and project acceptance by the owner. Demobilization shall include submission of complete and correct Record Drawings to the OWNER.
- B. Item 2, Mobilization and Demobilization from a Project Site Location: Mobilization from a project site will include all labor and equipment necessary to assemble at a location identified for service lateral replacement and make ready to perform the work. Locations shall be identified and prioritized by OWNER or their representatives. Project locations will not necessarily be collocated or contiguous as they will be selected to support rebuilding efforts in collaboration with the Town of Paradise. Demobilization shall include removal of all labor and equipment once either work had been completed, or the site has been determined by the OWNER to be unsuitable for the work to be completed following excavation of the corporation stop and assessment of the main and valve condition.
 - 1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site mobilization/demobilization directed by the OWNER, regardless of whether work was completed at the site following the excavation and assessment of the Corporation Stop and Main condition at that location. Each instance shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 850 locations will require mobilization/demobilization.

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- C. Item 3, Excavation of Corporation Stop at a Project Site Location: This item will include all labor, materials, equipment, and supplies required to excavate and expose the corporation stop at a project site location identified by the OWNER for service lateral replacement. The OWNER or ENGINEER will perform an inspection and assessment of the corporation stop and main at the location and determine whether work is to proceed. If work does not proceed, the corporation stop must be reburied and the pavement patched at that location.
1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site excavation of the corporation stop directed by the OWNER, regardless of whether work was completed at the site following the assessment of the main and valve at that location. Each instance shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 850 sites will require exploratory excavation of the corporation stop for assessment.
- D. Item 4, Shoring Required: This item shall include all labor, materials, equipment, and supplies necessary to properly shore an excavation or trench at a project site location identified by the OWNER, in accordance with all local, State, and Federal safety standards. This will apply where excavation or trenching exceeds maximum depth and/or soil conditions outlined in said standards. If conditions exceed commonly available industry standard shoring equipment, a professionally engineered system may be required.
1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site identified by the OWNER where an excavation or trench is determined to require shoring in order to meet local, State, and Federal safety regulations. Each instance shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 200 sites will require shoring.
- E. Item 5, Traffic Control Required: This item shall include all labor, materials, equipment, and supplies necessary to properly execute Traffic Control as needed at each project site, in accordance with all local, state, and federal regulations and safety standards. Conditions at each location will vary, requiring Traffic Control measures to be adjusted appropriately. Considerations shall be made for other Recovery-related operations taking place throughout the Town of Paradise. CONTRACTOR shall not impede such activities and shall take extra precautions to plan Traffic Control and in road work to accommodate such activities.
1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site identified by the OWNER where a project location is determined to require Traffic Control in order to meet local, State, and Federal safety regulations. Each instance shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 850 sites may require Traffic Control Measures.
- F. Item 6, Asphalt/Concrete Restoration: This item shall include all labor, materials, equipment, and supplies necessary to restore or replace asphalt or concrete damaged or removed from each project site location resulting from the execution of contract work. This shall include the restoration of asphalt pavement, concrete curb, sidewalk, or gutter per Specification Sections 02770 and 03300 as well as the Standard Details included in the Contract Documents. For asphalt, a temporary cold patch may be made, to be replaced with a full HMA patch prior to project completion.
1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site identified by the OWNER where contract

work is executed and resulting in the removal of or damage to existing asphalt paving or concrete flatwork. If a cold patch asphalt is used temporarily, 40% of the unit price shall be retained until such time as full HMA is restored at that sight. Each instance of cold patching shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 850 sites will require Asphalt and/or Concrete Restoration.

- G. Item 7, Soils Testing Required: This item shall include certified and independent third party testing and verification of compaction and moisture requirements for backfill at each project site location, in accordance with Specification Section 02300 and industry standards. CONTRACTOR shall be responsible for the coordination of said testing and provision of documentation for all results to the OWNER or their representative. Failure to meet the compaction and moisture requirements referenced in 02300 will result in no payment until such time as the issue has been corrected and new test results demonstrate compliance.

1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each site identified by the OWNER where a project location is determined to require soils testing. Test result documentation must be provided for a site to be eligible for payment. It is anticipated that up to 850 sites may require Soils Testing as directed by the OWNER or their representative.

- H. Item 8, Furnish and Install Replacement Service Laterals: This item shall include all labor, equipment, materials, and supplies required to install replacement service laterals in up to 650 locations throughout the OWNER's service area, and identified by the OWNER. Service laterals installed shall be High-density Polyethylene (HDPE) in 1", 1.5", or 2" sizes, determined in the field by OWNER or their representative based on field conditions and in accordance with Specification Sections 01130, 15100, and 15100 PSDS HDPE SL. For bidding purposes, CONTRACTOR may assume an average service lateral length of 35 ft and an average buried depth of 5 ft. Conditions will vary and final configuration, size, and location of each lateral will be determined by the ENGINEER on site. New service lateral piping will be connected to an existing corporation stop or a new hot tap as determined by the ENGINEER and installed in accordance with Standard Details included in the Contract Documents. Note: Award shall be based upon consideration of bid pricing for Item 8a, Open Trench Installation for all 650 Laterals. Item 8b is to be considered a bid alternate, as OWNER may decide to execute service lateral installations using Trenchless Installation, as conditions allow. The CONTRACTOR shall be paid at the unit price per linear foot (LF) included in the Bid Form for each service lateral installed at the direction of the OWNER or ENGINEER. Measurements of the actual linear footage of pipe installed will be taken in the field at each location and agreed to between the CONTRACTOR and the ENGINEER.

1. Measurement and Payment for Item 8a: Open Trench Installation

Payment for the total linear footage at each location where work is completed shall be at the unit price per linear foot (LF) for Item 8a included in the Bid Form for each service lateral installed at the direction of the OWNER or ENGINEER. Measurements of the actual linear footage of pipe installed will be taken in the field at each location and agreed to between the CONTRACTOR and the ENGINEER.

2. Measurement and Payment for Item 8b: Trenchless Installation

Payment for the total linear footage at each location where work is completed shall be at the unit price per linear foot (LF) for Item 8b included in the Bid Form for each service lateral installed at the direction of the OWNER or ENGINEER. Measurements

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of the actual linear footage of pipe installed will be taken in the field at each location and agreed to between the CONTRACTOR and the ENGINEER.

- I. Item 5, Furnish and Install Hot Tap Saddle Connections: This item shall include all labor, equipment, materials, and supplies necessary to install hot tap saddle connections given the main and lateral size configurations called out in the Bid Form 00300, Schedule A and in accordance with the Standard Details included in these Contract Document.. Each main must be assessed to determine the appropriate size service saddle for the application. Main materials and sizes vary (OD, Standard, etc) and must be field verified. For each project site location identified by the OWNER, the ENGINEER or OWNER's representative will make a determination upon excavation and assessment of the existing corporation stop, whether the existing valve may be adapted and used, or whether a new hot tap will be necessary. Main depth will vary. Service lateral size will be determined in the field by the ENGINEER.
 1. Measurement and Payment: The CONTRACTOR shall be paid at the unit price included in the Bid Form for each hot tap installed, based on main and lateral size at that location. Each instance shall be documented and agreed to in the field between the CONTRACTOR and the ENGINEER. It is anticipated that up to 400 sites will require a hot tap to facilitate installation of the new service lateral at that location.

1.3 PROGRESS PAYMENTS

- A. Progress Payment Request Submittal:
 1. Unless otherwise mutually agreed, by the 25th of each month, the CONTRACTOR shall prepare and submit monthly progress payment requests for work completed through the 25th day of the month.
 2. Said payment request shall be based on the breakdown of activities as specified in the Bid Form.
 3. The monthly schedule update shall be submitted as part of the monthly progress payment report.
- B. The ENGINEER will review progress payment requests and make a determination of the actual unit quantities based on an approximate measurement of all materials supplied and work performed in the field.
- C. In the event that the CONTRACTOR fails to provide the OWNER with an acceptable Monthly Contract Record Drawing Submittal in accordance with Section 01330, the OWNER shall deduct compensation for such monthly submittal as provided in Section 01320. Said deduction shall become the sole property of the OWNER.
- D. Retention:
 1. From the amount thus determined, five percent thereof will be deducted as retention by OWNER for performance security.
 2. Acceptance of separate components shall not operate to release performance retention.
 3. The amount of all payments previously made to the CONTRACTOR and any amounts due the OWNER from the CONTRACTOR for supplies, materials, services, damages, or otherwise deductible under the terms of the contract will be deducted from the remainder.

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4. The remaining amount will be paid as a progress payment by the OWNER to the CONTRACTOR on the third Friday of the succeeding month or as soon thereafter as is practical.
- E. In addition to the retention under Paragraph D above, the whole or part of any payment of the estimated amount due the CONTRACTOR may be withheld as an additional retention if such course be deemed necessary to protect the OWNER from loss due to the CONTRACTOR's failure to perform any of the following: (1) meet CONTRACTOR's payment obligations; (2) execute the work; (3) correct defective work; (4) settle damages as provided; or (5) produce substantial evidence that no stop notices will or have been filed, and/or if it has been determined that unpaid balances may be insufficient to complete the work.
- F. All material and work covered by progress payments thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the CONTRACTOR from sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work or as a waiver of the OWNER's right to require fulfillment of all of the contract terms. Said CONTRACTOR's obligation extends through the close of the warranty period.
- G. Payment for Materials:
 1. At their sole discretion, the ENGINEER will approve items for which partial payment is to be made.
 2. Proper storage and protection of materials shall be provided by the CONTRACTOR. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

1.4 FINAL PAYMENT AND RELEASE OF CLAIMS

1. Upon the completion of the work as determined by the ENGINEER, a Notice of Acceptance will be issued and recorded with the County.
2. The OWNER will pay to the CONTRACTOR within 35 days after filing of the Notice of Acceptance, or as soon thereafter as practicable, the remaining amount due the CONTRACTOR including retainage, less all prior payments and advances whatsoever to or for the account of the CONTRACTOR for supplies, materials, services, damages, stop notices, or otherwise deductible under the terms of the contract.
3. All prior estimates and payments including those relating to extra work shall be subject to correction by this payment, which throughout this contract is called "Final Payment".

1.5 RELEASE OF CLAIMS:

- A. Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR shall have delivered to the OWNER a complete release of all claims against the OWNER arising under and by virtue of this contract and related to undisputed amounts, including claims of Subcontractors and suppliers of either materials or labor.
- B. If disputed contract claims in stated amounts are unresolved 35 days after issuance of the Notice of Acceptance, a progress payment of undisputed amounts and retained

funds will be made by OWNER upon receipt of a release specifically excluding the disputed contract claims.

- C. Claims by the OWNER against the CONTRACTOR for liquidated damages or actual damages or other causes will be a valid basis for withholding of funds by the OWNER.
- D. Upon resolution of disputed claims the CONTRACTOR shall execute a supplemental release and, upon delivery the OWNER will make final payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01310
PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRE-CONSTRUCTION CONFERENCE

- A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the ENGINEER will arrange a preconstruction conference to be attended by the CONTRACTOR's superintendent or other project representative authorized to commit on the behalf of the CONTRACTOR and to direct the performance of the work by others, the OWNER, the ENGINEER or ENGINEER's representative, and representatives of utilities, major subcontractors, and others involved in the execution of the work.
- B. The purpose of this conference will be to establish a working relationship and understanding between the parties and to discuss subjects as may be pertinent for the execution of the work.
- C. CONTRACTOR shall be prepared to discuss the following subjects, as a minimum:
 - 1. Required schedules.
 - 2. Status of Bonds and insurance.
 - 3. Sequencing of critical path work items.
 - 4. Progress payment procedures.
 - 5. Project changes and clarification procedures.
 - 6. Use of site, access, office and storage areas, security and temporary facilities.
 - 7. Major product delivery and priorities.
 - 8. CONTRACTOR's safety plan and representative.

1.2 PROGRESS MEETINGS

- A. The ENGINEER will arrange and conduct progress meetings. The ENGINEER will prepare and circulate a draft agenda of each meeting. The CONTRACTOR may add items as appropriate to the draft agenda.
- B. Progress meetings will be conducted on a regular basis, at such frequency as the OWNER and CONTRACTOR may mutually agree. Progress meetings shall be attended by the ENGINEER, OWNER Operations personnel, CONTRACTOR's superintendent or other project representative, and representatives of all subcontractors involved in the work at the time of the meeting, required by the CONTRACTOR, or requested by the OWNER.
- C. The purpose of the meetings will be to facilitate the work of the CONTRACTOR and any subcontractor or other organization that is not up to schedule, resolve conflicts, identify and resolve any potential delays or necessary changes in the work and in general, coordinate and facilitate the execution of the work.
- D. The agenda of progress meetings shall include review of work progress, the latest Construction Schedule submittal (monthly), potential project delays, the status of key shop drawings, submittal reviews, information requests, safety concerns, record drawings, and extra work items.

1.3 CONSTRUCTION SCHEDULE REVIEW

- A. The Construction Schedule will be reviewed monthly during an agreed upon progress meeting to verify at a minimum:
 - 1. Actual start and finish dates of current activities since the last progress meeting.
 - 2. Durations and progress of all activities not completed.
 - 3. Critical submittals/materials delivery problems.
 - 4. Potential project delays.
 - 5. Any activity behind schedule and CONTRACTOR's plan to bring it back on schedule.
 - 6. Reason, logic, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.
 - 7. Payment due to the CONTRACTOR based on percentage complete of items in the submittal payment request form.
- B. At the progress meeting, the CONTRACTOR shall provide an update of the Construction Schedule as described in Section 01320, Progress Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01320
PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The work specified in this Section includes the CONTRACTOR's preparation, submittal, maintenance and use of a computerized Critical Path Method (CPM) Construction Schedule to plan and monitor construction progress for the project.
- B. The computerized CPM schedule shall be completed using Microsoft Project for Windows or another software package acceptable to the ENGINEER.
- C. The requirements specified under Section 01330, Submittal Procedures, also apply to the Construction Schedule initial submittal(s) and subsequent updates and revisions.

1.2 PREPARATION AND SUBMITTAL PROCEDURE

- A. Schedule Preparation and Submittal:
 - 1. The CONTRACTOR's on-site construction supervisor (superintendent, project manager, etc.) shall be directly involved in preparation of the Construction Schedule.
 - 2. The Construction Schedule shall be completed and submitted to the ENGINEER within 30 days after Notice to Proceed.
 - a. By preparing and submitting the Construction Schedule the CONTRACTOR represents that the CONTRACTOR can and intends to execute the work and portions thereof within the specified times and constraints and that the CONTRACTOR's bid covers the costs associated with the execution of work in accordance with the Construction Schedule.
 - 3. At the time of submittal of the Construction Schedule, CONTRACTOR's on-site construction supervisor shall review the schedule with ENGINEER's construction project representative.
 - 4. If the initial Construction Schedule submittal is not acceptable to the ENGINEER, it shall be revised in coordination with observations and comments from the ENGINEER and resubmitted within 7 days of the return of the schedule to the CONTRACTOR.

1.3 CONSTRUCTION SCHEDULE CONTENT

- A. The Construction Schedule shall be calendar-based, time-scaled, and show the durations of and relationships between the various work activities.
- B. Work activities shall be selected which reflect actual work to be performed for this specific project. No generic work activities shall be allowed.
 - 1. Work activities shall include non-construction activities such as submittal preparation and review, manufacturing, equipment delivery, mobilization, preparation of Contract Record Drawings, etc. for a complete picture of the CONTRACTOR's plan for project execution.
 - 2. Information on each activity shall include:
 - a. Concise description of the activity.

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- b. Duration in working days.
 - c. The dates for the beginning and completion of each activity.
 - d. The relationship of each activity to other activities.
- 3. No work activity shall be longer than 10 working days.
 - a. Work tasks which will take longer than 10 working days shall be broken down into several work activities which are no longer than 10 working days.
 - b. Each work activity must be defined clearly and measurable. For example, a series of work activities such as "Building 1, east wall piping; Building 1, west wall piping; Building 1, north and south wall piping", each with a duration less than 10 days would be acceptable. A series of work activities all labeled "Building 1 Piping", even if each had a duration less than 10 days, would not be acceptable because the tasks are not defined clearly or measurable.
- 4. Provide a monthly activity for preparation of Contract Record Drawings, in accordance with Section 01330, Submittal Procedures.
- C. The schedule shall be referenced to calendar dates, and the beginning of the contract time shall be the date of receipt of the Notice to Proceed.
- D. Failure to include an activity required for the execution of the work shall not excuse the CONTRACTOR from completing the work and portions thereof within the specified times and at the price specified in the Agreement, and from meeting the constraints specified for sequence of work and control dates.

1.4 UPDATING THE CONSTRUCTION SCHEDULE

- A. The CONTRACTOR shall review and discuss the project progress relative to the most up to date Construction Schedule (updated monthly) at the weekly progress meetings, as specified in Section 01310, Project Meetings.
- B. The schedule update shall reflect progress to date. The schedule update shall incorporate all revisions to logic and duration.

1.5 ADJUSTMENT OF THE CONTRACT TIME AND CHANGE ORDERS

- A. Adjustments of the contract time due to delays, additional work, or any other cause will only be issued through a contract change order in accordance with the General Conditions.
 - 1. The CONTRACTOR shall include, as part of each change order proposal for which the CONTRACTOR is requesting an adjustment in the contract duration, a proposed revised Construction Schedule.
 - 2. The proposed revised Construction Schedule shall be compared to the most recent Construction Schedule to assess overall schedule impact.
 - 3. If a Change Order is issued by the OWNER, the CONTRACTOR shall incorporate the Change Order into the Construction Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 GENERAL

A. General:

1. This Section outlines in general the items that the CONTRACTOR must prepare or assemble for submittal during the progress of the work.
2. There is no attempt herein to state in detail all of the procedures and requirements for each submittal.
3. The CONTRACTOR's attention is directed to the individual Specification Sections in these Contract Documents, which may contain additional and special submittal requirements.
4. The OWNER reserves the right to direct and modify the procedures and requirements for submittals as necessary to accomplish the specific purpose of each submittal.
5. The CONTRACTOR shall anticipate resubmitting submittals for major pieces of equipment and for control systems.
6. Should the CONTRACTOR be in doubt as to the procedure, purpose, or extent of any submittal, inquiries shall be directed to the ENGINEER.

B. Schedule of Submittals:

1. Within 30 days of the Notice to Proceed, the CONTRACTOR shall submit a complete list of anticipated submittals, including specification/drawing references.
2. This list shall be updated with "late start" submittal dates within 15 days of submittal of the CONTRACTOR's Construction Schedule.
3. The submittal dates shall be updated upon approval of the Construction Schedule and periodically thereafter.
4. Any additional submittals shall also be included in updates.

1.2 ADMINISTRATIVE SUBMITTALS

- A. The CONTRACTOR is reminded of their obligation as required by law to make required submittals promptly to the applicable federal, state, or local agency. Failure to comply with this requirement may result in the withholding of progress payments and make the CONTRACTOR liable for other prescribed action and sanctions.
- B. The CONTRACTOR shall submit to the ENGINEER a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, and the like, that the CONTRACTOR submits directly to a federal, state, or other governing agency.
- C. During the performance of the Contract, the CONTRACTOR shall maintain on a daily basis, and submit to the ENGINEER as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, rate of pay, citizenship status, and address of each person, and the cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

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D. Certified Payroll:

1. No later than the 25th day of each month, the CONTRACTOR shall submit to the ENGINEER a copy of the CONTRACTOR's certified payroll for the previous month, and if requested, copies of certified payrolls for Subcontractors.
2. The payrolls shall include for each employee the full name, address and social security number; the correct classification and rate of pay (including rates of contributions for, or costs assumed to provide various fringe benefits); daily and weekly hours worked; itemized deductions and actual wages paid.
3. The certified payrolls shall be on State of California forms.

