



Project Manual for:

PALO VERDE COUNTY WATER DISTRICT WATER WELL REPLACEMENT PROJECT PHASE II

APRIL 28, 2023

Funded by:
California Department of Housing and Community Development (HCD)
Through Its
Community Development Block Grant (CDBG) Program
CDBG Grant No. 18-CDBG-12925
HCD Project No. ICCED-015

Prepared by:

The Holt Group, Inc.
THG Project No. 821.028

for

Imperial County Workforce & Economic Development
2799 South 4th Street
El Centro, CA 92243
Point of Contact: Priscilla A. Lopez
Office (442) 265-1100

1. ADVERTISEMENT FOR BIDS

Office of the Clerk of the Board of Supervisors
940 Main Street, Suite 209
El Centro, CA 92243

Separate sealed BIDS for the construction of the **Palo Verde County Water District Water Well Replacement Project – Phase II** will be received by the **Office of the Clerk of the Board of Supervisors** located at **940 Main Street, Suite 209, El Centro, CA 92243** until **2:00 pm** (prevailing local time) on **July 17, 2023**, and then at said office will be publicly opened and read aloud.

The PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS may be examined at the following locations:

Imperial County Workforce & Economic Development
2799 S 4th Street
El Centro, CA 92243
Phone: (442) 265-1100
Fax: (760) 337-5005

Copies of the CONTRACT DOCUMENTS may be obtained at the office of the **Imperial County Workforce and Economic Development, 2799 South 4th Street, El Centro, CA 92243** upon the nonrefundable payment of **\$100.00** for each set.

A Non-Mandatory Prebid Conference for prospective BIDDERS will be held at **The Palo Verde Improvement Association Building**, located at **1051 Desert View Palo Verde, CA 92266** at **10:00 am** (prevailing local time), on **June 27, 2023**. To become a qualified bidder, all contract documents can be obtained from **Imperial County Workforce and Economic Development**. The contract documents can be purchased in the department's office or obtained from the department's website: www.imperialcountyced.com.

Bidders are notified that this construction project is financed by the California Department of Housing and Community Development (HCD) through its Community Development Block Grant (CDBG) and is subject to the rules and regulations of the Housing and Community Development Act of 1974 and all amendments thereof. Neither the United States nor any departments, agencies, or employees is, or will be, a part of this Invitation for Bids or any resulting contract.

The Contractor and Subcontractors on this project must comply with HUD contract provisions 24 CFR part 85.36(i), the Federal Davis-Bacon and Related Acts, California Department of Regulations Wage Determinations and California Labor Codes pertaining to Public Works projects, Nondiscrimination, Equal Employment Opportunity, Affirmative Action, Section 3 requirements, Anti-Kickback Act, and Federal Occupational Safety and Health Act as set forth in the Contract Bid Documents. This municipality is an equal employment opportunity employer; businesses owned by women or minorities are strongly encouraged to bid.

The female and minority goals are applicable to the Contractor's aggregate onsite construction work force whether or not part of that work force is performing work on a federal or federally assisted construction contract or subcontract as follows:

Time- tables	Goals for female participation in each trade
From December 30, 1980, until further notice	6.9%

Time- tables	Goals for minority participation for each trade
From November 3, 1980, until further notice	16.2% - Imperial County – Non SMSA Counties 16.9% - San Diego County – SMSA Counties

Until further notice, the above goals for minority utilization in each construction craft and trade shall be included in all Federal or Federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt Contractor's total on-site construction work force, regardless of whether or not part of that work force is performing work on a Federal, Federally assisted, or non-Federally related project, contract, or subcontract.

All potential contractors and subcontractors must have and maintain an active SAM.gov registration in order to submit a bid for this project.

The Contractor shall comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

In projects involving construction where federal funding exceeds \$200,000 and any individual contract or subcontract exceeds \$100,000, the Contractor shall have incorporated into their contract the Section 3 Clause and comply with the provisions of Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u), and regulations at 24 CFR Part 135.

The Contract executed between the General Contractor and the Awarding agency and the General Contractor and any subcontractor at any tier, for the performance of work on the public works project shall contain the complete verbiage as found in the contract between the Imperial County and the General Contractor including at a minimum a copy of the provisions of California Labor Codes, Sections 1726, 1771, 1775, 1776, 1777.5, 1813, and 1815.