1.3 TECHNICAL SUBMITTALS

A. General:

1. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and Sections of these Contract Documents.
2. Submittal Contents and Numbering:
 - a. Each submittal shall contain material pertaining to no more than one equipment or material item and shall have the specification Section and applicable paragraph number clearly identified on the front of the submittal transmittal form.
 - b. Each submittal shall be sequentially numbered starting with the first one delivered.
 - c. Resubmittals shall include the number of the original submittal plus the suffix ".1" for the first resubmittal, ".2" for the second resubmittal, etc. (e.g. submittal 3.0, 3.1, 3.2, etc.).
 - d. Submittals not conforming to these requirements will be rejected.
3. Submitted data shall be fully sufficient in detail for determination of compliance with the provisions and intent of the Contract Documents.
4. Coordination Responsibilities:
 - a. Shop drawing submittal and coordination are the responsibility of the CONTRACTOR; this responsibility shall not be delegated in whole or in part to Subcontractors or suppliers.
 - b. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the CONTRACTOR rather than the Subcontractor or supplier who has prepared the shop drawings.
5. No equipment or material for which listings, drawings, or descriptive material is required shall be fabricated, purchased, or installed until the ENGINEER has reviewed and accepted such lists, final shop drawings, or other descriptive material. Installation of such equipment or material without accepted submittals will be considered defective work.
6. Submittal Review Time:
 - a. Submittals will be acted upon by the ENGINEER as promptly as possible and returned to the CONTRACTOR not later than the time allowed for review in Paragraph B.2 below.
 - b. The CONTRACTOR shall provide in their Construction Schedule the time for OWNER review of each submittal (and resubmittal for major equipment and control systems) in accordance with the allowable time specified herein and in Section 01320, Progress Schedule.
 - c. This required time for OWNER review shall not be a cause for delay in contract completion nor shall it be a reason for an extension of contract time.
 - d. If the CONTRACTOR is required by the OWNER to resubmit data, then neither the time required for the CONTRACTOR to prepare and resubmit such data, nor

- the required time for OWNER review, shall be a cause for delay in contract completion or for an extension of contract time.
- e. Responsibility for time required for preparing and submitting required data shall be assigned solely to the CONTRACTOR.
7. Excessive Submittal Review:
- a. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item.
 - b. Additional costs of the ENGINEER's review beyond the second submission shall be the responsibility of the CONTRACTOR and may be deducted from the monthly progress payments.
 - c. This applies to all submittals including shop drawings.
8. Changes After Review:
- a. After a submittal has been reviewed and accepted, no changes or substitutions in that submittal will be allowed without the ENGINEER's approval.
 - b. If allowed, the CONTRACTOR will be responsible for the additional costs for engineering, administrative, clerical or other work required for additional review.
9. Intent of Review:
- a. Shop drawings will be reviewed for general conformance with the drawings and specifications.
 - b. The intent of the review is to determine if the CONTRACTOR is submitting materials and equipment which are in general conformance with the Contract Documents.
 - c. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed.
 - d. Additional work and costs, resulting from errors in the shop drawings shall be the CONTRACTOR's responsibility and liability.
 - e. Accuracy, coordination, and completeness of shop drawings shall be the sole responsibility of the CONTRACTOR, including responsibility to backcheck comments, corrections, and modifications from the ENGINEER's review before fabrication.
10. The CONTRACTOR shall indicate on the submittal transmittal form if and how the submittal deviates from the contract requirements.
11. Rebar Shop Drawings:
- a. The CONTRACTOR shall supply the ENGINEER with a copy of all reinforcing steel detail drawings.
 - b. Changes to the Contract Documents made by the CONTRACTOR in reinforcing steel shop drawings shall be called out in the letter of submittal.
 - c. Such changes will not be acceptable unless the ENGINEER has expressed consent to such changes in writing.
12. Shop drawings, layout diagrams, catalog cuts and data, test reports, and information in sufficient detail to show complete compliance with all specified requirements shall be furnished to the ENGINEER, covering but not limited to the following items:
- Aggregate Base Course
 - Asphalt mixes
 - Block masonry
 - Concrete mixes
 - Demolition plan
 - Engineered fill
 - Gravel bedding
 - Imported fill

Landscaping
Piles
Pipe, fittings and specials
Pipe supports and anchors
Plumbing fixtures
Sheet pile, shoring and bracing
Signs
Structural steel
Temporary bypasses
Temporary dewatering systems and equipment

B. Submittal Procedure:

1. The CONTRACTOR shall submit to the ENGINEER for review one (1) electronic PDF copy and six (6) hard copies of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items and manufactured items furnished under this Contract, etc.) Two (2) copies will be returned to the CONTRACTOR.
2. Shop drawings shall be submitted in sufficient time to allow the ENGINEER not less than twenty (20) working days for examining the shop drawings except for designs for turnkey items for which thirty (30) working days will be allowed, and substitutions for which (40) working days will be allowed.
3. Shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.
4. CONTRACTOR Certification:
 - a. Shop drawings shall be submitted only by the CONTRACTOR, who shall indicate by a signed stamp on the shop drawings, or other approved means, that the CONTRACTOR has checked and approved the shop drawings, and that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved.
 - b. Submitting incomplete or unchecked shop drawings for the ENGINEER to correct or finish will not be acceptable, and shop drawings that, in the opinion of the ENGINEER, indicate that they have not been checked by the CONTRACTOR will be rejected and returned to the CONTRACTOR for resubmission in the proper form.
5. Return of Reviewed Submittals:
 - a. When the shop drawings have been reviewed by the ENGINEER, the appropriate number of submittals will be returned to the CONTRACTOR appropriately stamped.
 - b. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the CONTRACTOR with the need for such changes or corrections indicated.
 - c. The CONTRACTOR shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal.
 - d. If changes are made by the CONTRACTOR (in addition to those requested by the ENGINEER) on the resubmitted shop drawings, such changes shall be clearly explained in a transmittal letter accompanying the resubmitted shop drawings.
6. The review of such shop drawings and catalog cuts by the ENGINEER shall not relieve the CONTRACTOR from responsibility for correctness of dimensions, fabrication details, coordination with other work, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the CONTRACTOR has called attention to such deviations in writing by a letter accompanying the

shop drawings and the ENGINEER approves the change or deviation in writing at the time of submission; nor shall review by the ENGINEER relieve the CONTRACTOR from the responsibility for errors in the shop drawings.

7. The CONTRACTOR agrees that shop drawing submittals processed by the ENGINEER do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the ENGINEER to monitor the CONTRACTOR's progress and understanding of the design.

C. Record Drawings

1. The CONTRACTOR shall deliver to the OWNER one complete set of final Record Drawings for OWNER records before the contract will be accepted by the OWNER. The Record Drawings will consist of a marked-up set of Contract Record Drawings.
2. Contract Record Drawings
 - a. The CONTRACTOR shall keep an up-to-date set of marked-up Contract Drawings on an OWNER-supplied set of Drawings.
 - b. The OWNER-supplied set of Drawings will consist of one set of full-size sepia reproductions of PID's Service Maps , supplied to the CONTRACTOR at the start of the work.
 - c. During the progress of the work, the CONTRACTOR shall record on the Contract Record Drawings any changes from or additions to the work described in the Plans and Specifications.
 - d. All information recorded on the Contract Record Drawings shall be clearly legible.
 - e. Information to be recorded on the Contract Record Drawings shall include, but not be limited to, the following:
 - 1) Actual alignment of all installed pipe.
 - 2) Size and depth of all installed pipe.
 - 3) Hot-taps where installed.
 - 4) Field dimensions where they differ from those shown on the Drawings.
 - 5) Additions to and/or deletions from the work, including all contract change orders.
 - 6) Other details showing as-built conditions, which are shown differently or only in general on the Drawings.
 - 7) Addenda.
 - 8) Location of buried features located during construction except utility service connections.
 - f. It is the CONTRACTOR's responsibility to ensure that any changes, deletions, specific construction details, etc., performed by a Subcontractor are recorded on the Contract Record Drawings.
 - g. Once every month, starting from the completion of mobilization as defined in Section 01505, Mobilization, the CONTRACTOR shall provide the OWNER with a copy of the then up-to-date set of marked-up Contract Record Drawings in accordance with the provisions under Section 01200, Measurement and Payment, and Section 01320, Project Schedule.
 - h. At the end of the work, prior to Project Closeout, the CONTRACTOR shall provide the OWNER with the Contract Record Drawings, showing all "as-built" conditions.
 - i. See also Section 01800, Operational Completion and Project Closeout.

D. Certificates of Compliance:

1. A Certificate of Compliance shall be furnished for materials specified to a recognized standard or code prior to the use of any such materials in the work.

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2. The ENGINEER may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.
3. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.
4. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

E. Quality Assurance

1. Source limitations: To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
2. Compatibility of options:
 - a. Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected.
 - b. Compatibility is a basic general requirement of product/material selections.

F. Review by ENGINEER

1. After review by the ENGINEER of each of the CONTRACTOR's submissions, the material will be returned to the CONTRACTOR with actions defined as follows:
 - a. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.
 - b. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the CONTRACTOR.
 - c. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the CONTRACTOR prior to subsequent review by the ENGINEER.
 - d. REJECTED - RESUBMIT: Submitted material does not conform to Plans and Specifications in major respect, e.g., wrong item, wrong size, model, capacity, or material.
2. Review actions (a) and (b) above constitute acceptance by the ENGINEER of the submittal.

G. Requests for Information

1. Requests for Information about the Contract Documents shall be directed by the CONTRACTOR to the ENGINEER using a Request for Information (RFI) form as agreed to by the OWNER and the ENGINEER. Such requests shall not be transmitted directly to the ENGINEER from a Subcontractor or Supplier.
2. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.
3. The ENGINEER will reply to the CONTRACTOR's Request for Information as soon thereafter as practicable.

H. Construction Photographs

1. Provide photographs showing the preconstruction site, construction progress, and the post-construction site for each project site location, including those where the corporation stop is exposed, but no further work is conducted.

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2. Format: Photographs shall be digital format
 - a. Digital Format:
 - 1) Digital photos shall be taken with a minimum 3.5 mega pixel density and provided in JPG format.
 - 2) Digital photo files shall be provide on a CD accompanied by a text file that lists the file name, date photo was taken, and brief description of the photograph and an address where the photograph was taken.
3. Take a minimum of 2 photos of the preconstruction site at each project location.
4. Take a minimum of 2 photos showing the progress of construction at each location.
5. Take a minimum of 2 photos of the post-construction site and the property adjacent to the perimeter of the site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.1 OBSERVATION AND SUPERVISION

- A. The ENGINEER or ENGINEER's appointed representative will review the Work and the CONTRACTOR shall provide facilities and access to the Work at all times as required to facilitate this review.
- B. Responsibility:
 - 1. The CONTRACTOR shall be solely responsible to supervise and direct the entire Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to complete the Work in accordance with the Contract Documents.
 - 2. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, quality control, and procedures of construction and safety precautions and programs incidental thereto.
 - 3. The foregoing includes work performed by the CONTRACTOR's Subcontractors.
 - 4. The CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.
- C. Superintendent:
 - 1. The CONTRACTOR shall designate in writing and keep on the work site at all times during its progress a technically qualified, English-speaking superintendent, who shall not be replaced without written acceptance of the ENGINEER.
 - 2. The superintendent shall be the CONTRACTOR's representative at the job site and shall have authority to act on behalf of the CONTRACTOR.
 - 3. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR.
 - 4. The CONTRACTOR's superintendent shall be present at the site of the Work at all times while work is in progress. Failure to observe this requirement shall be considered as suspension of the Work by the CONTRACTOR until such time as such superintendent is again present at the site.

1.2 RESPONSIBILITY

- A. The CONTRACTOR is responsible for conducting all testing and inspection specifically required by the Specifications and otherwise necessary to ensure compliance with the Contract Documents.
 - 1. Approval of Testing Laboratories:
 - a. All laboratory work under this contract shall be performed by a laboratory approved by the ENGINEER, whether the laboratory is employed by the CONTRACTOR, or is owned and operated by the CONTRACTOR.
 - b. The basis of approval includes the following:
 - 1) Testing laboratories performing work in connection with concrete, steel, and bituminous materials shall comply with ASTM E 329 and ASTM D 3666, respectively.

- 2) Testing laboratories performing work not in connection with concrete, steel, bituminous materials, soils and non-destructive testing shall comply with ASTM E 548.
- B. The ENGINEER may conduct periodic independent testing and inspection to verify compliance with the Contract Documents.
- C. Retesting:
 1. The OWNER reserves the right to back-charge the CONTRACTOR for retesting of deficient or defective work or products upon written notification.
 2. Compensation for retesting on behalf of the OWNER will be made through deductions from the Progress Payments.
- D. The CONTRACTOR is responsible for correcting all defective work discovered prior to final acceptance of the Contract, despite the failure of the Inspector(s) to discover it.

1.3 TESTS AND INSPECTIONS

- A. The CONTRACTOR shall be responsible for scheduling all inspections and tests required.
 1. The ENGINEER shall be given a minimum 48 business hours notice prior to any inspections or tests.
- B. The CONTRACTOR shall pay for all tests including, but not limited to:
 1. Inspections and tests necessary to comply with laws, ordinances, rules, regulations and orders of public authorities pursuant to General Conditions.
 2. Tests of materials, inspections, and certifications required by the Specifications.
 3. Any testing performed by the CONTRACTOR for their own quality control (e.g., compaction tests).
 4. Retests or re-inspections by the OWNER, if required, and tests or inspections required due to CONTRACTOR error or lack of required identifications of material.
 5. Any and all water used by the CONTRACTOR in any testing.
- C. Two copies of the agency or laboratory report of each test or inspection shall be provided to the ENGINEER. All tests of materials shall be made in accordance with the commonly recognized standards of national technical organizations, and such other special methods and tests as are prescribed in the Contract Documents.
- D. Purchase Orders:
 1. One copy of each of the CONTRACTOR's purchase orders for materials forming a portion of the work shall be furnished to the ENGINEER, if requested.
 2. Each such purchase order shall contain a statement that the materials included in the order are subject to inspection by the OWNER.
 3. Materials will be inspected upon arrival at the job, except when other inspection requirements are provided for specific materials in other Sections of this Specification.
- E. Samples:
 1. The CONTRACTOR shall furnish samples of materials as are required by the ENGINEER, without charge.
 2. No material shall be used until the ENGINEER has had the opportunity to test or examine such materials.

3. Samples will be secured and tested whenever necessary to determine the quality of the material.
4. Samples and test specimens prepared at the job site, such as concrete test cylinders, shall be taken or prepared by the ENGINEER in the presence and with the assistance of the CONTRACTOR.

1.4 AUTHORITY AND DUTIES OF INSPECTOR

- A. Inspectors employed by the OWNER shall be authorized to inspect all work done and materials and equipment furnished to complement the CONTRACTOR furnished independent inspector.
 1. Such inspection may extend to all or any part of the work, and to the preparation, fabrication, or manufacture of the materials and equipment to be used.
 2. The Inspector will not alter or waive the provisions of the Contract Documents.
 3. The Inspector will keep the ENGINEER informed as to the progress of the work and the manner in which it is being done.
 4. The Inspector will call the CONTRACTOR's attention to nonconformance with the Contract Documents that the Inspector may have observed.
 5. The Inspector will not be responsible for the adequacy or correctness of the CONTRACTOR's means, methods, techniques, sequences, or procedures for construction.
 6. The Inspector will not approve or accept any portion of the work, issue instructions contrary to the Contract Documents, or act as foreman for the CONTRACTOR.
 7. The Inspector may reject defective materials, equipment, or work when it is not in compliance with the Contract Documents.
 8. The Inspector will not be responsible for:
 - a. The CONTRACTOR's quality control program.
 - b. The CONTRACTOR's safety program.
 - c. Coordinating the work or activities of the CONTRACTOR or their Subcontractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01420

REFERENCE STANDARDS AND ABBREVIATIONS

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the OWNER.
- B. The ENGINEER will furnish, upon request, information as to how copies may be obtained.
- C. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AAMA:	Architectural Aluminum Manufacturer's Association
AAN:	American Association of Nurserymen
AAR:	Association of American Railroads
AASHTO:	American Association of State Highway and Transportation Officials, Standard Specifications
AATCC:	American Association of Textile Chemists and Colorists
ACI:	American Concrete Institute, Standards
AFBMA:	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA:	American Gas Association
AGC:	Associated General Contractors
AGMA:	American Gear Manufacturer's Association
AHAM:	Association of Home Appliance Manufacturer's
AI:	The Asphalt Institute
AIA:	American Institute of Architects
AISC:	American Institute of Steel Construction, Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, and the AISC Code of Standard Practice
AISI:	American Iron and Steel Institute
AITC:	American Institute of Timber Construction
AMCA:	Air Moving and Conditioning Association, Standards
ANS:	American Nuclear Society
ANSI:	American National Standards Institute
APA:	American Plywood Association
API:	American Petroleum Institute
APWA:	American Public Works Association, Standard Specifications for Public Works Construction
ASA:	Acoustical Society of America
ASAE:	American Society of Agriculture Engineers
ASCE:	American Society of Civil Engineers
ASHRAE:	American Society of Heating, Refrigeration and Air Conditioning Engineers

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ASLE:	American Society of Lubricating Engineers
ASME:	American Society of Mechanical Engineers
ASQC:	American Society of Quality Control
ASSE:	American Society of Sanitary Engineers
ASTM:	American Society for Testing and Materials, Standards
AWG:	American Wire Gauge
AWPA:	American Wood-Preservers' Association, Standards
AWPI:	American Wood Preservers Institute
AWS:	American Welding Society
AWWA:	American Water Works Association, Standards
BBC:	Basic Building Code, Building Officials and Code Administrators International
BHMA:	Builders Hardware Manufacturer's Association
CAL/OSHA:	California/Occupational Safety and Health Administration, Standards
CBM:	Certified Ballast Manufacturer's
CCR:	California Code of Regulations
CEMA:	Conveyors Equipment Manufacturer's Association
CGA:	Compressed Gas Association
CISPI:	Cast Iron Soil Pipe Institute, Standards
CLPCA:	California Lathing and Plastering Contractors Association
CLFMI:	Chain Link Fence Manufacturer's Institute
CMAA:	Crane Manufacturers' Association of America
CMA:	Concrete Masonry Association
CRSI:	Concrete Reinforcing Steel Institute, Standards
CSS:	CalTrans Standard Specifications, State of California, Department of Transportation
DCDMA:	Diamond Core Drill Manufacturer's Association
DOSH:	Division of Occupational Safety and Health, State of California, Department of Industrial Relations
EIA:	Electronic Industries Association
ETL:	Electrical Test Laboratories
FED/OSHA:	Federal Occupational Safety and Health Administration, Standards
FM:	Factory Mutual
ICBO:	International Conference of Building Officials
ICEA:	Insulated Cable Engineers Association
IEEE:	Institute of Electrical and Electronic Engineers
IES:	Illuminating Engineering Society
IME:	Institute of Makers of Explosives
IP:	Institute of Petroleum (London)
IPC:	Institute of Printed Circuits
IPCEA:	Insulated Power Cable Engineers Association
ISA:	Instrument Society of America
ISO:	International Organization of Standardization
ITE:	Institute of Traffic Engineers
MAG:	Maricopa Association of Governments, Uniform Standard Specifications for Public Works Construction. References to MAG Standard Details refer to the "Uniform Standard Details for Public Works Construction" sponsored and distributed by the Maricopa Association of Governments, Arizona.

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MBMA:	Metal Building Manufacturer's Association
MPTA:	Mechanical Power Transmission of Association
MTI:	Marine Testing Institute
MSS:	Manufacturers Standardization Society
NAAM:	National Association of Architectural Metal Manufacturers
NACE:	National Association of Corrosion Engineers, Standards
NBS:	National Bureau of Standards
NCCLS:	National Committee for Clinical Laboratory Standards
NEC:	National Electric Code
NEMA:	National Electrical Manufacturers' Association, Standards
NFPA:	National Fire Protection Association
NFPA:	National Forest Products Association
NGLI:	National Lubricating Grease Institute
NMA:	National Microfilm Association
NWMA:	National Woodwork Manufacturers Association
OSHA:	Occupational Safety and Health Administration
PCA:	Portland Cement Association
PCI:	Prestressed Concrete Institute
RIS:	Redwood Inspection Service, Standard Specifications
RVIA:	Recreational Vehicle Industry Association
RWMA:	Resistance Welder Manufacturer's Association
SAE:	Society of Automotive Engineers
SAMA:	Scientific Apparatus Makers Association
SDI:	Steel Door Institute
SIS:	Swedish Standards Association
SMA:	Screen Manufacturer's Association
SMACNA:	Sheet Metal and Air Conditioning Contractors National Association
SPR:	Simplified Practice Recommendation
SSBC:	Southern Standard Building Code, Southern Building Code Congress
SSPC:	Steel Structures Painting Council, Specifications
SSPWC:	Standard Specifications for Public Works Construction
TAPPI:	Technical Association of the Pulp and Paper Industry
TFI:	The Fertilizer Institute
UBC:	Uniform Building Code of the International Conference of Building Officials
UPC:	Uniform Plumbing Code
UL:	Underwriters Laboratories
WCLA:	West Coast Lumbermen's Association, Standard Grading and Dressing Rules
WCLIB:	West Coast Lumber Inspection Bureau
WCRSI:	Western Concrete Reinforcing Steel Institute
WIC:	Woodwork Institute of California
WRI:	Wire Reinforcement Institute, Inc.
WWPA:	Western Wood Products Association

1.2 OTHER ABBREVIATIONS

- A. Other common abbreviations that may be found in the Specifications are, but may not be limited to:

acrylonitrile butadiene

ABS

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styrene		gram	g
alternating current	a-c, AC	ground fault current interrupter	GFCI
American wire gauge	AWG		
ante meridiem	am		
ampere	A, amp	hand/off/automatic heating, ventilating, and air conditioning	HOA HVAC
average	avg		
biochemical oxygen demand	BOD	Hertz	Hz
brake horsepower	bhp	hour	hr
British thermal unit	Btu	horsepower	hp
Centigrade	C	inch	in
chlorinated polyvinyl chloride	CPVC	inch-pound	in-lb
company	Co	input/output	I/O
cubic inch	cu in, in ³	inside diameter	ID
cubic foot	cu ft, CF, ft ³	instrumentation and control	I&C
cubic yard	cu yd, CY, yd ³		
cubic feet per minute	cfm, ft ³ /min	kilovolt	kV
cubic feet per second	cfs, ft ³ /s	kilovolt-ampere	kVA
		kilowatt	kW
		kilowatt-hour	kWhr
decibel	dB		
decibels, A-weighted	dBA	length	L
degree Centigrade (Celsius)	°C, C	length to least radius of gyration	L/r
degree Fahrenheit	°F, F	light emitting diode	LED
diameter	diam, ø	linear	lin
direct current	d-c, DC	linear foot	lin ft
dollars	\$	liter	l
ductile iron	DI		
each	ea, @	manhole	MH
efficiency	eff	maximum	max
elevation	El., Elev	mean sea level	MSL
ethylene propylene rubber	EPDM	mercury	Hg
exhaust fan	EF	miles per hour	mph
		milli-amp	mA
Fahrenheit	F	milliampere DC	mAdc
feet	ft	milligram	mg
feet per hour	fph, ft/h	milligrams per liter	mg/l
feet per minute	fpm, ft/min	milliliter	ml
feet per second	fps, ft/s	millimeter	mm
fiberglass reinforced plastic	FRP	million gallon	mil
figure	Fig.	million gallons per day	mgd
flange	flg	minimum	min
foot-pound	ft-lb	motor control center	MCC
gallon	gal	net positive suction head available	NPSHA
gallons per hour	gph, gal/hr	net positive suction head required	NPSHR
gallons per minute	gpm, gal/min	number	No., #
gallons per second	gps, gal/s		

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National Pipe Thread	NPT	second	sec, s
Operation and Maintenance	O&M	specific gravity	sp gr
ounce	oz	square foot	sq ft, SF, ft ²
outside diameter	OD	square inch	sq in, in ²
		square yard	sq yd, SY, yd ²
		stainless steel	SS
parts per million	ppm	standard	std
post meridiem	pm	standard cubic feet	
plus or minus	+/-, ±	per minute	scfm
polytetrafluorethylene	PTFE	symmetrical	sym.
polyvinyl chloride	PVC		
pound	lb	total dynamic head	tdh
pounds per square foot	psf, lb/ft ²	totally-enclosed, fan-cooled	TEFC
pounds per square inch	psi, lb/in ²	totally-enclosed, non-ventilated	TENV
absolute	psia	twisted shielded	TWSH
pounds per square inch gage	psig		
Process and Instrumentation Diagrams	P&ID	ultraviolet	UV
		United States	US, USA
random access memory	RAM	variable frequency drive	VFD, AFD
reinforced concrete pipe	RCP	volt	V
reinforced concrete cylinder pipe	RCCP	volts alternating current	VAC
relative humidity	RH	volts direct current	VDC
revolutions per minute	rpm	water to cement	W/C, wc
		water column	W.C.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

PART 1 - GENERAL

1.1 CONTRACTOR'S STAGING AREA

- A. The CONTRACTOR shall make their own arrangements for space that may be required for the storage of equipment and materials and shall bear all associated costs.
- B. On-Site Project Office:
 - 1. The CONTRACTOR shall maintain near the work in progress a suitable office or other protected area in which shall be kept project copies of the Contract Documents, project progress records, project schedule, shop drawings and other relevant documents which shall be accessible to the OWNER and ENGINEER during normal working hours.
 - 2. The CONTRACTOR shall make their own arrangements for additional space that may be required and bear all associated costs.

1.2 STORAGE - GENERAL

- A. The CONTRACTOR shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

1.3 STORAGE YARDS

- A. The CONTRACTOR shall provide temporary storage yards as required for the storage of materials that are not subject to damage by weather conditions.
- B. Materials such as pipe, reinforcing and structural steel, shall be stored on pallets or racks, off the ground, and stored in a manner to allow ready access for inspection and inventory.
- C. Temporary gravel surfacing of the storage yards shall meet with the approval of the ENGINEER.

1.4 PARKING AREAS

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, OWNER's operations, or construction operations.

1.5 VEHICULAR TRAFFIC

- A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Assure the least possible obstruction to traffic and normal commercial pursuits.
- B. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.

- C. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for accommodation of public and private travel.

1.6 DELIVERY, STORAGE, AND HANDLING

A. General:

1. The CONTRACTOR shall deliver, handle, and store materials and equipment in accordance with supplier's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft.
2. Delivery schedules shall be controlled to minimize long-term storage at the site and overcrowding of construction spaces.
3. In particular, the CONTRACTOR shall provide delivery/ installation coordination to ensure minimum holding or storage for material or equipment recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

B. Transportation and Handling:

1. Materials and equipment shall be transported by methods to avoid damage and shall be delivered in dry, undamaged condition in supplier's unopened containers or packaging.
2. The CONTRACTOR shall provide equipment and personnel to handle the materials, and equipment by methods that will prevent soiling and damage.
3. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging packaging, and surrounding surfaces.

C. Storage and Protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with grease in accordance with manufacturer's recommendations to prevent corrosion. Sensitive materials and equipment shall be stored in weather-tight enclosures and temperature and humidity ranges shall be maintained within tolerances required by supplier's written instructions.
2. For exterior storage of fabricated materials, they shall be placed on sloped support above ground. Materials or equipment subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
3. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
4. Inspection:
 - a. Storage shall be arranged to provide access for inspection.
 - b. The CONTRACTOR shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.
5. Storage shall be arranged in a manner to provide access for maintenance of stored items.

1.7 PROJECT SECURITY

- A. The CONTRACTOR shall make adequate provision for the protection of the work area against fire, theft and vandalism, and for the protection of the public and OWNER personnel against exposure to injury, and for the security of any off-site storage areas.

- B. All costs for this protection shall be included within the CONTRACTOR's bid.

1.8 TEMPORARY UTILITIES

- A. The CONTRACTOR shall provide and pay for all necessary temporary telephones, fuel, power, potable water, sanitary, and proper toilet accommodations. CONTRACTOR shall not use OWNER-owned utilities.
- B. The temporary facilities to be provided by the CONTRACTOR as described above shall conform to all requirements in regard to operation, safety, and fire hazards of State and local authorities and of Underwriters.
- C. CONTRACTOR shall return the site and facilities to their original "as-found" condition, unless otherwise specified in the Contract Documents, at the completion of the project.

1.9 SOUND CONTROL

- A. The CONTRACTOR shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.
- B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer, so as to produce a maximum noise level of 85 dBA at 5 feet.
- C. No internal combustion engine shall be operated on the project without said muffler.
- D. Special Precautions for Inhabited Areas:
 - 1. In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation.
 - 2. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours.

1.10 DUST/AIR POLLUTION CONTROL

- A. The CONTRACTOR shall take whatever steps, procedures, or means as are required to prevent dust conditions being caused by operations in connection with the execution of the Work; and on any road which the CONTRACTOR or any of their Subcontractors are using, excavation or fill areas, demolition operations, or other activities.
- B. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to agencies having jurisdiction.
- C. Damage to personal property, etc., resulting from the CONTRACTOR's construction operations shall be borne by the CONTRACTOR at no cost to the OWNER.
- D. The CONTRACTOR shall keep the streets and work area clean at all times by means of mechanical sweepers or hand sweeping. Water will be used for dust control only, and not for cleaning streets.
- E. Burning of waste, rubbish, or other debris will not be permitted on or adjacent to site.

1.11 WASTE DISPOSAL

- A. The CONTRACTOR shall dispose of surplus materials, waste products, and debris and shall make necessary arrangements for such disposal. The CONTRACTOR shall obtain written permission from property owner prior to disposing surplus materials, waste products, or debris on private property.
- B. All waste disposal shall be done in accordance with applicable laws and regulations.
- C. Landfill Disposal:
 - 1. If the CONTRACTOR proposes to dispose of construction debris, trench spoils, excavation spoils, etc., at a landfill, the CONTRACTOR shall be responsible to provide and pay for all permits and analyses required by the landfill.
 - 2. If the analyses determine that the material is hazardous, then an equitable adjustment of the Contract for the cost of hazardous waste disposal will be made in accordance with the General Conditions, and the following:
 - a. Time extension or contract costs will not be granted for delays that could have been avoided by the CONTRACTOR redirecting their forces and equipment to perform other work on the contract.
- D. Ditches, washes, or drainageways shall not be filled.
- E. Disposal operations shall not create unsightly or unsanitary nuisances.
- F. The CONTRACTOR shall maintain the disposal site in a condition of good appearance and safety during the construction period.
- G. Prior to final acceptance of the work, the CONTRACTOR shall have completed the leveling and cleanup of the disposal site.

1.12 CLEAN UP

- A. Throughout the period of construction, the CONTRACTOR shall keep the work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the work, all unused and rejected materials, surplus earth, concrete, plaster, and debris.
- B. Upon completion of the work, and prior to final acceptance, the CONTRACTOR shall remove from the vicinity of the work all plant, surplus material, and equipment belonging to the CONTRACTOR or used under their direction during construction.

1.13 DRAINAGE

- A. The CONTRACTOR shall take all necessary actions as required to meet discharge requirements of the California Storm Water Program (California State Water Resources Control Board) and other pertinent local ordinances and regulations pertaining to dewatering and/or site drainage discharged into storm drains and creeks. This may include, but may not be limited to, the use of retention basins and silt basins to settle most of the solids prior to discharge.
- B. In excavation, fill, and grading operations, care shall be taken to disturb the pre-existing drainage pattern as little as possible.

- C. Particular care shall be taken not to direct drainage water onto private property or into streets or drainageways inadequate for the increased flow.
- D. Drainage means shall be provided to protect the work.

1.14 TEMPORARY LIGHTING

- A. The CONTRACTOR shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by OSHA standards.

1.15 CONSTRUCTION FACILITIES

- A. Construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.
- B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. Whenever required by safety regulations, the CONTRACTOR shall submit design calculations for staging and shoring prior to application of loads.

1.16 REMOVAL OF TEMPORARY FACILITIES AND UTILITIES

- A. At such time or times as any temporary construction facilities and utilities are no longer required for the work, the CONTRACTOR shall notify the ENGINEER of their intent and schedule for removal of the temporary facilities and utilities, and obtain the ENGINEER's approval before removing the same.
- B. As approved, the CONTRACTOR shall remove the temporary facilities and utilities from the site as CONTRACTOR's property and leave the site in such condition as specified, as directed by the ENGINEER, and/or as shown on the Drawings.
- C. In unfinished areas, such as planted medians, the condition of the site shall be left in a condition that will restore original drainage, evenly graded, seeded or planted as necessary, and left with an appearance equal to, or better than original.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

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SECTION 01505

MOBILIZATION

PART 1 - GENERAL

1.1 GENERAL

- A. Mobilization shall include the obtaining of all bonds, insurance, and licenses; moving onto the site of all equipment; furnishing and erecting temporary buildings and other construction facilities; all as required for the proper performance and completion of the work.
- B. Mobilization shall include but not be limited to the following principal items:
 - 1. Moving on to the site of all CONTRACTOR's equipment.
 - 2. Developing construction water supply.
 - 3. Providing all on-site CONTRACTOR communication facilities, including telephones, and radio pagers and any radio communications facilities required for the CONTRACTOR to coordinate their forces.
 - 4. Providing on-site sanitary facilities and potable water facilities as specified in Section 01500, Temporary Construction Facilities and Utilities.
 - 5. Arranging for and erection of the CONTRACTOR's work and storage yard, including site security.
 - 6. Posting all EPA and OSHA required notices and establishment of safety programs.
 - 7. Post all required labor and EEOE notices.
 - 8. Have the CONTRACTOR's superintendent at the job site full time.
 - 9. Submittal and OWNER acceptance of the Construction Schedule.
 - 10. Establishing site security, lighting, fencing, and signing.
 - 11. Obtaining all bonds, insurance and licenses.
 - 12. Providing an organization chart of the project and for the CONTRACTOR's firm. The project chart shall include the name, title and responsibilities of each position which is involved in the work.
 - 13. Other mobilization items approved by the ENGINEER required to support the complete work (e.g., Health and Safety Plans for Hazardous Waste).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

01505-1

SECTION 01610

GENERAL PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

- A. All products furnished and installed under this contract shall conform to the general stipulations set forth in this Section except as otherwise specified in other Sections.

1.2 COORDINATION

- A. The CONTRACTOR shall coordinate all details of the work.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 2,150 feet above sea level.
- B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of -10°F to 120°F.

1.4 WORKMANSHIP AND MATERIALS

- A. Materials shall be suitable for service conditions.
- B. All materials shall be designed, fabricated, and assembled in accordance with recognized and acceptable engineering and shop practice. Individual parts shall be manufactured to standard sizes and gages so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
- C. Except where otherwise specified, all metal which will be exposed to weather, submerged or otherwise exposed to moisture shall be either non-ferrous or stainless steel, as the application may require.

1.5 STORAGE

- A. Upon delivery, all equipment and material shall immediately be stored and protected until installed in the work.
- B. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the work.

1.6 INSTALLATION

- A. Materials shall not be installed except by, or with the guidance of, qualified personnel having the knowledge and experience necessary for proper results. When so specified, or when employees of the CONTRACTOR or their subcontractors are not

qualified, such personnel shall be field representatives of the manufacturer of the equipment or materials being installed.

- B. Acceptance of work in connection with the installation of work by others will be subject to approval of the field representative. The CONTRACTOR shall be responsible for planning, supervising, and executing the installation of work, and the approval or acceptance of ENGINEER or the field representative will not relieve the CONTRACTOR of responsibility for defective work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01800

OPERATIONAL COMPLETION AND PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 GENERAL

- A. The Work will be considered operationally complete when all technical and administrative submittals, testing, training, and startup are completed satisfactorily in accordance with the Contract Documents.
- B. Operational completion shall apply to the project in its entirety.

1.2 PUNCHLIST

- A. Prior to requesting the ENGINEER's inspection of project work that the CONTRACTOR considers operationally complete, the CONTRACTOR shall certify in writing that the work is complete and shall submit a list of known items still to be completed or corrected (punchlist) prior to Contract Completion.
- B. Punchlist:
 - 1. When the CONTRACTOR considers that the Work, or a portion or phase thereof which the OWNER agrees to accept separately, is complete, the CONTRACTOR shall certify in writing that the work is complete and shall prepare and submit to the ENGINEER a comprehensive list of items to be completed or corrected prior to Contract Completion (punchlist).
 - 2. The ENGINEER may add additional work items to the punchlist.
 - 3. Failure to include an item on the punchlist does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.
 - 4. Upon receipt of the CONTRACTOR's punchlist, the ENGINEER will make an inspection to determine whether the Work or designated portion thereof is operationally complete.
 - 5. If the ENGINEER's inspection discloses any item, whether or not included on the CONTRACTOR's list, that is not in accordance with the requirements of the Contract Documents, the CONTRACTOR shall, upon notification by the ENGINEER and before an issuance of the Certificate of Operational Completion is provided, complete or correct such item.
 - 6. The CONTRACTOR shall then submit a request for another inspection by the ENGINEER.
 - 7. When the Work or designated portion thereof is accepted by the ENGINEER to be operationally complete, the ENGINEER will prepare a Certificate of Operational Completion.
 - 8. The date of Operational Completion shall be the date of the ENGINEER's inspection and acceptance.

1.3 DESCRIPTION OF PROJECT CLOSEOUT

- A. Closeout is hereby defined to include general requirements near the end of the Contract Time, in preparation for Final Acceptance, Final Payment, normal termination of Contract, occupancy by OWNER and similar actions evidencing completion of the Work.

1.4 FINAL CLEANUP

- A. At completion, leave project clean and ready for use.
 - 1. Legally dispose of waste materials, debris and rubbish off the site.
 - 2. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from exposed and enclosed surfaces.
 - 3. Repair, patch and touch up all affected curbs, gutters, and sidewalks to match adjacent surfaces.
 - 4. Broom clean paved surfaces, rake clean other surfaces of grounds. Vacuum clean all interior surfaces, rake clean other surfaces of grounds.

1.5 RECORD DRAWINGS

- A. The CONTRACTOR shall prepare and submit Contract Record Drawings for the OWNER.
 - 1. The CONTRACTOR shall make a record of changes during construction on prints of the Drawings provided by the OWNER for this purpose (Contract Record Drawings) as described in Section 01330, Submittal Procedures.
 - 2. The reproducible drawings on which changed conditions are recorded shall be returned to the ENGINEER prior to project completion.

1.6 GUARANTEES

- A. The General Conditions cover the CONTRACTOR's responsibility to remedy defects due to faulty workmanship and materials which appear within one year from the date of Final Acceptance.
- B. Special guarantees are required by various Sections of the Specifications. Assemble written guarantees, label and submit to the ENGINEER.
 - 1. Equipment guarantees shall be written in the manufacturer's standard form and shall be countersigned by the Subcontractor or supplier and the CONTRACTOR.
 - 2. All other guarantees shall be written on the Subcontractor's or supplier's letterhead and shall be countersigned by the CONTRACTOR.

1.7 FINAL INSPECTION

- A. Prior to requesting ENGINEER's final inspection for certification of Final Acceptance and Final Payment, complete the following and list known exceptions (if any):
 - 1. Submit Final Payment request with final releases and supporting documentation not previously submitted and accepted.
 - 2. Submit copy of final punchlist of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by ENGINEER.
 - 3. Submit Consent of Surety.
 - 4. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Certify in writing that the work has been completed in accordance with the Contract Documents, and request ENGINEER's final inspection.
- C. Reinspection:
 - 1. Within seven (7) days after receipt of the CONTRACTOR's notice that the work has been completed, including punchlist items resulting from earlier inspections, and

- excepting incomplete items delayed because of acceptable circumstance, the ENGINEER will reinspect the work.
2. Upon completion of reinspection, ENGINEER will either prepare a certificate of Final Acceptance or advise the CONTRACTOR of work not complete or obligations not fulfilled as required for Final Acceptance.
 3. If necessary, inspection procedure will be repeated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01810

CLEANING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This Section covers the work necessary for cleaning during construction and final cleaning on completion of the Work.

1.2 GENERAL

- A. At all times maintain areas covered by the Contract and public properties free from accumulations of waste, debris, and rubbish caused by construction operations.
- B. Pollution Control:
 - 1. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 2. Do not burn or bury rubbish and waste materials on project site.
 - 3. Volatile wastes shall be properly stored in covered metal containers and removed daily.
 - 4. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 5. Do not dispose of wastes into streams or waterways.
- C. Construction materials such as concrete forms and scaffolding shall be neatly stacked by the CONTRACTOR when not in use. The CONTRACTOR shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.
- D. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- E. Use cleaning materials only on surfaces recommended by cleaning material manufacturers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

- A. During execution of Work, clean site and public properties and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. Empty containers within one day after they are full.

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- D. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed and semi-exposed surfaces.
- E. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

3.2 FINAL CLEANING

- A. Refer to the requirements of the General Conditions, Section 6.11 in addition to the requirements of this Section.
- B. At the completion of Work on all Contracts and immediately prior to final inspection, cleaning of the entire Project will be accomplished according to the following provisions:
 - 1. The CONTRACTOR shall leave the site in a complete and finished condition to the satisfaction of the ENGINEER.
 - 2. Should the CONTRACTOR not remove rubbish or debris or not clean the site, the OWNER reserves the right to have the cleaning done at the expense of the CONTRACTOR.
 - 3. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
 - 4. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
 - 5. Broom clean paved surfaces; rake clean other surfaces of grounds.
 - 6. Remove from the OWNER's property all temporary structures and all materials, equipment, and appurtenances not required as a part of, or appurtenant to, the completed work. See Section 01500 - Temporary Construction Facilities and Utilities.

+ + END OF SECTION + +

SECTION 02220

DEMOLITION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. "Demolish": CONTRACTOR shall remove from the site as property of CONTRACTOR. Demolition includes disconnecting, removal, loading, repairs, cleanup, transportation, unloading, disposal permits and fees, disposal, and all other items required to remove the material from the site.
- B. "Salvage": CONTRACTOR shall remove from area of Work and place in location designated by ENGINEER. Equipment is property of OWNER. Salvage includes disconnecting, removal, repairs, cleanup, loading, transportation, unloading, and all other items required to remove and relocate the material.
- C. "OWNER to Remove": OWNER will remove from area of Work prior to CONTRACTOR commencing demolition Work for this area.
- D. "Relocate": CONTRACTOR shall relocate material shown to new locations shown on Drawings or stated herein. Relocation includes disconnecting, removal, reconnecting, attaching, repairs, and all other items required to relocate material to new location.
- E. "Abandon": CONTRACTOR shall disconnect and leave in place as specified.
- F. "Materials": Any and all items and objects that are scheduled, specified, or shown to be demolished, salvaged, removed, relocated, or abandoned.

1.2 SUBMITTALS

- A. Action Submittals:
 - 1. Product Information: Grout, sealants, and bonding agents to be used for patching.
- B. Informational Submittals:
 - 1. Plan and schedule phased demolition, including limits of demolition, as part of and consistent with the progress schedule specified in Section 01320, PROGRESS SCHEDULE.
 - 2. Methods of demolition and equipment proposed to demolish materials.
 - 3. Copies of any authorizations and permits required to perform Work.
 - 4. Copies of Hazardous Materials Inspection Reports.
 - 5. Repair procedures for demolition of materials beyond limits shown on Drawings.

PART 2 - PRODUCTS

2.1 GENERAL

- A. CONTRACTOR shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the Work shown, specified herein, and as required to complete the Project.

PART 3 - EXECUTION

3.1 GENERAL

- A. Scope of Work is based on available information. The Work may differ slightly from what is shown. CONTRACTOR shall be responsible for determining the work required by inspecting the site.

3.2 SAFETY REQUIREMENTS

- A. All Work shall be done in conformance with all applicable rules and regulations pertaining to safety.
- B. Hazardous Materials:
 - 1. See General Conditions.
 - 2. Existing facilities, or portions thereof, to be demolished may contain hazardous materials such as asbestos cement piping, residual chemicals in existing or abandoned piping, lead-based paint, mercury seals, or other unknown hazardous materials.

3.3 SEQUENCE

- A. Be responsible for the sequence of Work.
- B. Conform to constraints as specified in Section 01130, Special Project Constraints.