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

Prohibition Against Contracting with Debarred Contractors and Subcontractors: Contractor is prohibited from performing work on a public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code. County shall not enter into any agreement with any Contractor without the prior determination that the Contractor, and its subcontractors, are eligible to receive Community Development Block Grant Funds and are not listed on the Federal Consolidated List of Debarred, Suspended and Ineligible Contractors.

In order to comply with HUD Section 3 requirements set forth in 24 CFR 135 of the Code of Federal Regulations, Section 3 Business Concerns are solicited to bid on this contract as prime contractors and are encouraged to make inquiries regarding potential subcontracting opportunities to Section 3 Business Concerns.”

Prospective Bidders shall be licensed Contractors in the State of California and shall be skilled and regularly engaged in the general class or type of work called for under the Contract. **Each Bidder shall have a Class C-57 or Class A California Contractor’s license. All work regarding the installation of new wells or decommissioning/demolition of existing wells shall be completed by a Class C-57 California Licensed Contractor or Subcontractor.**

Pursuant to California Civil Code Section 9550, the successful bidder shall, before commencement of work, furnish a payment bond to and approved by the County, if the public works contract exceeds twenty-five thousand dollars (\$25,000) in the amount of 100% of the contract amount. The successful Bidder shall also provide a performance bond in the amount of 100% of the contract amount.

(Date)

Blanca Acosta, Clerk of the Board of Supervisors
Imperial County, California

2. INSTRUCTIONS TO BIDDERS

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ARTICLE 1 - DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered: **Imperial County Workforce and Economic Development, 2799 S 4th Street, El Centro, CA 92243. Phone: (442) 265-1100 Fax: (760) 337-5005**

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the payment, of **one hundred dollars (\$100.00)** may be obtained from the Issuing Office. **The payment is nonrefundable.**
- 2.02 Complete sets of Bidding Documents may be purchased from **Imperial County Workforce and Economic Development** pursuant to the preparation of Bids. The Bidding Documents can also be obtained from the department’s website: www.imperialcountycd.com. Neither the Owner nor the Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

- 2.03 The Owner and the Engineer in making copies and availability of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within **five (5) days** of the Owner's request, the Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below. The bidder certifies that all statements and information are true and accurate.

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

4.01 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:

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

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

4.02 Underground Facilities

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

4.03 Hazardous Environmental Condition

- A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that the Engineer has used in preparing the Bidding Documents.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by the Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which the Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. The Bidder is responsible for any interpretation or conclusion that the Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports as shown or indicated on such drawings.

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

prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the Scope of the Work appear in Paragraph 4.06 of the General Conditions.

- 4.05 On request, the Owner will provide the Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as the 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. The Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.
- 4.06 Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by the Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, the Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.
- 4.07 It is responsibility of each Bidder before submitting a Bid to:
- A. Examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;
 - B. Visit the Site and become familiar with and satisfy the Bidder as to the general, local, and site conditions that may affect cost, progress, and performance of the Work;
 - C. Become familiar with and satisfy the Bidder as to all Federal, State, and Local Laws and Regulations that may affect cost, progress, or performance of the Work;
 - D. Carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;
 - E. Obtain and carefully study (or accept consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
 - F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for the performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
 - G. Become aware of the general nature of the work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
 - H. Correlate the information known to the Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

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

ARTICLE 5 - PRE-BID CONFERENCE

- 5.01 A **PreBid Conference** will be held at **10:00 am on May 11, 2023**, at The Palo Verde Improvement Association Building located at **1051 Desert View, Palo Verde, CA 92266**. Attendance is not mandatory. Representatives of the Owner and the Engineer will be present to discuss the Project. A site visit will immediately follow. The Engineer will transmit to all prospective Bidders of record such Addenda as the Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

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

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to the Engineer in writing. Interpretations or clarifications considered necessary by the Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by the Engineer as having received the Bidding Documents. **Questions regarding this project must be submitted in writing by May 15, 2023, at 5:00 p.m.** Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by the Owner or the Engineer.