3.4 COORDINATION

- A. Coordination with ENGINEER:
 - 1. Only materials approved by ENGINEER in the field shall be demolished, salvaged, removed, relocated, or abandoned.
 - 2. Verify materials scheduled to be demolished, salvaged, removed, relocated, or abandoned with ENGINEER prior to performing Work.
 - 3. Do not remove materials without prior approval of ENGINEER.
 - 4. Provide at least 3 working days' notice to ENGINEER prior to start of Work.
 - 5. Provide temporary services during interruptions to affected services or facilities as acceptable to ENGINEER.
 - 6. ENGINEER will indicate limits of Work.
- B. Coordination with Utility Owners:
 - 1. Notify utility owners to turn off affected services or facilities before starting Work.
 - 2. Provide not less than 72 hours notice to utility owners prior to shutdown, unless otherwise directed by utility owners.
 - 3. Provide temporary services during interruptions to affected services or facilities as acceptable to utility owners.

3.5 DEMOLITION

- A. General:
 - 1. Inspect condition of materials to be demolished prior to bidding to assess potential for salvage value.
 - 2. All materials from the demolition process shall be removed safely from the project site as soon as possible. They shall be disposed of in accordance with applicable

federal, state, and city regulations. CONTRACTOR is responsible for determining these regulations and shall bear all costs associated with disposal of the materials.

B. Pavement and Curbs:

1. Provide saw cut at all concrete and pavement surfaces and curb removal limits and where neat connection lines are required.
2. Surfaces exposed by demolition activities shall be repaired and finished to provide a uniform, smooth, level transition between adjacent surfaces.

C. Piping:

1. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.
2. Gravity Services: Install concrete plugs, 5-foot minimum length.

D. Utilities:

1. Support or relocate utility lines exposed by Work.
2. For water lines to be capped and terminated, provide a permanent leakproof closure. Closure type shall be as recommended by utility owner.

3.6 RELOCATION

- A. ENGINEER will determine condition of materials prior to removal.
- B. Remove all materials associated with items to be relocated.
- C. Existing materials shall not be damaged during removal.
- D. Properly store and maintain materials in same condition as when removed.
- E. Clean and protect materials from dust, dirt, natural elements, and store as directed.

3.7 ABANDONMENT

A. Piping and Conduits:

1. General: Piping and conduits to be abandoned shall be capped with a watertight plug at demolished end in a manner that will prevent entrance of soil, groundwater, or moisture.
2. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.

3.8 REPAIR AND REPLACEMENT

- A. Any damaged materials scheduled to be salvaged or relocated shall be repaired by the CONTRACTOR to the satisfaction of ENGINEER or replaced at the CONTRACTOR's expense.
- B. Any damage to areas not within the limits of demolition Work shown on the Demolition Photographs, Drawings, or as specified herein shall be repaired or replaced to original precontract conditions at the CONTRACTOR's sole expense.

3.9 DISPOSAL

- A. Dispose of materials offsite in licensed landfills and in accordance with all local, state, and federal regulations. CONTRACTOR is responsible for obtaining any and all necessary permits for disposal.

+ + END OF SECTION + +

SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.1 COORDINATION

- A. Prior to excavation, notify Underground Service Alert (USA) at 1-800-227-2600.

1.2 DESCRIPTION

- A. Section includes: All excavating, backfilling, filling, grading, subgrade preparation and disposing of earth materials as may be required. It also includes all temporary means needed to prevent discharge of sediment to watercourses from dewatering systems or erosion.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C33, Standard Specification for Aggregate Material.
 - 2. ASTM D422, Method for Particle-Size Analysis of Soils.
 - 3. ASTM D423, Liquid Limit of Soils.
 - 4. ASTM D427, Shrinkage Factors of Soils.
 - 5. ASTM D698, Test Method for Laboratory Compaction Characteristics of Soil.
 - 6. ASTM D1556, Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 7. ASTM D2922, Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 8. ASTM D2166, unconfined compressive strength of soils.
- B. Occupational Safety and Health Administration (OSHA)
 - 1. Title 29, Code of Federal Regulations, Part 1926

1.4 SYSTEM DESCRIPTION

- A. Permits and Regulations:
 - 1. Perform excavation Work in compliance with applicable requirements of governing authorities having jurisdiction.
 - 2. Obtain all necessary permits for Work in roads, rights-of-way, railroads, etc. Also, obtain permits as required by local, state and federal agencies for discharging water from excavations, for erosion control, and for prevention of air and water pollution.

1.5 SUBMITTALS

- A. Test Reports - Borrow, Backfill, and Grading: Testing laboratory shall submit copies of the following reports directly to ENGINEER:
 - 1. Tests on borrow material.
 - 2. Tests on piping subgrade.
 - 3. Field density tests.
 - 4. Optimum moisture - maximum density curve for each soil used for backfill.

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5. Reports of observations for conformance of borrow material to the Project Geotechnical Report.
 6. Quality Control Plan: Names and phone numbers of independent testing companies that will be used to perform soil and asphalt concrete testing, qualifications, and proposed procedures for performing tests and providing test results to ENGINEER.
- B. Submit to the ENGINEER samples of all materials, including select backfill, general backfill, bedding, crushed stone, sand and topsoil. Submit samples of the proposed material at least seven days in advance of its anticipated use.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General:

1. No material shall be placed without the approval of the ENGINEER.

B. Marking Tape:

1. Plastic:

- a. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
- b. Thickness: Minimum 4 mils.
- c. Width: 12 inches.
- d. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
- e. Manufacturers and Products:
 - 1) Reef Industries; Terra Tape.
 - 2) Allen; Markline.
 - 3) Or equal.

2. Metallic:

- a. Solid aluminum foil, visible on unprinted side, encased in a protective high visibility, inert polyethylene plastic jacket.
- b. Foil Thickness: Minimum 5.5 mils.
- c. Width: 12 inches.
- d. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
- e. Joining Clips: Tin or nickel-coated, furnished by tape manufacturer.
- f. Manufacturers and Products:
 - 1) Reef Industries; Terra "D".
 - 2) Allen; Detectatape.
 - 3) Or equal.

3. Marking tape shall be marked with the following statements:

- a. For Existing Utilities Within Trench Limits: "CAUTION - BURIED PIPELINE/CONDUIT" or as specified by utility owner.

4. Color:

- a. As specified in ANSI Z53.1 Safety Color Code.
- b. Sanitary Sewer Pipeline: Green, as specified in ANSI Z53.1 Safety Color Code.
- c. Others Disturbed: Color, as specified for specific utility in ANSI Z53.1 Safety Color Code.

C. Pipe Locating Wire:

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1. Pipe locating wire shall be bare AWG No. 12, solid copper wire with type UF insulation, attached to the pipe at a minimum 3 ft interval with a minimum of one full wrap of duct tape.
2. Provide at least 6-mil PVC electrical tape insulation around wire where adjacent to metal pipe, valves, and in all valve boxes.
3. Locating wire shall be laid along the top of the pipe, without hindering the operation of the corporation stop. Wire shall extend to the end of the pipe, stubbed above ground.
4. Locating wire shall be installed in such a manner as to maintain conductivity with the tracer wire or metallic pipe at the main, whichever is present. Conductivity shall be tested and results documented for each service lateral prior to placement of backfill.

D. Fill Material:

1. Classification:
 - a. Fill adjacent to structures to a distance measured horizontally from the structure that is equal to the depth from the finished grade is classified as Select Fill.
 - b. Outside these limits, the fill is classified as Common Fill, unless otherwise specified.
2. Common Fill:
 - a. Common Fill materials shall consist of soils obtained from on-site excavations or off-site sources that are uniformly mixed, contain no organic material, and have been passed through a 3" screen.
 - b. The maximum expansion of off-site materials shall be 1.5% as performed on a sample remolded to approximately 9% of the maximum dry density as determined in accordance with ASTM D 698 at 2% below optimum moisture content under a 100 psf surcharge pressure.
 - c. If on-site material is unsuitable as determined by the ENGINEER, imported fill shall be used.
3. Select Fill:
 - a. Select fill or backfill is material selected by the ENGINEER from the excavation.
 - b. Select material shall be free of organic or other unsuitable materials and shall not contain rocks, or unbroken masses of soil larger than 4" in greatest dimension.

E. Aggregate Base:

1. Base rock shall conform to provisions of Section 26, California Department of Transportation Standard Specifications for 3/4" maximum Class 2 aggregate. Aggregate bedding shall be placed in six (6) inch layers and compacted.

F. Sand:

1. Natural or manufactured granular material, containing no organic material.
 - a. Sand Bedding shall be 1/4" minus in size, free of clay and organic material and of such size that 100% will pass through a #4 sieve and not more than 5% would pass through a #200 sieve. Material must meet the approval of the OWNER and shall be placed to a depth of four (4) inches below the grade of the bottom of the pipe. When rocky trenching conditions are encountered, over-excavation and over-sanding in compacted layers, as specified by the ENGINEER, may be required.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Inspection:
 - 1. Provide ENGINEER with sufficient notice and with means to examine the areas and conditions under which excavating, filling, and grading are to be performed.
 - 2. ENGINEER will notify CONTRACTOR if conditions are found that may be detrimental to the proper and timely completion of the Work.
 - 3. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.
- B. Potholing:
 - 1. Excavate and backfill test pits to determine conditions or location of the existing utilities and structures.
 - 2. Define the location of each existing facility involved within the area of his excavation for Work under this Contract.
 - 3. Exercise care during such location work to avoid damaging and/or disrupting the affected facility.
 - 4. CONTRACTOR is responsible for repairing, at his expense, damage to any structure, piping, or utility caused by his Work.
- C. Temporary Fencing:
 - 1. Furnish and install a temporary fence surrounding excavations and work area, including the stockpile and storage areas.
 - 2. Provide fence openings only at vehicular, equipment and worker access points.

3.2 EROSION CONTROL

- A. General: Implement the construction procedures outlined herein to assure minimum damage to the environment during construction. Take all additional measures required to conform to the requirements of applicable codes and regulations.
 - 1. Make provisions to regulate drainage, avoid erosion and minimize damage to vegetation.
 - 2. Where areas must be cleared for storage of materials or temporary structures, provisions will be made for regulating drainage and controlling erosion, subject to the ENGINEER'S approval.
 - 3. Remove only those shrubs and grasses that must be removed for construction. Protect the remainder to preserve their erosion-control value.
- B. Control Measures: Apply measures to control erosion and to minimize the siltation of the existing waterways, and natural ponding areas. Such measures include, but are not limited to, the use of berms, baled straw silt barriers, gravel or crushed stone, mulch, slope drains and other methods.
 - 1. Install erosion and sediment control practices according to applicable standards, codes and specifications. The practices will be maintained in effective working condition during construction and until the drainage area has been permanently stabilized.
 - 2. Temporary measures will be coordinated with the construction of permanent drainage facilities and other Work to the extent practicable to assure economical, effective, and continuous erosion and siltation control.

3. CONTRACTOR will provide special care in areas with steep slopes. Disturbance of vegetation will be kept to a minimum to maintain stability.
 4. After stabilization, remove all straw bale dikes, debris, etc., from the site.
- C. Dust Control:
1. Prevent blowing and movement of dust from exposed soil surfaces and access roads to reduce on- and off-site damage and health hazards.
 2. Control may be achieved by irrigation in which the site is sprinkled with water until the surface is moist.
 3. Repeat the process as needed.
- D. Failure to Comply: In the event CONTRACTOR repeatedly fails to satisfactorily control erosion and siltation, the OWNER reserves the right to employ outside assistance or to use its own forces to provide the corrective measures indicated. The cost of such work, plus engineering costs, will be deducted from monies due CONTRACTOR.

3.3 DEWATERING

- A. General:
1. Continuously control all water during the course of construction, including surface water and ground water, to prevent any damage to any excavation or to the construction activities occurring within those excavations.
 2. Maintain all dewatering systems full time (24-hours/day) during the entire time the excavation is open. Do not shut down dewatering systems at night, on weekends or on holidays, or any other time the excavation is open.
 3. Each excavation will be kept dry during subgrade preparation and continually thereafter until the pipe to be installed therein is inspected by the ENGINEER and backfill operations have been completed.
 4. Provide adequate alarm, monitoring and back-up systems for all dewatering systems to maintain control of all water during all times any excavation is open.
- B. Surface Water:
1. Provide and maintain adequate drainage and dewatering system to prevent surface water from entering excavations and to remove and dispose of all rainwater entering excavations, trenches, or other parts of the Work.
 2. Keep the different working areas on the site free of surface water at all times. Special care will be taken to eliminate depressions that could serve as mosquito pools.
 3. The diversion and removal of surface water will be performed in a manner that will prevent the accumulation of water behind temporary structures or at any other locations within the construction area where it may be detrimental.
- C. Ground Water:
1. Provide, operate and maintain dewatering system to permit excavation and subsequent construction activities in a dry, safe environment.
 2. System shall be of sufficient size and capacity to maintain groundwater level a minimum of 2 feet below the lowest point of excavation.
 3. Contractor shall make an assessment of the potential for dewatering induced settlement of surrounding soils and structures. Contractor shall provide all necessary equipment and facilities, including re-injection wells, cutoff walls, infiltration trenches, etc, to prevent damage to adjacent structures.
- D. Disposal of water:

1. Disposal of discharge water shall conform to any and all applicable permit requirements.

3.4 EXCAVATION SUPPORT SYSTEMS

A. Trench Support

1. Provide, install and maintain trench shields for all trench excavations for which trench shields are required (at a minimum, as required by OSHA).
2. Follow all OSHA guidelines and other applicable laws and ordinances.
3. Elevation of Bottom:
 - a. Excavation of earth material below the bottom of a shield will not exceed the limits established by ordinances, codes, laws and regulations.
 - b. When using a shield for pipe installation, the bottom of the shield will not extend below the mid-diameter of installed pipe at any time.
 - c. When using a shield for the installation of structures, the bottom of the shield shall not extend below the top of the bedding for the structures.
4. Moving Shield: When a shield is removed or moved ahead, extreme care will be taken to prevent the movement of pipe or structures or the disturbance of the bedding for pipe or structures. Pipe or structures that are disturbed are to be removed and reinstalled as specified.

B. Below Grade Structure Excavation Support

1. Provide, install and maintain excavation support systems for all structural excavations where excavation support is required (at a minimum, as required by OSHA).
2. Follow all OSHA guidelines and other applicable laws and ordinances.
3. Prepare excavation support plan addressing the following topics:
 - a. Details of shoring, bracing, sloping or other provisions for worker protection from the hazards of caving ground
 - b. Design assumptions and calculations
 - c. Methods and sequencing of installing excavation support
 - d. Proposed locations of stockpiled excavated materials
 - e. Minimum lateral distance from the crest of slopes for vehicles, equipment and materials
 - f. Location of vertical and horizontal monitoring points on structures and recommended frequency of monitoring for excavation support system stability and performance
4. Design of excavation support systems and excavation support plan shall be prepared by a civil or structural engineer registered in the state in which the system is installed.
 - a. Excavation support system shall consist of h-pile and lagging, sheet piles, or other reliable method of excavation support.
 - b. The use of below-ground tiebacks is allowed; however, Contractor is responsible for locating and avoiding potential conflicts with existing utilities in the area in which the tie-backs are installed. All tiebacks shall be further than 3 feet from any conflicting utility. Tiebacks shall not use existing structures for support.

C. Removal of Excavation Support

1. Completely remove all excavation support unless ENGINEER specifically allows requested excavation support to remain in place after backfill.
2. Remove all excavation support in a manner that will maintain support as excavation is backfilled and will not leave voids in the backfill.

3.5 EXCAVATION

A. General:

1. Material removed: Excavations include earth, sand, clay, gravel, hardpan, boulders, rock, pavements, rubbish and all other materials within the excavation limits.
2. Excavations for pipelines may be open excavations, excepting project site locations along Clark Road, south of Pearson Road in the Town of Paradise. Provide excavation protection system(s) required by ordinances, codes, law and regulations to prevent injury to workmen and to prevent damage to new and existing structures or pipelines. Unless shown or specified otherwise, protection system(s) will be utilized under the following conditions.
 - a. Excavation Less Than 5' deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations will be sloped and benched, shielded, or shored and braced.
 - b. Excavations More Than 5' deep: Excavations in stable rock where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations will be sloped and benched, shielded or shored and braced.
 - c. Excavation protection system(s) will be installed and maintained in accordance with the excavation plan submitted.

B. Structural Excavation:

1. The elevation of the bottom of footings shown is approximate only. ENGINEER may order such changes in dimensions, and elevations as may be required to secure a satisfactory footing.
2. Hand-trim all structure excavations to permit the placing of full widths and lengths of footings on horizontal beds. Rounded and undercut edges will not be permitted.
3. Excavations shall allow for aggregate base, forms, working space, installation of shoring or bracing or the safe sloping of banks.

C. Pipe Trench Excavation:

1. Trenches for 6" and larger water mains shall have a width equal to the outside diameter of the pipe plus twelve (12) inches. Trenches for water mains smaller than 6" and service laterals may be narrower, depending on local conditions and approval of the OWNER for each circumstance.
2. The bottom of the trench shall be excavated to a depth of 4" below the bottom of the pipe and trench depth maintained deep enough to provide a minimum of 30" of cover over the pipe.
3. Sufficient for shoring and bracing or shielding and dewatering.
4. Sufficient to allow thorough compaction of backfill adjacent to bottom half of pipe.

D. Subgrades:

1. Subgrades for trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; free from mud, muck, and other soft or unsuitable materials; and remain firm and intact under all construction operations.
2. Subgrades that are otherwise solid, but which become soft or mucky on top due to construction operations, shall be reinforced with select fill.
3. The finished elevation of stabilized subgrades shall not be above original subgrade elevations.

- E. Material Storage: Stockpile satisfactory excavated materials in approved areas, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage if left in place for longer than one work day.
 - 1. Locate and retain soil materials away from edge of excavations.
 - 2. Dispose of excess soil material and waste materials as specified hereinafter.

3.6 PLACEMENT OF FILL AND BACKFILL

A. General:

- 1. Backfill excavations as promptly as Work permits, but not until completion of the following:
 - a. Acceptance by the ENGINEER of construction below finish grade.
 - b. Inspection, testing, approval, and recording of locations of underground piping.
 - c. Removal of shoring and bracing and backfilling of voids with satisfactory materials.
 - d. Removal of trash and debris.
- 2. Remove and replace with approved fill material, as specified, fill containing organic materials or other unacceptable material.
- 3. Compact all fill and backfill as specified in Subsection 3.7.

B. Backfill in Pipe Trenches:

- 1. Unless otherwise directed by the ENGINEER, place all pipe on a minimum 4" thick layer of OWNER approved Sand. The bedding shall extend 12" above the top of the pipe.
- 2. Install bedding as follows:
 - a. Spread bedding and grade to provide a uniform and continuous support beneath the pipe at all points between pipe joints.
 - b. Deposit and compact sufficient bedding material under and around each side of the pipe to hold the pipe in proper position and to maintain alignment during subsequent bedding operations.
 - c. Bedding material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement. Then place and compact the bedding material to an elevation 12" above the top of pipe.
- 3. Above the level of bedding, place Aggregate Base Rock, compacted in no more than 12" lifts.

C. Marking Tape:

- 1. Continuously install marking tape along centerline of all buried piping, on top of last lift of pipe zone material unless otherwise shown. Coordinate with piping installation drawings. Install in accordance with manufacturer's recommendations.
 - a. Metallic Marking Tape: Install with nonmetallic piping and waterlines. Join ends with clips provided by the manufacturer.
 - b. Plastic Marking Tape: Install with metallic piping.

D. Pipe-Locating Wire:

- 1. Pipe-locating wire shall be provided for the entire length of all nonmetallic pipelines and shall be continuous along pipe length.
- 2. Stub the pipe-locating wire up with the end of the pipe a minimum of 18" above grade. Sufficient excess length shall be provided at terminal connections to allow continuation of the pipe-locating wire to the terminal connection.

3. Wire splices shall be made with compression fittings or soldering; wrapped with Tac-Tape, Aqua-Seal, or equal, and wrapped with electrical tape. Prevent bare copper wire from contacting metallic appurtenances including, but not limited to, pipe, buried valves, or fittings.
- E. Resume backfilling operations using the techniques described above to complete the pipe zone backfill. ENGINEER will approve the pipe zone backfill prior to initiating the trench zone backfill.
- F. Replacement of Unacceptable Excavated Materials: In cases where over-excavation for the replacement of unacceptable soil materials is required, backfill the excavation to the required subgrade with select backfill material and thoroughly compacted.

3.7 COMPACTION

- A. General:
 1. Compaction by inundation with water will not be permitted.
 2. Provide equipment capable of discing, aerating, and mixing the soil to ensure reasonable uniformity of moisture content throughout the material and to reduce the moisture content by air drying, if necessary.
 3. Perform compaction with equipment suitable for the type of fill material being placed. Select equipment that is capable of providing the minimum density required by these Specifications. Use hand-operated compacting equipment within a distance of 3 feet from the wall of any below grade structure. Between 3 feet and 12 feet adjacent to below grade structures, compaction may be completed with lightweight compaction equipment weighing less than 15,000 pounds. Beyond 12 feet adjacent to below grade structures, there are no equipment weight restrictions. Provide equipment that is capable of compacting in restricted areas next to structures and around piping.
- B. Compaction Density Requirements: The degree of compaction required for several types of fill is listed below. Moistened or aerated material as necessary to provide the moisture content specified, or if not specified, that will facilitate obtaining the specified compaction.

MATERIAL	Required Minimum Density (ASTM D 1557)	Maximum Uncompacted Lift*
Common Fill/Prepared Subgrade:	90%	8"
Select Fill/Trench Backfill above pipe:		
More than 2 feet below final grade	90%	8"
Less than 2 feet below final grade	95%	8"
Aggregate Base:	95%	12"
Granular Bedding	90%	6"
Sand	90%	6"

*Where large areas of backfill allow for use of large, heavy equipment, ENGINEER may, at their option, allow uncompacted lifts up to 12".

- C. Moisture Content: All fill and backfill shall be prepared and thoroughly mixed to achieve optimum moisture content, $\pm 3\%$, with the following exception: On site clayey soils optimum to $+3\%$.
- D. Testing: Testing will be as specified under Paragraph 3.10, "Field Quality Control".

3.8 GRADING

- A. General:
 - 1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
 - 2. Smooth subgrade surfaces within specified tolerances, and compact with uniform levels or slopes between points where elevations are shown or between such points and existing grades.
- B. Adjacent to Structures: Grade areas adjacent to structures to drain away from structures (including masonry fences) and to prevent ponding.
- C. Pavements: Shape surface of areas under pavement to line, and grade and cross-section with finish surface not more than $1/2"$ above or below the required subgrade elevation.
- D. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

Area	Required Minimum Density (ASTM D 1557)
Beneath Pavement	90%
Landscaped and other areas	85%

3.9 PAVEMENT BASE COURSE

- A. Installation must be in accordance with Standard Details included in these Contract Documents or as noted below if no reference is given in said Details.
- B. Shoulders:
 - 1. Place shoulders along edges of base course to prevent lateral movement.
 - 2. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each base course layer.
 - 3. Compact and roll at least a $12"$ width of shoulder simultaneously with compacting and rolling of each layer of base course.
- C. Placing:
 - 1. Place base course material on prepared subgrade in layers of uniform thickness conforming to indicated cross-section and thickness.
 - 2. Maintain optimum moisture content for compacting base material during placement operations.

3.10 FIELD QUALITY CONTROL:

- A. General: Testing by a testing laboratory of materials, testing for moisture content during placement and compaction of fill materials, and of compaction requirements for compliance with technical requirements of the Specifications.

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- B. The CONTRACTOR shall retain one or more independent testing agencies to perform all quality control testing required for all materials except portland cement concrete. The required testing is for soil, aggregates, imported gravel, aggregate base, asphalt concrete, and CLSM. Each independent testing agency shall perform the testing under the supervision of an engineer registered in California. Technicians performing the testing shall be certified to operate the equipment and have at least 1 full year of experience in the type of tests being performed.
- C. A Quality Control Plan shall be submitted by the CONTRACTOR to the ENGINEER at least 30 days before field testing is required. It shall include the names, addresses, and phone number of the companies, the major personnel that will be involved, and resumes of the individuals that will be supervising and performing the tests. Copies of certificates held by the companies and the testing personnel shall be included.
- D. CONTRACTOR's independent testing agency shall perform all field and laboratory testing as described in these Specifications. Test shall include specific gravity, sand equivalent, durability, abrasion resistance, soundness, gradation, compaction curves, lab and field moisture contents, compressive strength, and field density. Other tests shall be performed by the CONTRACTOR's independent testing agency as may be required to meet the Specifications. Mix design testing for portland cement concrete, CLSM, and asphalt concrete shall also be performed by the CONTRACTOR. Field testing for portland cement concrete will be performed by the ENGINEER.
- E. CONTRACTOR shall schedule all lab testing so that materials arriving at the site have been approved by the ENGINEER for use on the Project.
- F. All lab tests shall be performed on Samples obtained from the source of actual material that will be used on the Project. No test results more than 90 days old shall be submitted for review.
- G. The location of field density tests shall be determined by the ENGINEER.
- H. Frequency of tests: Frequency will be not less than as follows:
 - 1. For trenches:
 - a. In open fields: 2 locations every 1,000 linear feet, for each layer
 - b. Along dirt, gravel, or paved roads or off traveled right-of-way: 2 locations every 500 linear feet, for each layer
 - c. Crossing roads: 2 locations along each crossing, for each layer
 - 2. For structural backfill: 1 every 50 cubic yards.
 - 3. In embankment or fill: 1 every 200 cubic yards.
 - 4. Base material: 1 every 50 cubic yards.
 - 5. Footing Subgrade: 1 every 50 linear feet, for each layer.
 - 6. Paved Areas and Building Slab Subgrade: 1 every 500 square feet, but in no case less than 3 tests, for each layer.
- I. The ENGINEER may modify the frequency or spacing of tests to provide for testing at specific structures or locations where the ENGINEER deems additional testing is required. The CONTRACTOR shall perform such additional testing up to 10 percent above the frequency and total number of tests specified at no additional cost to the OWNER.
- J. Verbal and hand-written test results shall be provided to the ENGINEER and CONTRACTOR immediately following the field testing. Written test data sheets shall

be provided to the ENGINEER not more than 12 hours following completion of the field test. Typed lab test results shall be provided to the ENGINEER not more than 7 calendar days following completion of the tests; however, the results must be reviewed and approved by the ENGINEER prior to placing the material in the trenches or incorporating it in the Work.

- K. Any location where a failing test occurs shall be recompacted and retested until a passing test is obtained. Specified testing values are minimums and no tests shall be accepted below the specified minimums. No material shall be placed over the failing test area until the failing material is recompacted and a passing test is obtained, and the area is approved by the ENGINEER. The limits of the failing test shall be assumed to be halfway between the failing location and the nearest passing location. Additional tests may be taken to determine the limits of unsatisfactory compaction.
- L. At the first of each month, the CONTRACTOR shall provide to the ENGINEER a typed summary of all tests performed for the previous month including test location by station, depth below finished grade, material tested, wet density, moisture content, dry density, maximum density curve used, and percent relative compaction. Lab test results shall also be included in the monthly report with clear description of material tested, intended use on the Project, and a statement of compliance or noncompliance with the Project Specifications.
- M.
- N. Any material which does not meet the Specifications shall be removed from the site and replaced with material in compliance.
- O. Material which has been softened or modified prior to placing the overlying lift shall be removed down to material which is in compliance.

3.11 DISPOSAL OF EXCAVATED MATERIALS

- A. Material removed from the excavations that does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away from the Work site and disposed of by CONTRACTOR in compliance with ordinances, codes, laws and regulations at no additional cost to the OWNER.
- B. CONTRACTOR is responsible for disposal of excess material. A disposal location will not be provided or arranged by OWNER.

+ + END OF SECTION + +

SECTION 02770

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: asphalt concrete paving patchwork in areas where execution of contract work causes damage to or requires the removal and replacement of existing asphalt paving. Cold patch asphalt patchwork may be used to temporarily restore asphalt until such time as a permanent HMA repair may be made.

1.2 SUBMITTALS

- A. Information Submittals:
 - 1. Asphalt Concrete Mix Formula:
 - a. Submit minimum of 15 days prior to start of production.
 - b. Submittal to include the following information:
 - 1) Gradation and portion for each aggregate constituent used in mixture to produce a single gradation of aggregate within specified limits.
 - 2) Bulk specific gravity for each aggregate constituent.
 - 3) Measured maximum specific gravity of mix at optimum asphalt content determined in accordance with ASTM D2041.
 - 4) Percent of asphalt lost due to absorption by aggregate.
 - 5) Percentage of asphalt cement, to nearest 0.1 percent, to be added to mixture.
 - 6) Optimum mixing temperature.
 - 7) Optimum compaction temperature.
 - 8) Temperature-viscosity curve of asphalt cement to be used.
 - 2. Test Report for Asphalt Cement:
 - a. Submit minimum 10 days prior to start of production.
 - b. Show appropriate test method(s) for each material and the test results.
 - 3. Statement of qualification for independent testing laboratory.
 - 4. Test Results:
 - a. Mix design.
 - b. Asphalt concrete core.
 - c. Gradation and asphalt content of un-compacted mix.

1.3 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Independent Testing Laboratory: In accordance with ASTM E329.
 - 2. Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Temperature: Apply asphalt materials or place asphalt mixes when surface temperature is greater than 10°C (50°F) or air temperature is greater than 7°C (45°F). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces.

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- B. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Asphalt Material: Conform to the following specification:
 - 1. Asphalt Material shall be a hot mix asphalt concrete, consisting of a mixture of mineral aggregate and paving asphalt conforming to Section 92 of the Caltrans Standard Specifications, PG 64-16.
- B. Seal Coat: Conform to the following specification:
 - 1. Seal coat material shall be conforming to Section 37 of the Caltrans Standard Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. Traffic Control:
 - 1. In accordance with all applicable specification sections and laws.
 - 2. Minimize inconvenience to traffic but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.
- B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.2 LINE AND GRADE

- A. Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness.
- B. Shoulders: Construct to line, grade, and cross-section shown.

3.3 PREPARATION

- A. Prepare subgrade as specified.
- B. Thoroughly coat edges of contact surfaces with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

3.4 PAVEMENT APPLICATION

- A. General: Place asphalt concrete mixture on approved, prepared base in conformance with this section.
- B. Pavement Mix:
 - 1. Prior to Paving:
 - a. Sweep primed surface free of dirt, dust, or other foreign matter.
 - b. Patch holes in primed surface with asphalt concrete pavement mix.

2. Place asphalt concrete pavement mix in one single lift.
 3. Total Compacted Thickness: 3 inches.
 4. Apply such that meet lines are straight and edges are vertical.
 5. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
 6. After placement of pavement, seal meet line by painting a minimum of 150 millimeters (6 inches) on each side of joint with cut-back or emulsified asphalt. Cover immediately with sand.
- C. Compaction: Roll until roller marks are eliminated and density of 92 percent of measured maximum density determined in accordance with ASTM D2041.
- D. Tolerances:
1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
 2. Completed Surface or Wearing Layer Smoothness:
 - a. Uniform texture, smooth, and uniform to crown and grade.
 - b. Maximum Deviation: 1/8 inch from lower edge of a 3.6-meter (12-foot) straightedge, measured continuously parallel and at right angle to centerline.
 - c. If surface of completed pavement deviates by more than twice specified tolerances, remove and replace wearing surface.
 3. Transverse Slope Maximum Deviation: 1/4 inch.
- E. Seal Coat:
1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where asphalt concrete was placed by hand, patched surfaces, and other areas as directed by ENGINEER.
 2. Preparation:
 - a. Surfaces that are to be sealed shall be maintained free of holes, dry, and clean of dust and loose material.
 - b. Seal in dry weather and when temperature is above 2°C (35°F).
 3. Application:
 - a. Fill cracks over 1.5 millimeters (1/16 inch) in width with asphalt-sand slurry or approved crack sealer prior to sealing.
 - b. When sealing patched surfaces and joints with existing pavements, extend minimum 150 millimeters (6 inches) beyond edges of patches.

+ + END OF SECTION + +

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Place, finish, cure, strip, and repair concrete sidewalk, curb, and/or gutter where execution of contract work causes damage or requires the removal and replacement of concrete sidewalk, curb, and/or gutter.

1.2 REFERENCES

- A. American Concrete Institute (ACI)
1. ACI 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
 2. ACI 214, Recommended Practice for Evaluation of Strength Test Results of Concrete.
 3. ACI 301, Specifications for Structural Concrete for Buildings, (includes ASTM Standards referred to herein).
 4. ACI 304, Guide for Measuring, Mixing, Transporting and Placing Concrete.
 5. ACI 305, Hot Weather Concreting.
 6. ACI 306, Cold Weather Concreting.
 7. ACI 309, Guide for Consolidation of Concrete.
 8. ACI 311, Guide for Concrete Inspection.
 9. ACI 318, Building Code Requirements for Reinforced Concrete.
 10. ACI 347, Guide to Formwork for Concrete
 11. ACI 350, Environmental Engineering Concrete Structures.

1.3 SYSTEM DESCRIPTION

- A. Class B Concrete shall be placed without forms or with simple forms, with little or no reinforcing, and includes:
1. Curbs and gutters.
 2. Sidewalks.

1.4 SUBMITTALS

- A. Samples: Submit samples of materials as specified and as otherwise may be requested by ENGINEER, including names, sources and descriptions.
- B. Product Data: Submit for approval the following:
1. Manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
 2. List of concrete materials and concrete mix designs proposed for use. Include the results of all laboratory tests performed to qualify the materials and to establish the mix designs.

1.5 QUALITY ASSURANCE

- A. If the concrete mix designs specified herein have not been used previously by the ready-mix supplier, mix proportions and concrete strength curves for regular cylinder tests shall be established by an approved ready-mix supplier or an independent testing laboratory based on the relationship of 7, 14 and 28 day strengths versus slump values of 2, 4 and 6 inches, all conforming to these Specifications. A laboratory, independent of the ready-mix supplier, shall be required to prepare and test all concrete cylinders. The costs for preparation of mix designs, not previously used by the ready-mix supplier, and testing of concrete and materials shall be borne by CONTRACTOR.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cement:
 - 1. Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P (MS).
 - 2. Do not use cement which has deteriorated because of improper storage or handling.
- B. Aggregates: ASTM C33 and as herein specified.
 - 1. Do not use aggregates containing soluble salts, substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
 - 2. Fine Aggregate: Provide clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances.
 - 3. Coarse Aggregate: Provide clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Coarse Aggregate Size: Size to be ASTM C33, Nos. 57 or 67, except that No. 467 may be used for footings, foundation mats and walls 16" or greater in thickness.
- C. Water: Clean, free from injurious amounts of oils, acids, alkalis, organic materials or other substances that may be deleterious to concrete or steel.

2.2 CONCRETE ADMIXTURES

- A. Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by ENGINEER.
- B. Air-Entraining Admixtures: ASTM C260.
 - 1. Product and Manufacturer: Provide one of the following:
 - a. SIKA AER, as manufactured by Sika Corporation.
 - b. MasterAir AE 200, as manufactured by BASF.
 - c. Daravair, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.

- C. High-Range Water-Reducing Admixture ("Superplasticizer"): ASTM C494, Type F/G.
 - 1. Superplasticizer shall be used in all Class A Concrete. Do not use high range water-reducing admixture containing more chloride ions than are contained in municipal drinking water. Add only at the job site to concrete in compliance with the manufacturer's printed instruction.
 - 2. Product and Manufacturer: Provide one of the following:
 - a. Sikament 320, as manufactured by Sika Corporation.
 - b. MasterGlenium, as manufactured by BASF.
 - c. Daracem-100, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.
- D. Water-Reducing Admixture: ASTM C 494, Type A.
 - 1. A water-reducing, aqueous solution of a modification of the salt of polyhydroxylated organic acids. Do not use admixture containing any lignin, nitrates or chlorides added during manufacture.
 - 2. Product and Manufacturer: Provide one of the following:
 - a. Eucon WR-75, as manufactured by The Euclid Chemical Company.
 - b. MasterPozzoloth, as manufactured by BASF.
 - c. WRDA series, as manufactured by W.R. Grace & Conn.
 - d. Or approved equal.
- E. Set-Control Admixtures: ASTM C494, as follows:
 - 1. Type B, Retarding.
 - 2. Type C, Accelerating.
 - 3. Type D, Water-reducing and Retarding.
 - 4. Type E, Water-reducing and Accelerating.
 - 5. Type F, Water-reducing, high range admixtures.
 - 6. Type G, Water-reducing, high range, and retarding admixtures.
- F. Calcium Chloride: Do not use calcium chloride in concrete, unless otherwise authorized in writing by ENGINEER. Do not use admixtures containing calcium chloride where concrete is placed against galvanized steel.

2.3 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes of concrete. Mixes subject to the following limitations:
 - 1. Class B Concrete
 - a. Specified 28-day Compressive Strength: 2,500 psi.
 - b. Maximum Water-Cement Ratio by Weight: 0.49.
 - c. Slump: 3" Minimum, 5" Maximum.
- B. Use an independent testing facility acceptable to ENGINEER for preparing and reporting proposed mix designs.
- C. Admixtures:
 - 1. Use air-entraining admixture in all concrete, except interior slabs subject to abrasion, unless otherwise shown or specified. Add air-entraining admixture at the manufacturer's prescribed rate to result in concrete at the point of placement having air content within the prescribed limits.
 - 2. Use amounts of admixtures as recommended by the manufacturer for climatic conditions prevailing at the time of placing. Adjust quantities and types of admixtures as required to maintain quality control.

2.4 EPOXY BONDING AGENT

- A. For use in all dry-packed holes, concrete repair and for unplanned cold-joints.
- B. Provide an epoxy-resin bonding agent, two component, polysulfide type.
- C. Product and Manufacturer: Provide one of the following:
 - 1. Sikadur 32, Hi-Mod LPL, as manufactured by Sika Corporation.
 - 2. Eucopoxy LPL, as manufactured by the Euclid Chemical Company.
 - 3. Or approved equal.

2.5 CONCRETE CURING MATERIALS

- A. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 10 ounces per square yard and complying with AASHTO M182, Class 3.
- B. Moisture-Retaining Cover: One of the following, complying with ASTM C171.
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. White burlap-polyethylene sheet.
- C. Curing Compound: ASTM C309 Type 1-D (water retention requirements):
 - 1. Product and Manufacturer: Provide one of the following:
 - a. Super Aqua Cure VOX, as manufactured by The Euclid Chemical Company.
 - b. Sealtight 1100, as manufactured by W.R. Meadows, Incorporated.
 - c. Or approved equal.

PART 3 - EXECUTION

3.1 CONCRETE MIXING

- A. Provide concrete produced by the ready-mixed process.
- B. Comply with the requirements of ASTM C 94, and as herein specified. Proposed changes in mixing procedures, other than herein specified, must be accepted by ENGINEER before implementation.
 - 1. Plant equipment and facilities: Conform to National Ready- Mix Concrete Association "Plant and Delivery Equipment Specification."
 - 2. Mix concrete in revolving type truck mixers that are in good condition and which produce thoroughly mixed concrete of the specified consistency and strength.
 - 3. Do not exceed the proper capacity of the mixer.
 - 4. Mix concrete for a minimum of two minutes after arrival at the job site, or as recommended by the mixer manufacturer.
 - 5. Mix concrete during transit only as recommended by the mixer manufacturer.
 - 6. Mix at proper speed until concrete is discharged.
 - 7. Maintain adequate facilities at the job site for continuous delivery of concrete at the required rates.
 - 8. Provide access to the mixing plant for ENGINEER at all times.

3.2 TRANSPORTING CONCRETE

- A. Transport and place concrete not more than 90 minutes after water has been added to the dry ingredients or before 250 revolutions of the drum or blades, whichever occurs first.
- B. If an admixture is used to retard the set time and the concrete temperature does not exceed 85°F, the travel and placing time may be extended to 120 minutes or 300 revolutions of the drum or blades, whichever occurs first.
- C. Take care to avoid spilling and separation of the mixture during transportation.
- D. Do not place concrete in which the ingredients have been separated.
- E. Do not retemper partially set concrete.
- F. Use suitable and approved equipment for transporting concrete from mixer to forms.

3.3 CONCRETE PLACEMENT

- A. General: Place concrete continuously so that no concrete will be placed on concrete, which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints. Deposit concrete as nearly as practical in its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure that will cause segregation.
 - 1. Screed concrete that is to receive other construction to the proper level to avoid excessive skimming or grouting.
 - 2. Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the job site and dispose of it in an acceptable location.
 - 3. Do not place concrete until all forms, bracing, reinforcement, and embedded items are in final and secure position.
 - 4. Do not place in cold weather, unless adequate precautions are taken against frost action.
 - 5. Do not place footings, piers or pile caps on frozen soil.
 - 6. Unless otherwise approved, place concrete only when ENGINEER is present.
 - 7. Allow a minimum of 3 days of curing before placing new concrete against a slab or wall already in place.
- B. Concrete Conveying:
 - 1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods that will prevent segregation and loss of concrete mix materials.
 - 2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, ice and other deleterious materials.
 - 3. Pumping concrete is permitted, however do not use aluminum pipe for conveying.
- C. Placing Concrete into Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place concrete at such a rate that concrete that is being integrated with fresh concrete is still plastic.
 2. Do not permit concrete to free fall within the form from a distance exceeding 8'-0" Use "elephant trunks" or "wall pipes" to prevent free fall and excessive splashing on forms and reinforcement.
 3. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
 4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the applicable recommended practices of ACI 309. Vibration of forms and reinforcing will not be permitted.
 5. Vibrators shall have a frequency of at least 8,000 vpm, with amplitude required to consolidate the concrete in the section being placed. At least one stand-by vibrator in operable condition shall be at the placement site prior to initiating placement of the concrete.
 6. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete and at least 6" into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.
 7. The forms shall contain sufficient windows or be limited in height to allow visual observation of the concrete and the vibrator operators shall be required to see the concrete being consolidated to ensure good quality workmanship or the CONTRACTOR shall have a person who is actually observing the vibration of the concrete at all times and advising the vibrator operators of any changes needed to assure complete consolidation.
 8. Do not place concrete in beam and slab forms until the concrete previously placed in columns and walls is no longer plastic.
 9. Force concrete under pipes, sleeves, openings and inserts from one side until visible from the other side to prevent voids.
- D. Quality of Concrete Work:
1. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.
 2. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight.
 3. Cut out and properly replace to the extent ordered by ENGINEER, or repair to the satisfaction of ENGINEER, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Thin patches or plastering will not be acceptable.
 4. Repair all leaks through concrete, and cracks, holes or other defective concrete in areas of potential leakage and make watertight.
 5. Repair, remove, and replace defective concrete as ordered by ENGINEER at no additional cost to OWNER.