ARTICLE 8 - BID SECURITY

- 8.01 A Bid must be accompanied by a Bid Security made payable to the Owner in an amount of **ten percent (10%)** of Bidder's maximum Bid price and in the form of a certified check or a Bid Bond (EJCDC No. C-430, 2002 Edition) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

- 8.02 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within **fifteen (15) days** after the Notice of Award, the Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid security of other Bidders whom the Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of **seven (7) days** after the Effective Date of the Agreement or **sixty-one (61) days** after the Bid Opening, whereupon the Bid Security furnished by such Bidders will be returned.
- 8.03 The Bid Security of other Bidders whom the Owner believes do not have a reasonable chance of receiving the award will be returned within **seven (7) days** after the Bid Opening.

ARTICLE 9 - CONTRACT TIME

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

ARTICLE 10 -LIQUIDATED DAMAGES

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

ARTICLE 11 - SUBSTITUTE AND “OR-EQUAL” ITEMS

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

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to the Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within **five (5) days** after the Bid Opening, submit to the Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by the Owner. If the Owner or the Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, the Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 12.02 If the apparent Successful Bidder declines to make any such substitution, the Owner may award the Contract to the next lowest responsible Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid Security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which the Owner and

the Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to the Owner and the Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

- 12.03 The Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom the Contractor has reasonable objection.
- 12.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in Supplement Conditions 6.06.

ARTICLE 13 - PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from the Engineer.
- 13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid shall be signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each, *Bid Item, Deductive Alternate, and Unit Price Item* listed therein, or the words “No Bid”, “No Change” or “Not Applicable”.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporation business address and state of incorporation shall be provided on the Bid Form.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The business address of the partnership shall be provided on the Bid Form.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the business address of the firm must be provided on the Bid Form.
- 13.06 A Bid by an individual shall show the Bidder’s name and business address.
- 13.07 A Bid by a joint venture shall be executed by each joint venture partner in the manner indicated on the Bid form. The business address of the joint venture must be provided on the Bid Form.
- 13.08 All names shall be typed or printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid form.
- 13.10 The address and telephone number and email address for communication regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of the Bidder’s authority and qualification to do business in the State of California. Bidder’s state contractor license number for the state of the Project shall also be shown on the Bid Form. Bidders shall possess a valid State of California Contractors “A” License at the day and time of the opening of proposals. The license shall be valid during the contract period.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Schedule of Values.
- B. The total of all bid prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The Final Quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in the favor of the unit prices. 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.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one (1) separate unbound copy of the Bid Form, and the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with all the attachments outlined in Article 7 of the Bid Form.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project Title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to the Owner at the address in Article 1.01 of the Bid Form.

Project Title: Palo Verde County Water District Water Well Replacement Project – Phase II

**Owner's Address: Office of the Clerk of the Board of Supervisors
c/o Imperial County Workforce and Economic Development
940 W. Main Street, Suite 209
El Centro, CA 92243**

ARTICLE 16 - MODIFICATION OR WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within **twenty-four (24) hours** after Bids are opened any Bidder files a duly signed written notice with the Owner and promptly thereafter demonstrates to the reasonable satisfaction of the 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, if the Work is rebid or negotiated, that Bidder will be disqualified from further bidding on the Work. This provision to withdraw a Bid without forfeiting the Bid Security does not apply to Bidder's errors in judgment in preparing the Bid.

ARTICLE 17 - OPENING OF BIDS

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

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form.

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 The Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. The Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. The Owner may also reject the Bid of any Bidder if the Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. The Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one (1) Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating the Bids, the Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, the Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 The Owner may conduct such investigations as the Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, the Owner will award the Contract to the responsible Bidder who's Bid, conforming with all the material terms and conditions of the Instructions to Bidders, is lowest, price and other factors considered. **The Award shall be made to the lowest responsive, responsible Bidder. The lowest responsive, responsible Bidder shall be determined by: (1) lowest overall cost to the Owner, (2) evaluation of Bidder's experience and, (3) a Bidder's proposal that complies with all of the requirements prescribed in this document.**

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

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

ARTICLE 21 - SIGNING OF AGREEMENT

- 21.01 When the Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within **fifteen (15) days** thereafter, the Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. **Within ten (10) days thereafter, the Owner shall deliver one (1) fully signed counterpart to the Successful Bidder with five (5) complete sets of the “Issued for Construction” Drawings with appropriate identification.**
- 21.02 This Contract is expected to be funded in part with funds provided by the California Department of Housing and Community Development (HCD) through its Community Development Block Grant (CDBG) Program. Refer to Article 18 of the General Conditions for information on the Federal Requirements.
- 21.03 Concurrence by HCD in the award of the Contract is required before the Contract is effective.