E. Cold Weather Placing:

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1. Protect all concrete Work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.
 2. When the air temperature has fallen to or may be expected to fall below 40°F, provide adequate means to maintain the temperature, in the area where concrete is being placed, at between 50°F and 70°F for at least seven days after placing. Provide temporary housings or coverings including tarpaulins or plastic film. Maintain the heat and protection, if necessary, to ensure that the ambient temperature does not fall more than 30°F in the 24 hours following the seven-day period. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.
 3. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 55°F and not more than 85°F at point of placement.
 4. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel, and adjacent concrete surfaces are entirely free of frost and ice before placing concrete.
 5. When temperatures are expected to be below 32°F the night before the concrete is placed, then all reinforcing steel, forms and the ground shall be preheated, for a minimum of 12 hours, under a minimum temperature of 50°F.
 6. Do not use salt and other materials containing antifreeze agents or chemical accelerators, or set-control admixtures, unless approved by ENGINEER, in mix designs.
 7. Weather predictions made by the nearest NOAA station, and corrected for the local elevation and environmental conditions, may be used to determine whether cold weather protection shall be required. Thermometers will be used by ENGINEER and these readings shall determine whether cold weather protection shall be required and whether cold weather protection is adequate.
- F. Hot Weather Placing:
1. When hot weather conditions exist as any combination of high air temperature, low relative humidity and wind velocity that would seriously impair the quality and strength of concrete, place concrete as recommended by ACI 305 and as herein specified.
 2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 85°F. No concrete shall be placed if its temperature exceeds 90°F. Mixing water may be chilled, or chopped ice may be used, or liquid nitrogen may be added. Ice, when introduced into the mixer shall be in such form that it will be completely melted and dispersed throughout the mix at the completion of the mixing time. The addition of ice shall not increase the specified water to cement ratio.
 3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 4. Thoroughly wet forms before placing concrete. Forms shall be free of standing water when concrete is placed.
 5. Do not use set-control admixtures, unless approved by ENGINEER in mix designs.
 6. Fog spray shall be used during finishing operations whenever necessary to avoid surface plastic shrinkage cracking. Fog spray shall also be used after finishing and before the specified curing is commenced to avoid surface plastic shrinkage cracking.

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7. Obtain ENGINEER'S approval of other methods and materials proposed for use.

G. Removal of Forms:

1. The CONTRACTOR shall be responsible for all damage resulting from improper and premature removal of forms. Satisfy all applicable OSHA requirements with regard to safety of personnel and property.

H. Backfill Against Walls:

1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, the backfill shall be placed simultaneously on both sides to prevent differential pressures.
2. Since the walls of some structures are laterally restrained or supported by suspended slabs and/or slabs on grade and are not designed as cantilever retaining walls, the CONTRACTOR shall submit a schedule of wall shoring, bracing, and backfilling that is coordinated with the concrete curing, test cylinder reports and the design assumptions and obtain a review from the ENGINEER prior to proceeding.

I. Patching:

1. Patching of concrete shall provide an acceptable and structurally sound surface finish uniform in appearance or the CONTRACTOR shall upgrade the finish by other means at no additional cost.
2. Tie Holes: All tie holes, except where sealant is indicated, shall be filled with dry pack non-shrink grout. White cement shall be added as needed so the color of grout after curing matches the color of adjacent concrete. Tie holes shall be thoroughly sandblasted or roughened. Flush the patch area with water and allow to dry. Coat the surface of the existing concrete with an approved bonding agent prior to filling with non-shrink grout. Complete the repair in the time duration specified by the bonding agent manufacturer. The grout shall be rammed into place in thin layers and leveled to the plane of the surrounding concrete. Cure in accordance with the manufacturer's recommendations.
3. Defective Areas: Remove all defective concrete such as honeycombed areas and rock pockets out to sound concrete. Small shallow holes caused by air entrapment at the surface of the forms shall not be considered defects unless the amount is so great as to be considered not the standard of the industry and due primarily of poor workmanship. If chipping is required, the edges shall be perpendicular to the surface. Feather edges shall not be permitted. The defective area shall be filled with a non-shrink, nonmetallic, grout. Use an approved bonding agent on horizontal patches prior to placing nonmetallic, non-shrink grout. Since some bonding agents may not be compatible for some vertical surface patching techniques, demonstrate all methods for repair of vertical surfaces using the actual materials, methods, and curing procedures required by the manufactures of the materials on the project site. The CONTRACTOR shall consult with representatives of the bonding agent manufacturer and the non-shrink grout manufacturer, and these representatives shall be onsite and assist in the demonstration.
4. Blockouts at Pipes or Other Penetrations: Conform to details shown or submit proposed blockouts for review. Use non-shrink, nonmetallic grout.

3.4 MONOLITHIC SLAB FINISHES

A. Non-Slip Broom Finish:

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1. Immediately after float finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use fiber-bristle broom, unless otherwise directed. Coordinate the required final finish with ENGINEER before application.
2. Use Non-Slip Broom Finish for the following:
 - a. Exterior exposed horizontal surfaces subject to light foot traffic.
 - b. Sidewalks
 - c. Curbs and Gutters

3.5 CONCRETE CURING AND PROTECTION

A. General:

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperature, and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.
2. Start initial curing after placing and finishing concrete as soon as free moisture and bleed water sheen has disappeared from the concrete surface. Keep concrete continuously moist during initial curing.
3. Begin final curing procedures immediately following initial curing and before the concrete has dried. The total curing duration shall not be less than ten (10) days. For concrete sections over 30" thick, continue curing for an additional seven (7) days, minimum. Avoid rapid drying at the end of the final curing period.

B. Use one of the following methods as approved by ENGINEER:

1. Walls:

- a. Method 1: Leave concrete forms in place and keep entire surfaces of forms and exposed concrete surfaces wet for the entire curing duration. If forms are loosened and the contact between the concrete surface and forms is broken then the entire wall shall be wet cured.
- b. Method 2: Continuously sprinkle or fog with water 100 percent of the exposed surfaces for the curing duration immediately after removal of forms.
- c. Method 3: When approved by ENGINEER and as noted below, apply curing compound immediately after removal of forms.

2. Slab and Curbs:

- a. Method 1: Protect surface by water ponding for the entire curing duration.
- b. Method 2: Cover concrete surfaces and exposed edges with the specified absorptive cover, thoroughly saturating the cover with water, and keeping the absorptive cover continuously wet with sprinklers or porous hoses during the curing duration. Lap adjacent absorptive cover sections 3-inches minimum.
- c. Method 3: Cover the concrete surfaces and exposed edges with the specified moisture-retaining cover during the curing duration. Seal edges and seams with waterproof tape, adhesive or sand berm. Water must be introduced between the moisture-retaining cover and the concrete surface whenever moist drops cannot be detected on the concrete side of the cover or the concrete surface is noticeably dry.
- d. Method 4: Cover all exposed surfaces with 1-inch minimum layer of wet sand, earth, or sawdust and keep continuously wet for the curing duration.
- e. Method 5: Continuously sprinkle or fog exposed surfaces for the curing duration.
- f. Method 6: When approved by ENGINEER and as noted below, apply liquid curing compound immediately after final finishing when surface will no longer be damaged by traffic necessary to apply curing compound.

C. Liquid curing compound:

1. Apply the specified curing compound to concrete surfaces when permitted by ENGINEER. Slabs to receive terrazzo floors, concrete/grout topping or ceramic tile, concrete of water bearing structures, and concrete that will receive coatings shall not be cured with liquid curing compound. The compounds shall be applied by power spray equipment in accordance with the manufacturer's directions. Recoat areas, which are subjected to heavy rainfall within 3 hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period. Remove curing compound from exposed surfaces at the end of the curing duration. For concrete surfaces, which will be in contact with potable water, the manufacturer shall certify that the curing compound used is NSF 61 approved.

D. Temperature of Concrete During Curing:

1. When the nighttime low temperature may drop to 40°F or below, maintain the concrete temperature between 50°F and 70°F continuously throughout the curing period, by heating, covering, insulation or housing as required.
2. When the daytime high temperature may rise to 90°F or above, maintain the concrete temperature at a minimum and reduce temperature variations by providing moist curing continuously for the concrete curing period.
3. During either of the conditions specified above, the minimum curing time shall be 10 days (240 hours), after which coverings, housings, and insulation shall remain on the work for an additional 3 days, to allow gradual temperature equalization with the atmosphere.

- E. Protection from Mechanical Injury: During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations.

3.6 FIELD QUALITY CONTROL

- A. The OWNER will employ a testing laboratory to perform field quality control testing. ENGINEER will direct the number of tests and cylinders required. Furnish all necessary assistance required by ENGINEER.

B. Quality Control Testing During Construction:

1. Perform sampling and testing for field quality control during the placement of concrete, as follows:
 - a. Sampling Fresh Concrete: ASTM C172.
 - b. Slump: ASTM C143; one test for each concrete load at point of discharge; and one for each set of compressive strength test specimens.
 - c. Air Content: ASTM C231; one for the first concrete load, and one for every two concrete loads thereafter, or when required by an indication of change. Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.
 - d. Compressive Strength Tests: ASTM C39; one set of 4 standard compression cylinders for each 100 cubic yards or fraction thereof, of each mix design placed in any one day; 1 specimen tested at 7 days, and 2 specimens tested at 28 days, 1 held. Cast, store and cure specimens as specified in ASTM C31.
 - 1) Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.

- 2) Concrete that does not meet the strength requirements is subject to rejection and removal from the Work, or to other such corrective measures as directed by ENGINEER, at the expense of CONTRACTOR.
 - e. Concrete Temperature: Test each time a slump test is made.
 2. Where questionable field conditions may exist during placing concrete or immediately thereafter, strength tests of specimens cured under field conditions will be required by ENGINEER to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded at the same time and from the same samples as the laboratory cured specimens.
 - a. Provide improved means and procedures for protecting concrete when the 28-day compressive strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders.
 - b. When laboratory-cured cylinder strengths are appreciably higher than the minimum required compressive strength, field-cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.
 3. The testing laboratory shall submit certified copies of test results directly to ENGINEER and CONTRACTOR after tests are made.
- C. Evaluation of Quality Control Tests:
1. Do not use concrete delivered to the final point of placement that has slump or temperature outside the specified values, nor that which is older than 90 minutes from batching.
 2. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of three consecutive compressive strength tests results equal or exceed the 28-day design compressive strength of the type or class of concrete; and, no individual strength test falls below the required compressive strength by more than 500 psi.
 3. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to replacement, reconstruction or to other action approved by ENGINEER.
- D. Testing Concrete Structure for Strength:
1. When there is evidence that the strength of the in-place concrete does not meet specification requirements, provide the services of a concrete testing service to take cores drilled from hardened concrete for compressive strength determination at no additional expense to OWNER. Provide tests complying with ASTM C42 and the following:
 - a. Take at least three (3) representative cores from each member or suspect area at locations directed by ENGINEER.
 - b. Strength of concrete for each series of cores will be considered satisfactory if their average compressive strength is at least 85% and no single core is less than 75% of the 28-day required compressive strength.
 - c. Report test results, in writing, to ENGINEER on the same day that tests are made. Include in test reports the Project identification name and number, date, name of CONTRACTOR, name of concrete testing service, location of test core in the structure, type or class of concrete represented by core sample, nominal maximum size aggregate, design compressive strength, compression breaking strength and type of break (corrected for length-diameter ratio), direction of applied load to core with respect to horizontal plane of the concrete as placed, and the moisture condition of the core at time of testing.

2. Fill core holes solid with non-shrink, high strength grout, and finish to match adjacent concrete surfaces.

3.7 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for the passage of work by other contractors, unless otherwise shown or directed, after the work of other contractors is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide all other miscellaneous concrete filling shown or required to complete the Work.
- B. Curbs:
 1. Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
 2. Exterior curbs shall have rubbed finish for vertical surfaces and a broomed finish for top surfaces.
- C. Equipment Bases:
 1. Unless specifically shown otherwise, provide concrete bases for all pumps and other equipment. Construct bases to the dimensions shown, or as required to meet manufacturers' requirements and drawing elevations. Where no specific elevations are shown, bases shall be 6-inches thick and extend 3-inches outside the metal equipment base or supports. Bases to have smooth trowel finish, unless a special finish such as terrazzo, ceramic tile or heavy-duty concrete topping is required. In those cases, provide appropriate concrete finish.
 2. Include all concrete equipment base work not specifically included under other Sections.
 3. In general, place bases up to 1-inch below the metal base. Properly shim equipment to grade and fill 1-inch void with non-shrink grout as specified in Section 03600, Grout.
- D. Installation of embedded items
 1. Install all embedded items prior to concrete placement, or, if necessary, as soon after concrete placement as possible, before concrete is set.
 2. Use temporary support and bracing to keep embedded items in place while concrete cures.
 3. Protect all embedded items from damage during concrete installation.

3.8 CONCRETE REPAIRS

- A. Repair of Formed surfaces:
 1. Repair exposed-to-view formed concrete surfaces that contain defects which adversely affect the appearance of the finish. Surface defects that require repair include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolts; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.
 2. Repair concealed formed concrete surfaces that may contain defects that adversely affect the durability of the concrete. Surface defects that require repair include cracks in excess of 0.01-inch wide, cracks of any width and other surface deficiencies which penetrate to the reinforcement or completely through

non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls except minor breakage at corner.

3. Repair structural cracks and cracks in water-holding structures.

B. Method of Repair of Formed Surfaces:

1. Repair and patch defective areas with cement mortar immediately after removal of forms and as directed by ENGINEER.
2. Cut out honeycomb, rock pockets, voids over 1/2" diameter, and holes left by tie rods and bolts, down to solid concrete but, in no case, to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water, and brush-coat the area to be patched with the specified bonding agent.
 - a. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, the patching mortar color will match the color of the surrounding concrete. CONTRACTOR shall impart texture to repaired surfaces to match texture of existing adjacent surfaces. Provide test areas at inconspicuous locations to verify mixture, texture and color match before proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.
3. Cracks which require repair shall be pressure grouted, epoxy injected, using one of the following in accordance with industry standards. Apply in accordance with the manufacturer's directions and recommendations.
 - a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation Company.
 - b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
 - c. Or approved equal.
4. Fill holes extending through concrete by means of a plunger- type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure completely filling.
5. Sandblast exposed-to-view surfaces that require removal of stains, grout accumulations, sealing compounds, and other substances marring the surfaces. Use sand finer than No. 30 and air pressure from 15 to 25 psi.

C. Repair of Unformed Surfaces:

1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.
3. Repair finish of unformed surfaces that contain defects which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01-inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
4. Repair structural cracks and cracks in water-holding structures.

D. Methods of Repair of Unformed Surfaces:

1. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.
2. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh

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concrete. Finish repaired areas to blend into adjacent concrete. Use one of the following. Apply in accordance with the manufacturer's directions and recommendations.

- a. Euco Poly-Patch, as manufactured by The Euclid Chemical Company.
 - b. Sikatop 122, as manufactured by Sika Corporation.
 - c. Or approved equal.
3. Repair defective areas, except random cracks and single holes not exceeding 2" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4" clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with the specified bonding agent. Place patching concrete before grout takes its initial set. Mix patching concrete of the same materials and proportions to provide concrete of the same type or class as the original adjacent concrete. Place, compact and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
 4. Repair isolated random cracks, as approved by ENGINEER, and single holes not over 2" diameter, by the dry-pack method. Groove the top of cracks, and cut out holes to sound concrete and clean of dust, dirt and loose particles. Dampen all cleaned concrete surfaces and brush with the specified bonding agent. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of 1 part portland cement to 2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.
 5. Cracks which extend through the full member section, or any cracks determined by ENGINEER to require pressure grouting repair, shall be pressure grouted, epoxy injected, using one of the following in accordance with industry standards. Apply in accordance with the manufacturer's directions and recommendations.
 - a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation.
 - b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
 - c. Or approved equal.
 6. Assure that surface is acceptable for flooring material to be installed in accordance with manufacturer's recommendations.

E. Other Methods of Repair:

1. Repair methods not specified above may be used if approved by ENGINEER.

+ + END OF SECTION + +

SECTION 03600

GROUT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes and ordinary Portland cement-sand grout.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C33, Standard Specification for Concrete Aggregates.
 - 2. ASTM C150, Standard Specification for Portland Cement.
 - 3. ASTM C595, Standard Specification for Blended Hydraulic Cements.
 - 4. ASTM C1107, Standard Specification for Packaged Dry, Hydraulic-Cement Grout.

1.3 SYSTEM DESCRIPTION

- A. Furnish ordinary cement-sand grout for the following:
 - 1. Abandonment of Service Laterals not removed in the course of construction.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's specifications and installation instructions for all proprietary materials.
 - 2. Curing method for grout.
- B. Laboratory Test Reports and Certificates:
 - 1. For ordinary cement-sand grout, copies of grout mix design and laboratory strength test reports.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of Materials: Deliver grout materials from manufacturers in unopened containers and bearing intact manufacturer's labels.
- B. Storage of Materials: Store grout materials in a dry shelter and protected from moisture.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Ordinary Cement-Sand Grout: Prepare design mix for ordinary cement grout.
 - 1. Cement: Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P.
 - 2. Aggregates: ASTM C33 and as herein specified.

- a. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
- b. Fine Aggregate: Clean, sharp, natural sand, free from loam, clay, lumps or other deleterious substances.
 - 1) Dune sand, bank run sand and manufactured sand are not acceptable.
- c. Coarse Aggregate: Coarse aggregate not permitted.
3. Admixtures: Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by ENGINEER. Refer to Section 03300, Cast-In-Place Concrete, for additional admixture requirements.
4. Proportioning and Design of Mixes: Mixes are subject to the following limitations:
 - a. Specified 28-day Compressive Strength: 4,000 psi.
 - b. Minimum amount of water necessary for the mixture to flow under its own weight.
 - c. Fine Aggregate meeting ASTM C33.
 - d. Air Content Percentage: $\pm 1.5\%$.
 - e. Minimum Cement Content in Pounds per Cubic Yard: 658.
 - f. Slump at point of placement: $5" \pm 1"$.
5. Proportion mix by either laboratory trial batch or field experience methods, using materials to be employed on the Project for grout required. Comply with ACI 211.1 and provide a complete report, from an independent testing laboratory, to ENGINEER, at least 30 days prior to start of Work. Do not begin grout production until ENGINEER has approved mix.
6. Laboratory Trial Batches: When laboratory trial batches are used to select grout proportions, prepare test specimens and conduct strength tests as specified in ACI 301, Chapter 3 - Proportioning.
7. Field Experience Method: When field experience methods are used to select grout proportions, establish proportions as specified in ACI 301, Chapter 4.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the substrate and conditions under which grout is to be placed with installer and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

- A. General:
 1. Mix, place and cure grout as shown and in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications, do not proceed until ENGINEER provides clarification.
- B. Construction Joints: Ordinary cement-sand grout may be used in place of mortar over the contact surface of the old concrete at the interface of horizontal construction joints as outlined in Section 03300, Cast-In-Place Concrete, of these Specifications.
- C. Curing: Cure all grout in accordance with manufacturer's written instructions.

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+ + END OF SECTION + +

03600-3

SECTION 15100
PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Submittals:
 - 1. Product data sheets for each piping system.
 - a. Include information on pipe, fittings and joint systems.
 - 2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.

1.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. In accordance with manufacturer's directions.

PART 2 - PRODUCTS

2.1 LEAD FREE MATERIALS

- A. All materials used in construction, modification or repair of Paradise Irrigation District water supply facilities shall comply with the requirements set forth in California Assembly Bill 1953 (AB 1953). AB 1953 prohibits the introduction of any pipe, pipe or plumbing fitting, or fixture that is not lead free into a public water system, or any plumbing in a facility providing water for human consumption.

2.2 NSF 61 CERTIFICATION REQUIRED

- A. All materials used in construction, modification, or repair of Paradise Irrigation District water supply facilities shall be NSF 61 certified. No chemical, material, lubricant, or product may be used in the production, treatment, or distribution of drinking water that will result in contact with the drinking water, including process media, protective materials, joining and sealing materials, pipes and related products, and mechanical devices used in treatment / transmission / distribution systems, that has not been tested and certified as meeting the specifications of NSF International / American National Standard Institute (NSF/ANSI) 61-2005 / Addendum 1.0-2005 (Drinking Water System Components - Health Effects).

2.3 PIPING SYSTEM DATA SHEETS

- A. Piping system data sheets (PSDS) have been attached to this Specification and are incorporated herein by reference. Provide piping systems in accordance with piping system data sheets.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Inspect pipe and fittings before installation, clean ends thoroughly, and remove foreign matter and dirt from inside.

3.2 INSTALLATION

A. General:

- 1. Join pipe and fittings in accordance with Standard Details PID-R05A through Standard Detail PID-R05C and manufacturer's instructions, unless otherwise shown or specified.
- 2. All piping and appurtenances shall be constructed using new material, acceptable to the District. All pipe, couplings, and rubber rings shall be inspected prior to installation. All damaged or defective material shall be removed from the job site. Non-approved lubricant (which may harbor bacteria) shall not be used.

B. Joint Assembly:

- a. Assemble joints in accordance with Standard Details PID-R05A through Standard Detail PID-R05C, included in the Contract Documents, using materials specified in spec section 15100 PSDS HDPE – SL.
- 2. HDPE Threaded Joints:
 - 1) Joining HDPE pipe with threaded connections or thermally butt fused connections is not allowed unless specifically approved by the ENGINEER

C. Buried Pipe Installation:

- 1. Pipe Placement:
 - a. Keep trench dry until pipe laying and joining are completed.
 - b. Exercise care when lowering pipe into trench to prevent twisting or damage to pipe.
 - c. Prevent foreign material from entering pipe during placement.
 - 1) Close and block open end of last laid pipe section when placement operations are not in progress and at close of day's work.
 - d. Lay pipe upgrade with bell ends pointing in direction of laying.
 - e. Deflect pipe at joints for pipelines laid on a curve using unsymmetrical closure of spigot into bell. Utilize a maximum of 75 percent of manufacturer's recommended allowable joint deflection.
 - 1) If joint deflection of standard pipe lengths will not accommodate horizontal or vertical curves in alignment, provide:
 - a) Shorter pipe lengths.
 - b) Fittings/bends.
 - f. Secure pipe which has been placed from movement or damage while placing the next section of pipe.
 - g. Prevent uplift and floating of pipe prior to backfilling.
 - h. AC and Plastic pipelines, and all service lines, shall be provided with 12 AWG solid copper wire with Type UF insulation laid along the top of the pipe following completion of sanding and compaction to the top of pipe. The wire shall be over the center and in contact with the full length of the pipe, but shall not impede the operation of the corporation stop. This is to provide for locating pipes in the future. Wires are to carry a continuous circuit from all extremities

of the pipelines. Ends shall be terminated by connection to existing locator wires or existing metal pipes. Portions of the wire that have been exposed, for whatever reason, shall be protected from soil contact by wrapping with electrical tape (or other approved method) before placement of backfill. Connectivity of the tracer wire shall be tested and a passing result documented before placement of backfill. Failure to provide proof of a passing test result will result in the need to retest.