ARTICLE 22 - SALES AND USE TAXES

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

ARTICLE 23- WORKERS’ COMPENSATION REQUIREMENTS

- 23.01 As required by Section 1860 of the California Labor Code and in accordance with the provisions of Section 3700 of the Labor Code, every Contractor will be required to secure the payment of workers’ compensation to its employees.
- 23.02 In accordance with Section 1861 of the California Labor Code, the Contractor shall furnish the Owner with a statement as follows: “I am aware of the provisions of 3700 of the Labor Code which requires 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 contract.”
- 23.03 Notice is hereby given that, pursuant to 1773 of the Labor Code of the State of California, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holidays and overtime work for each craft, classification, or type of worker required to execute the Contract. A copy of said prevailing rate of per diem wages is on file in the principal office of the Owner, to which reference is hereby made for further particulars. Said prevailing rate of per diem wages will be made available to any interested party upon request, and a copy thereof shall be posted at each job site.

ARTICLE 24 – SUBCONTRACTOR LISTING LAW

- 24.01 In accordance with Section 4104 of the California Public Contract Code, each Bidder, in his or her Bid, shall set forth the name and the location of the place of business of each Subcontractor who will perform Work or labor or render service to the prime Contractor in or about the construction of the Work or improvement, or a Subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of one percent of the prime contractor’s total bid.
- 24.02 In accordance with Section 4107 of the California Public Contract Code, no Contractor whose Bid is accepted shall without consent of the OWNER either: (a) substitute a person as a Subcontractor in place of the Subcontractor listed in the original Bid; or (b) permit a subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor listed in the original Bid; or (c) sublet

or subcontract any portion of the Work in excess of one-half of one percent of the prime Contractor's total Bid as to which his or her original Bid did not designate a Subcontractor.

- 24.03 Penalties for failure to comply with the foregoing sections of the California Public Contract Code are set forth in Sections 4106, 4110, and 4111 of the Public Contract Code. A prime contractor violating this law violates his or her contract and the awarding authority may exercise the option, in its own discretion, of (1) canceling his or her contract or (2) assessing the prime contractor a penalty in an amount of not more than **ten percent (10%)** of the amount of the subcontract involved, and this penalty shall be deposited in the fund out of which the prime contract is awarded. In any proceedings under this section the prime contractor shall be entitled to a public hearing and to **five (5) day's** notice of the time and place thereof.

ARTICLE 25 – FUNDING REQUIREMENTS

- 25.01 Bidders are to base their bids on the project funding being provided in whole or in part by the California Department of Housing and Community Development (HCD) through its Community Development Block Grant (CDBG) which will review and approve the contract award, contract agreement, partial and final payments, and contract change orders.
- 25.02 Payment and retainage will comply with the contract agreement section 6.02 "Progress Payments; Retainage."
- 25.03 Intentionally left blank
- 25.04 Bidders are notified of the requirement for affirmative action to ensure equal employment opportunity (Executive Order No. 11246) as set forth in the Equal Opportunity Requirements found in paragraph 18.10 of the General Conditions.

ARTICLE 26 – SUBSTITUTION OF SECURITY

- 26.01 Upon the Contractor's request, the COUNTY will make payment of funds withheld from progress payments to ensure performance under the contract pursuant to the requirements of California Public Contracts Code, section 22300, if the Contractor deposits in escrow with COUNTY, or with a bank acceptable to COUNTY, securities eligible for investment under Government Code Section 16430 or bank savings and loan certifications of deposit, subject to the following conditions:
- a) The Contractor shall bear the expense of the COUNTY and the escrow agent, and the COUNTY and the bank, in connection with the escrow deposit made.
 - b) Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amount of retention to be paid to the Contractor pursuant to this Article.
 - c) The Contractor shall enter into an escrow agreement satisfactory to the COUNTY, which agreement shall include provisions governing, inter alias:
 - 1) the amount of securities to be deposited,
 - 2) the providing of powers of attorney or other documents necessary for the transfer of the securities to be deposited,
 - 3) conversion of cash to provide funds to meet defaults by the Contractor including, but not limited to, termination of the Contractor's control over the work, stop notice filed pursuant to law or other amounts to be kept or retained under the provisions of the contract,
 - 4) decrease in value of securities on deposit,
 - 5) the termination of the escrow upon completion of the contract.
 - d) The Contractor shall obtain the written consent of the surety to such agreement.