D. Cleaning:

1. At a minimum, flush for a period of time which will flush the entire pipeline volume three times.
2. Provide temporary means of removing flushing water from pipeline during flushing.
3. Provide means for removal/screening of debris from the flushing water, disposal of debris and disposal of flushing water.

3.3 SUPPLEMENTS

A. The following supplements are attached to this Specification section and incorporated herein by reference:

1. Section 15100 PSDS HDPE – SL
2. PID-R05A – SINGLE HDPE SERVICE HOT TAP INSTALLATION (FOR 1" TO 2" METERS)
3. PID-R05B – HDPE SERVICE HOT TAP INSTALLATION (FOR 1" TO 2" BANKED METER CONFIGURATIONS)
4. PID-R05C – SINGLE HDPE SERVICE INSTALLATION ADAPT EXISTING CORP STOP (FOR 1" TO 2" METERS)

+ + END OF SECTION + +

SECTION 15100 PSDS HDPE – SL

PIPING SYSTEM DATA SHEET – HDPE SERVICE LATERALS

1.0 Installation Standards

- 1.01 Material and Fittings. Copper Tubing Size (CTS) High-density Polyethylene (HDPE) will be allowed for services up to 2" in diameter (meter service connections larger than 2" diameter shall not be constructed as part of this contract.)
- 1.02 High Density Polyethylene Pipe (HDPE) shall be manufactured in accordance with ASTM D2737. Resin used in the manufacture of the pipe shall be listed as meeting the requirements of National Sanitation Foundation (NSF) 61.
- 1.03 HDPE pipe shall be rated for 200 psi, SDR 9.
- 1.04 Size appropriate Stainless Steel inserts shall be used wherever compression fittings are used.
- 1.05 Unless otherwise specified or approved by the District, compression fittings (Ford Meter Box Company or OWNER approved equal) are to be used for connecting HDPE tubing to other appurtenances. Pack joint fittings are not allowed.
- 1.06 An approved tubing cutter shall be used to prepare HDPE tubing for fitting attachment. Any other cutting method, such as knife and hacksaw cuts, will not be allowed. Ream pipe ends and clean chips and burrs after cutting.
- 1.07 All material is to be stored in a clean, dry location, away from contaminants or corrosive materials.

2.0 Installation

- 2.01 Connections (2-inch and smaller) to water mains are to be made at an angle of 0° above the spring line of the main from the horizontal in accordance with Details PID-R05A through PID-R05C, included in these Contract Documents.
- 2.02 Unless otherwise specified by the district, the order of connections shall be followed as shown in Standard Details PID-R05A through PID-R05C, a part of these specifications.
- 2.03 Only clean, select backfill is to be used, free from rocks and roots or any object that may cause a puncture or deformation in the tubing.
- 2.04 Service lines shall be laid at right angles to the water main and run directly to the termination point selected in the field by the ENGINEER.
- 2.05 Service lines shall be run above ground and capped a minimum of 18" and a maximum of 24" above ground surface using compression style cap fittings. The above ground pipe shall be secured to a 4" wide blue reflector paddle (Carsonite) with plastic zip tie style fasteners, per the included Standard Details PID-R05A through PID-R05C.

15100 PSDS COP-SL

- 2.06 A 12 AWG solid copper tracer wire with type UF insulation shall be installed per Standard Details PID-R05A through PID-R05C and Specification Section 15100.
- 2.07 Following installation and before backfill is placed, fill service lateral with water and wait 5 minutes to see if fittings show any visual sign of leakage. This shall be observed by the OWNER or ENGINEER and its completion documented.

3.0 Cleaning and Disinfection

- 3.01 Before disinfecting, clean all foreign matter from pipe.
- 3.02 Flush pipelines with potable water until clear of suspended solids and color. Provide hoses, temporary pipes, ditches, and other conduits as needed to dispose of flushing water without damage to adjacent properties.
- 3.03 Disinfecting Procedure: Spray or swab interior of pipe and fittings with disinfecting solution following flushing procedure.
- 3.04 Disinfecting Solutions: Minimum free chlorine concentration of 100 ppm.
- 3.05 A water quality sample shall be taken following flushing of the line to ensure that chlorine residual is present before capping the service lateral. This result shall be documented and submitted to the OWNER for each service lateral installed.

4.0 Parts Specifications

PIPE: Copper Tubing Size (CTS) HDPE pipe, CenFlo (or District approved comparable) meeting ASTM D2737 CTS, rated for 200 psi, SDR 9, size-appropriate stainless steel inserts.

FITTINGS:

Note: All fittings must meet lead-free requirements.

Ford Meter Box Company

Curb Stop FIP X FIP

- 1" B11-444
- 1.5" B11-666
- 2" B11-777

Corporation Stop MIP x COMP

- 1" FB1100-4-Q
- 1.5" FB1100-6-Q
- 2" FB1100-7-Q

Adaptor MIP X COMP

- .75" C14-33-Q
- 1" C14-44-Q
- 1.5" C14-66-Q

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- 2" C14-77-Q

Reducer Coupling FIP

- .75" X 1" C11-43

Coupling FC x FIP

- .75" X 1" C01-34

Romac Industries

Service Saddle Style 202S

Tap Clamp Style CL1

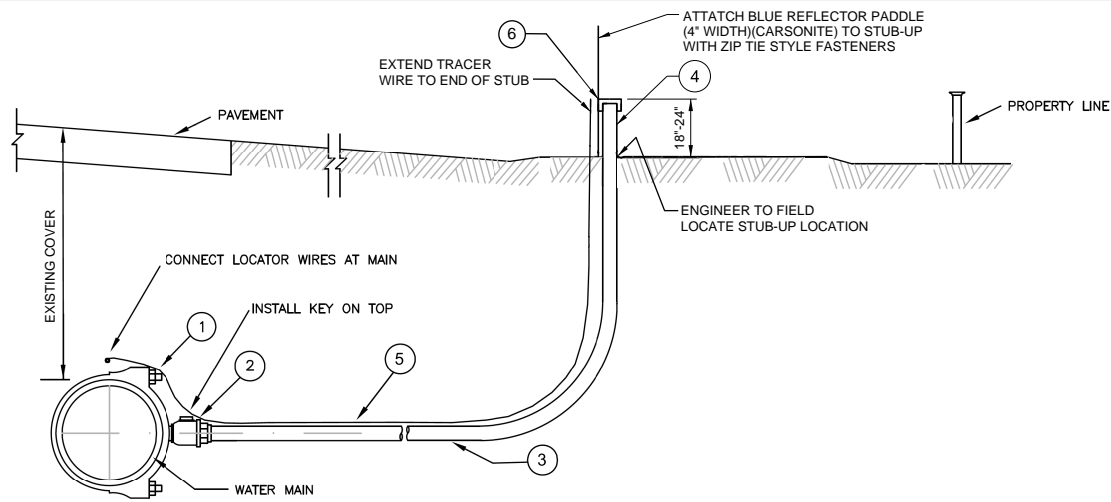
Brass MIP plugs .75", 1", 1.5" and 2"

PVC MIP plugs .75", 1", 1.5" and 2"

All pipe and fittings are Copper Tubing Size

+ + END OF SECTION + +

15100 PSDS COP-SL



MATERIALS

ITEM NO.	SIZE & DESCRIPTION	MANUFACTURER	SPEC. NO.
①	DOUBLE S.S. STRAP DUCTILE IRON SERVICE SADDLE W/ I.P. OUTLET	ROMAC	202S
②	BRONZE CORPORATION STOP M.I.P. THREAD x COMPRESSION W/ PIPE LINER	FORD	1" FB1100-4-Q 1 1/2" FP1100-6-Q 2" FB1100-7-Q
③	CTS HDPE TUBING, MINIMUM DIAMETER 1" CENFLO OR EQUAL		15100 PSDS HDPE-SL
④	STUB NEW LATERAL ABOVE GROUND A MINIMUM OF 18", NOT TO EXCEED 24"		
⑤	12 AWG SOLID COPPER WIRE W/ TYPE UF INSULATION ATTACHED AT 3 FT INTERVAL WITH A MINIMUM ONE FULL WRAP OF DUCT TAPE. EXTEND ALONG INSIDE & TO THE TOP OF ADS PIPE. ENSURE WIRE DOES NOT INTERFERE WITH OPERATION OF CORPORATION STOP.		15100 PSDS HDPE-SL
⑥	COMP & FIP COUPLING AND BRASS PLUG		

NOTES:

- SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 24" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
 - INSTALL CORPORATION STOP WITH KEY ON TOP IN OPEN POSITION.
 - THE CORPORATION STOP SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
- * PID DETAIL PID-R05A IS SPECIFIC TO CAMP FIRE DISASTER RECOVERY EFFORTS.



PARADISE IRRIGATION DISTRICT STANDARD DRAWING

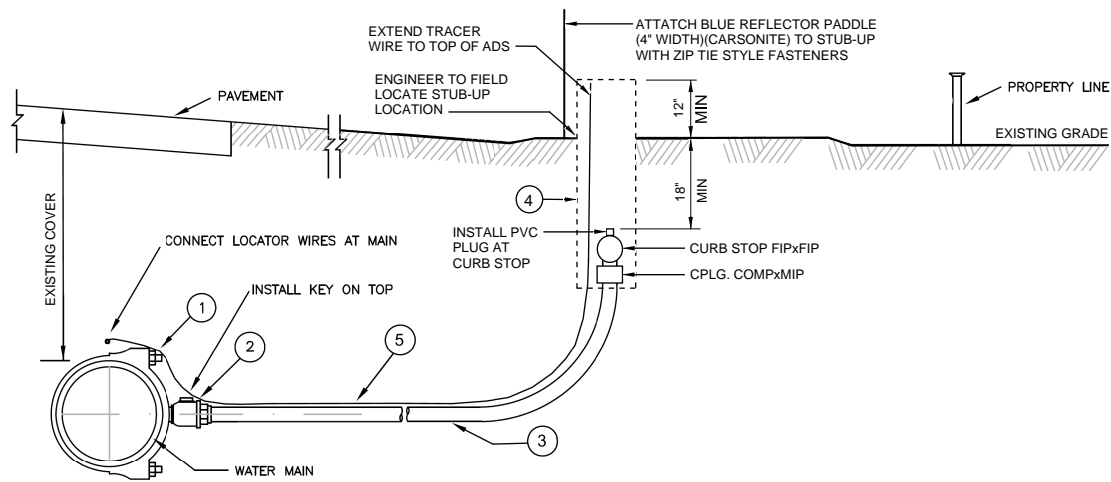
SINGLE HDPE SERVICE
HOT TAP INSTALLATION
(FOR 1" TO 2" METERS)

PID-R05A*

SHEET 1 OF 1

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UPDATED: AUGUST 2019

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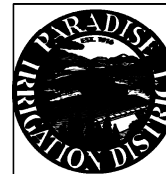


MATERIALS

ITEM NO.	SIZE & DESCRIPTION	MANUFACTURER	SPEC. NO.
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②	BRONZE CORPORATION STOP M.I.P. THREAD x COMPRESSION W/ PIPE LINER	FORD	1" FB1100-4-Q 1 1/2" FP1100-6-Q 2" FB1100-7-Q
③	CTS HDPE TUBING, MINIMUM DIAMETER 1" CENFLO OR EQUAL		15100 PSDS HDPE-SL
④	6" DOUBLE WALL ADS STUBBED 12" ABOVE EXISTING GRADE		
⑤	12 AWG SOLID COPPER WIRE W/ TYPE UF INSULATION ATTACHED AT 3 FT INTERVAL. WITH A MINIMUM ONE FULL WRAP OF DUCT TAPE. EXTEND ALONG INSIDE & TO THE TOP OF ADS PIPE. ENSURE WIRE DOES NOT INTERFERE WITH OPERATION OF CORPORATION STOP.		15100 PSDS HDPE-SL

NOTES:

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 - INSTALL CORPORATION STOP WITH KEY ON TOP IN OPEN POSITION.
 - THE CORPORATION STOP SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
- * PID DETAIL PID-R05B IS SPECIFIC TO CAMP FIRE DISASTER RECOVERY EFFORTS.



PARADISE IRRIGATION DISTRICT STANDARD DRAWING

HDPE SERVICE HOT TAP INSTALLATION
(FOR 1" TO 2" BANKED METER CONFIGURATIONS)

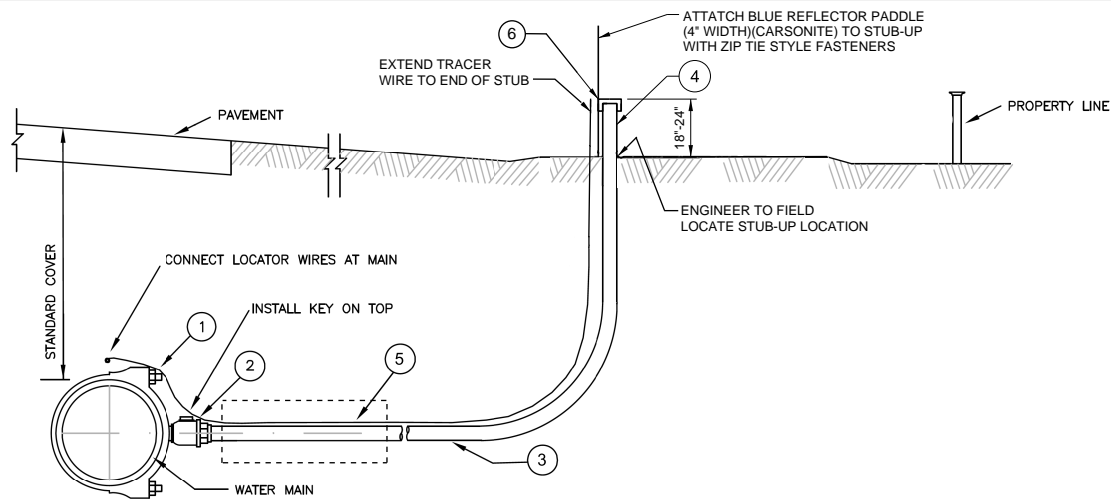
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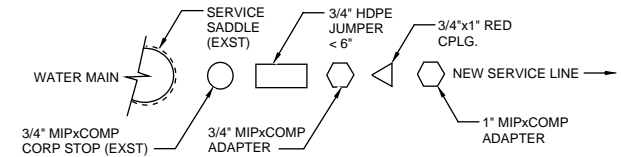
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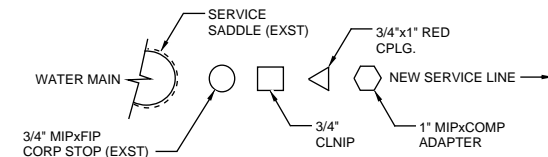
MATERIALS

ITEM NO.	SIZE & DESCRIPTION	MANUFACTURER	SPEC. NO.								
①	DOUBLE S.S. STRAP DUCTILE IRON SERVICE SADDLE W/ I.P. OUTLET	ROMAC	202S								
②	BRONZE CORPORATION STOP M.I.P. THREAD x COMPRESSION W/ PIPE LINER	<table><tr><th>CORP STOP, TYP</th><th>FITTING SEQUENCE</th></tr><tr><td>3/4" MIPxCOMP</td><td>CONDITION 1</td></tr><tr><td>3/4" FIPxCOMP</td><td>CONDITION 2</td></tr><tr><td>3/4" MIPxFL</td><td>CONDITION 3</td></tr></table>	CORP STOP, TYP	FITTING SEQUENCE	3/4" MIPxCOMP	CONDITION 1	3/4" FIPxCOMP	CONDITION 2	3/4" MIPxFL	CONDITION 3	
CORP STOP, TYP	FITTING SEQUENCE										
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3/4" MIPxFL	CONDITION 3										
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⑥	COMP & FIP COUPLING AND BRASS PLUG										

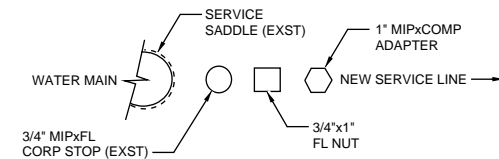
CONDITION 1: 3/4" MIPxCOMP CORPORATION STOP, UPSIZE TO 1"



CONDITION 2: 3/4" MIPxFIP CORPORATION STOP, UPSIZE TO 1"

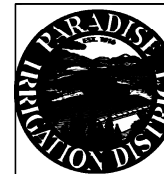


CONDITION 3: 3/4" MIPxFL CORPORATION STOP, UPSIZE TO 1"



NOTES:

- SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 24" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
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- * PID DETAIL PID-R05C IS SPECIFIC TO CAMP FIRE DISASTER RECOVERY EFFORTS.



PARADISE IRRIGATION DISTRICT STANDARD DRAWING

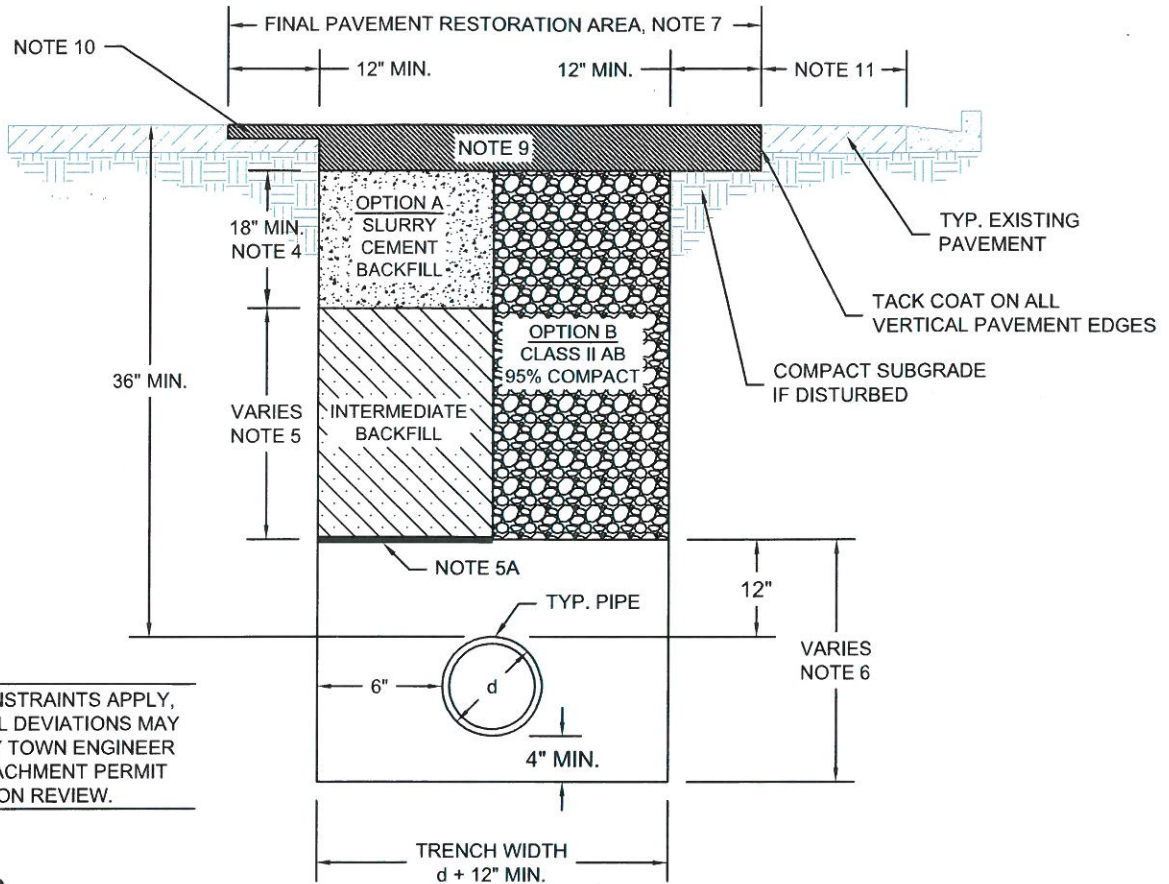
SINGLE HDPE SERVICE INSTALLATION
ADAPT EXISTING CORP STOP
(FOR 1" TO 2" METERS)

PID-R05C*

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WHERE SITE CONSTRAINTS APPLY,
STANDARD DETAIL DEVIATIONS MAY
BE APPROVED BY TOWN ENGINEER
DURING ENCROACHMENT PERMIT
APPLICATION REVIEW.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO TOWN OF PARADISE MUNICIPAL CODE CHAPTER 12.14 ENCROACHMENT AND EXCAVATION PERMITS, INCLUDING 3-YEAR MORATORIUM ROADS NOTED IN SECTION 12.14.260.
2. ROADWAYS STRUCTURALLY IMPROVED BETWEEN 3-10 YEARS FROM PROPOSED EXCAVATION SHALL COMPLY WITH STANDARD DETAIL TB-2 FOR FINAL PAVEMENT RESTORATION AREA REQUIREMENTS.
3. CONTRACTOR SHALL BACKFILL ALL TRENCHES PER OPTION A OR OPTION B AS NOTED ON THIS DETAIL. CONTRACTOR SHALL PROVIDE APPLICABLE COMPACTION REPORTS EVERY 100' AND/OR AS REQUIRED BY TOWN ENGINEER.
4. 18" MINIMUM DEPTH OF SLURRY CEMENT BACKFILL PER CALTRANS STANDARD SPECIFICATIONS 19-3.02D.
5. INTERMEDIATE BACKFILL SHALL BE EITHER:
 - A. NATIVE SOIL PROCESSED TO 90% COMPACTION (FILTER FABRIC REQUIRED)
 - B. CLASS II AGGREGATE BASE PROCESSED TO 90% COMPACTION
6. INITIAL BACKFILL SHALL BE EITHER:
 - A. $\frac{3}{8}$ " CRUSHED ROCK, LESS THAN 10% PASSING NO. 8 SIEVE; 100% PASSING $\frac{1}{2}$ " SIEVE
 - B. OTHER BACKFILL AS REQUIRED BY UTILITY OWNER
7. EXCAVATION WILL REQUIRE THE REMOVAL OF EXISTING PAVEMENT IN TWO SEPARATE INTERVALS; FIRST, COLD PLANE OR SAWCUT INITIAL TRENCH WIDTH. WHEN TRENCH WORK HAS BEEN COMPLETED, FINAL PAVEMENT RESTORATION LIMITS SHALL BE COLD PLANED OR SAWCUT PER WIDTHS SHOWN ABOVE (36" MINIMUM). FOR EXCAVATIONS PARALLEL TO THE ROADWAY, FINAL RESTORATION EDGE SHALL NOT BE WITHIN TYPICAL VEHICLE WHEEL PATH, CONFIRM LIMITS WITH TOWN ENGINEER PRIOR TO SECOND PAVEMENT REMOVAL INTERVAL.
8. CONTRACTOR MAY PLACE AND MAINTAIN COMPACTED TEMPORARY PAVEMENT (SC-800 COLD MIX) PRIOR TO SECOND PAVEMENT REMOVAL INTERVAL AS NOTED BELOW:
 - A. APRIL-OCTOBER: 30 CALENDAR DAYS MAX. FROM PROJECT COMPLETION OR UNTIL NOV. 1, WHICHEVER DATE IS FIRST.
 - B. NOVEMBER - MARCH: FINAL PAVING RESTRICTED BY WEATHER, COORDINATE WITH TOWN ENGINEER.
9. ALL FINAL PAVING SHALL BE TYPE A HOT MIX ASPHALT (HMA), $\frac{1}{2}$ " OR $\frac{3}{4}$ " AGGREGATE. PLACEMENT OF HMA SHALL BE IN ACCORDANCE WITH SECTION 39 OF THE CALTRANS STANDARD SPECIFICATIONS. HMA DEPTH SHALL BE 4" MIN. ON LOCAL ROADS/COLLECTORS AND 6" MIN. ON ARTERIALS.
10. IF EXISTING PAVEMENT SECTION IS 4" OR GREATER IN DEPTH, CONTRACTOR MAY COLD PLANE AND PAVE FINAL RESTORATION AREA TO A DEPTH OF $1\frac{1}{2}$ "-2".
11. IF PAVEMENT RESTORATION EDGE IS WITHIN 24" OF EDGE OF PAVEMENT OR LIP OF GUTTER, CONTRACTOR SHALL REPLACE TO ASSOCIATED PAVEMENT EDGE.
12. CONTRACTOR SHALL SEAL PAVEMENT EDGES WITH AN ASPHALT EMULSION 4" ON EACH SIDE OF ALL JOINTS.
13. CONTRACTOR SHALL REPLACE ALL OBLITERATED TRAFFIC MARKERS, MARKINGS AND STRIPES.
14. UTILITY EXCAVATIONS COMPLETED IN ADVANCE OF PLANNED ROADWAY IMPROVEMENT PROJECTS MAY BE CONSTRUCTED WITH REDUCED PAVEMENT RESTORATION REQUIREMENTS AS APPROVED BY THE TOWN ENGINEER.



TOWN OF PARADISE PUBLIC WORKS DEPARTMENT

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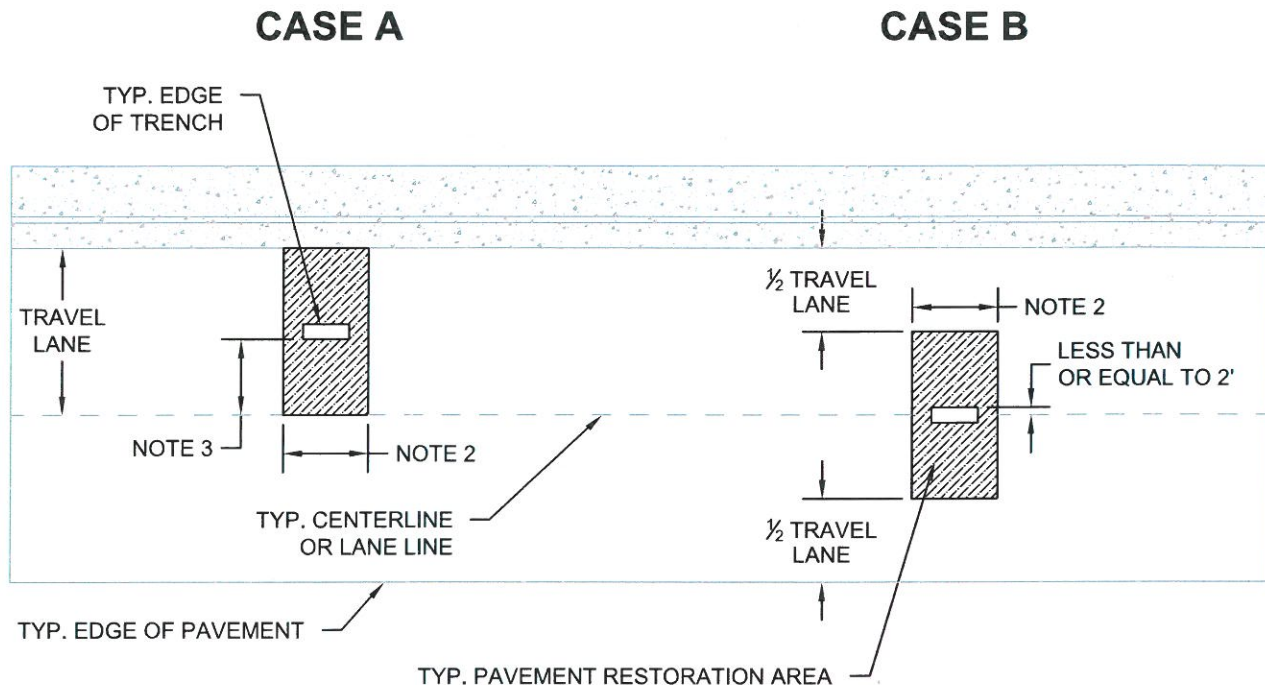
Standard Detail TB1

Trench Backfill and Restoration Requirements

[Signature] 1/9/13
Approved Date

TYPICAL STREET SECTION

ROADWAY STRUCTURALLY IMPROVED WITHIN 3-10 YEARS FROM PROPOSED EXCAVATION



DEFINITION:

TRAVEL LANE IS DEFINED AS THE PATH OF TRAVEL FOR VEHICLES, WHICH TYPICALLY EXTENDS FROM CENTERLINE TO EDGE OF PAVEMENT/LIP OF GUTTER. ON-STREET PARKING OR BICYCLE LANES ARE NOT CONSIDERED PART OF TRAVEL LANE. CONFIRM LIMITS WITH TOWN ENGINEER.

GENERAL NOTES:

1. TRENCH BACKFILL SHALL COMPLY WITH STANDARD DETAIL TB1.
2. CONTRACTOR SHALL REMOVE AND REPLACE A MINIMUM OF 4' LONGITUDINAL (PARALLEL TO TRAVELED PATH) OR 2' FROM THE EDGE OF THE TRENCH, WHICHEVER IS GREATER.
3. TRAVEL LANE WIDTH SHALL BE REPLACED FOR TRENCHES MORE THAN 2' FROM THE NEAREST LANELINE OR CENTERLINE.
4. MULTIPLE REPAIR LOCATIONS ARE TO BE A MINIMUM 10' APART FROM EDGE OF REPAIR TO EDGE OF REPAIR, IF LESS THAN 10' APART, A CONTINUOUS SECTION SHALL BE REPLACED.
5. ALTERNATE PAVING CONFIGURATIONS MAY BE APPROVED BY TOWN ENGINEER WHEN CONSIDERING EXISTING PAVEMENT THICKNESS, PROXIMITY OF PAVEMENT EDGES, ROADWAY DELINEATION, AND OTHER SITE-SPECIFIC CONSTRAINTS.
6. ALL REPAIR EDGES SHALL BE NEAT AND PERPENDICULAR OR PARALLEL TO TRAVEL LANES.
7. CONTRACTOR SHALL REMOVE RESTORATION LIMITS BY COLD PLANE/GRIND 2" SECTION
8. ALL FINAL PAVING SHALL BE TYPE A HOT MIX ASPHALT (HMA), $\frac{1}{2}$ " OR $\frac{3}{4}$ " AGGREGATE. PLACEMENT OF HMA SHALL BE IN ACCORDANCE WITH SECTION 39 OF THE CALTRANS STANDARD SPECIFICATIONS. REFER TO STANDARD DETAIL TB1 FOR HOT MIX ASPHALT DEPTHS WITHIN TRENCH AREA. PAVEMENT RESTORATION OUTSIDE OF TRENCH SHALL BE COLD PLANED $1\frac{1}{2}$ "-2" IN DEPTH.
9. CONTRACTOR SHALL REPLACE ALL OBLITERATED TRAFFIC MARKERS, MARKINGS AND STRIPES.

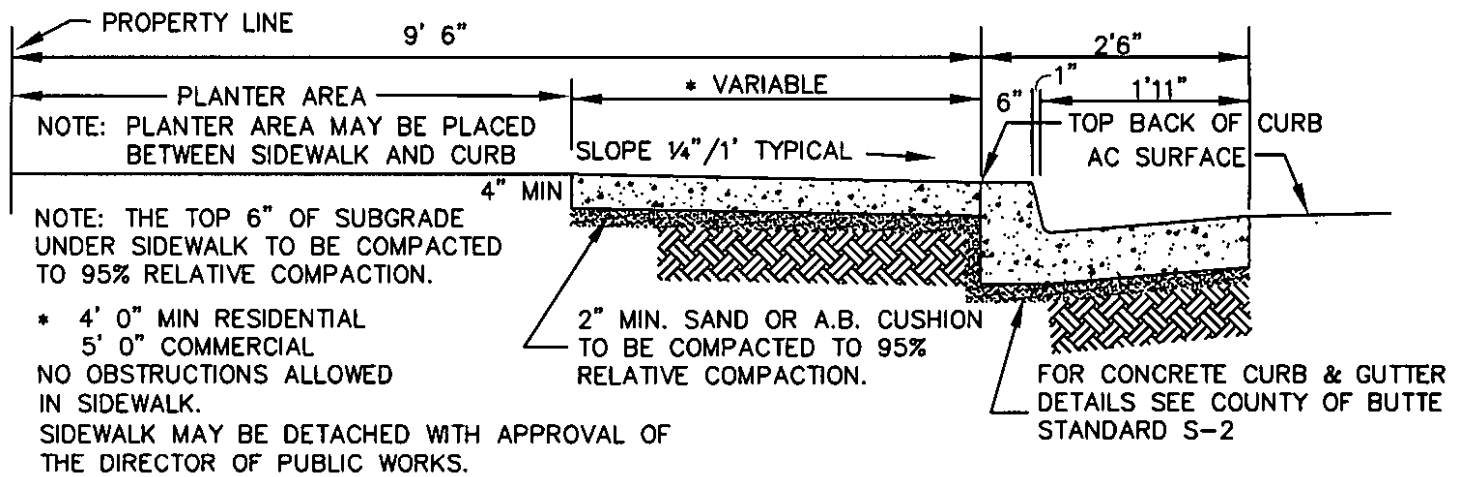


TOWN OF PARADISE
PUBLIC WORKS DEPARTMENT

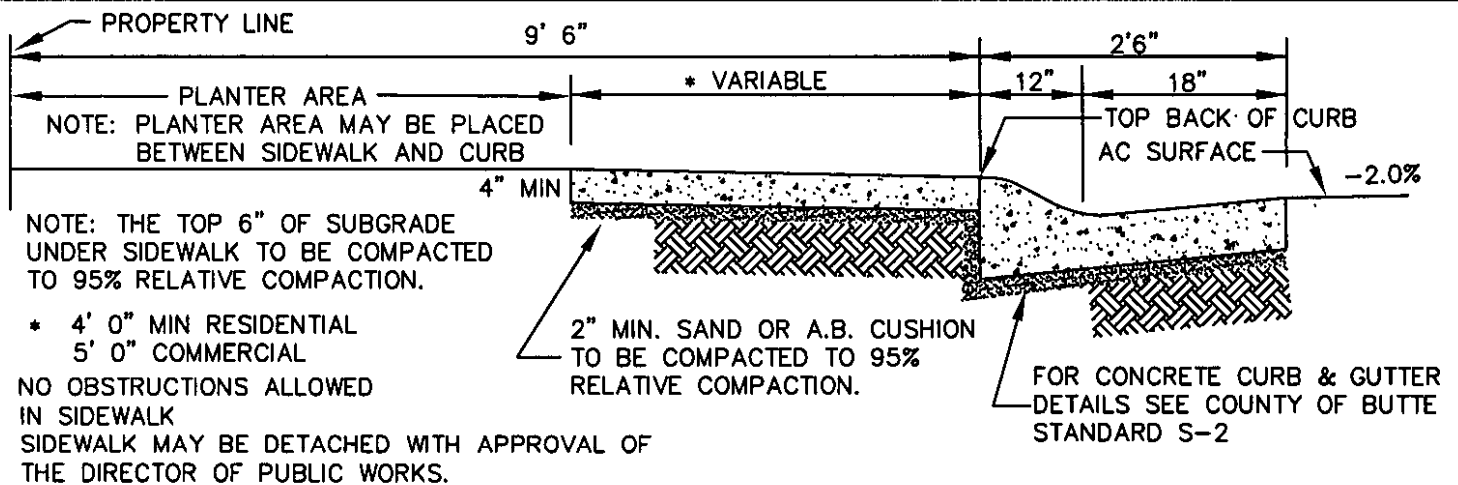
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Standard Detail TB2
Modified Pavement Restoration Area

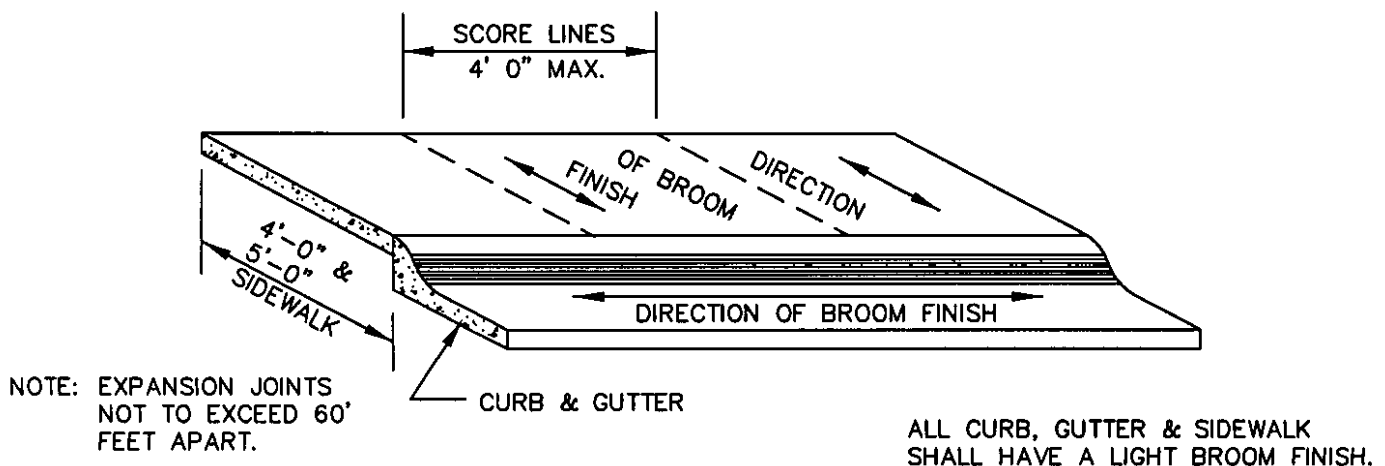
[Signature] 1/9/13
Approved Date



SECTION THROUGH STANDARD VERTICAL CONCRETE CURB, GUTTER & SIDEWALK



SECTION THROUGH STANDARD CONCRETE ROLLED CURB, GUTTER & SIDEWALK



SIDEWALK SCORE LINES DETAIL

TYPICAL SECTIONS FOR:
VERTICAL & ROLLED CURB, GUTTER & SIDEWALK
COUNTY STANDARD NO.

S-1
N.T.S.

REVISED 01/28/03

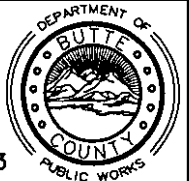


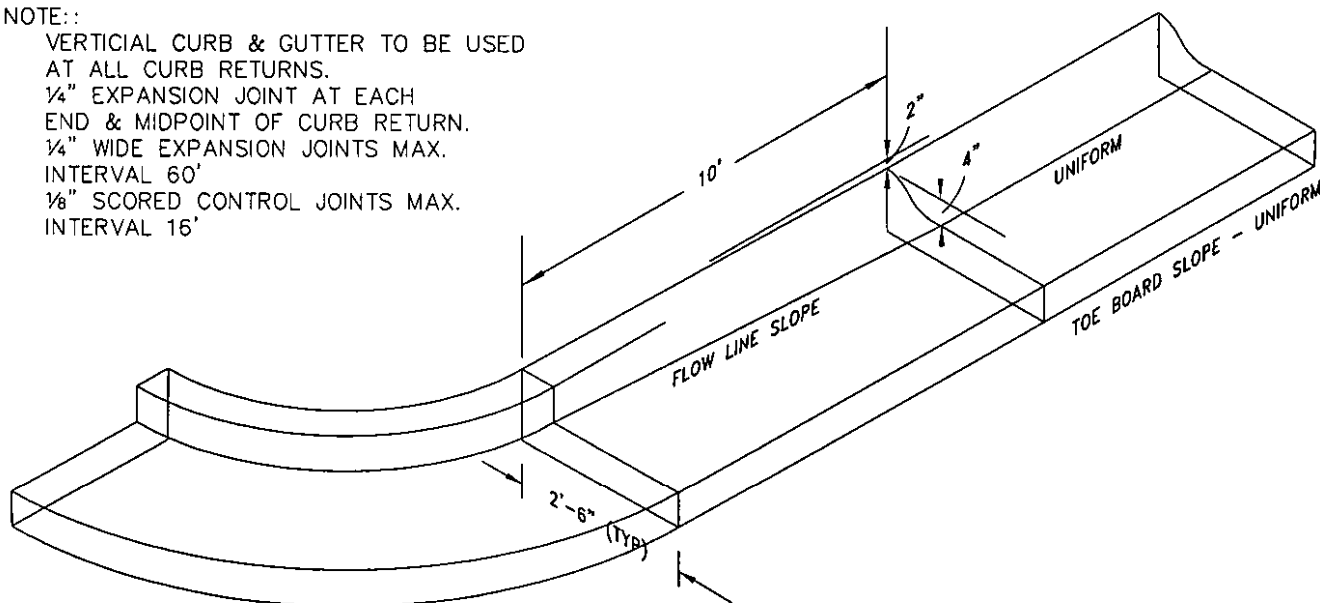
Diagram illustrating the cross-section of a curb and gutter. Key dimensions and labels include:

- FACE OF CURB
- FLOW LINE
- A.C. SURFACE (Asphalt Concrete Surface)
- 1" BATTER
- Dimensions: 6", 6", 18", 10", 9"R, 10"R, 2.25", 1"R, 6", 1.25"

Diagram illustrating the cross-section of a curb and gutter. The diagram shows a vertical curb on the left, a sloped gutter (batter) on the right, and a horizontal line representing the A.C. SURFACE (Asphalt Concrete Surface). Key dimensions and labels include:

- Top width: 2" - 6"
- Top curb width: 6"
- Top gutter width: 1" - 11"
- FACE OF CURB
- FLOW LINE
- 1"R (Radius)
- 1"R (Radius)
- A.C. SURFACE
- 1" BATTER (Slope)
- 1/2"R (Radius)
- 12" (Height)
- 6" (Width)

VERTICAL CURB & GUTTER TO BE USED
AT ALL CURB RETURNS.
1/4" EXPANSION JOINT AT EACH
END & MIDPOINT OF CURB RETURN.
1/4" WIDE EXPANSION JOINTS MAX.
INTERVAL 60'
1/8" SCORED CONTROL JOINTS MAX.
INTERVAL 16'



TYPICAL STANDARDS FOR CONCRETE:
VERTICAL AND ROLLED CURB & GUTTER
COUNTY STANDARD NO.

S-2
N.T.S.