3. WAGE REQUIREMENTS

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

Prospective Bidders may obtain the general wage rates directly from the State of California Department of Industrial Relations at their web site at www.dir.ca.gov or by requesting a CD from the State. The Contractor shall keep an up-to-date listing of the general prevailing wage rates posted at the jobsite at all times.

This Public Works project is a multi-agency funded project and requires compliance with both California's Department of Industrial Relations requirements and the California Labor Codes for a Public Works project and the federal, Davis Bacon and Related Acts. This includes the current wage decisions. Bidders are notified that the higher of either the Davis-Bacon or the State prevailing wage rate shall apply.

The California lock in date for the wage decisions is the date of the bid advertising thus requiring compliance with California, Imperial County 2022-2 (IMP-2022-2) and various pre-determined increases.

All contractors and subcontractors who bid on a public works project must register and pay an annual fee to the California Department of Industrial Relations. All contractors and subcontractors must furnish electronic payroll records directly to the Labor Commissioner (aka California Division of Labor Standards Enforcement). These new requirements will apply to all public works that are subject to the prevailing wage requirements of the California Labor Code, without regard to the funding source.

Statutory Penalty for Failure to Pay Minimum Wage

- A. In accordance with 1775 of the California Labor Code, the Contractor shall as a penalty to the State or political subdivision on whose behalf a Contract is made or awarded, forfeit **fifty dollars (\$50.00)** for each calendar day or portion thereof, for each worker paid less than the stipulated prevailing rate for any public work done under the Contract by the Contractor or by any Subcontractor under the Contractor.

Statutory Penalty for Unauthorized Overtime Work

- A. In accordance with 1813 of the California Labor Code, the Contractor shall as a penalty to the State or political subdivision on whose behalf the Contract is made or awarded, forfeit **twenty-five dollars (\$25.00)** for each worker employed in the execution of the Contract by the Contractor or by any Subcontractor for each calendar day during which said worker is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of 1810-1815 of the California Labor Code.

Apprenticeship Requirements

- A. The CONTRACTOR agrees to comply with 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime contractor for all apprenticeship occupations. Under these sections of the law, Contractors and Subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one (1) apprentice hour for each five (5) journeymen hours (unless an exemption is granted in accordance with 1777.5) and Contractors and Subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in 3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least sixteen (16) years of age, who are in training under apprenticeship standards

and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.

Payroll Records

- A. The Contractor shall keep accurate payroll records on forms provided by the Division of Labor Standards Enforcement, or alternatively, the Contractor shall keep accurate payroll records containing the same information. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual per diem wages paid to each journeyman, apprentice, or worker employed by the Contractor. Such record shall be made available for inspection at all reasonable hours, and a copy shall be made available to the employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Upon written notice from the OWNER or the Division of Labor Standards Enforcement, the Contractor shall, within **ten (10) days**, file with the Owner a certified copy of the payroll records. The Contractor shall cause an identical clause to be included in every subcontract for the Work.

Davis-Bacon and Related Acts

- A. This project requires compliance with the Davis-Bacon and Related Acts and adherence to the current U.S. Department of Labor Wage Decision. The Contractor and subcontractors must comply with the minimum rates for wages for laborers and mechanics as determined by the Secretary of Labor in accordance with the provisions of the Davis-Bacon Act (DBA) CA20190002 Mod 7 08-28-2020, as specified in 29 CFR Parts 1, 3, 5, 6 and 7, and Related Acts. The Contract provisions and related matters set forth in 29 CFR Part 5-Section 5.5 are hereby made a part of this Contract. Attention is called to the fact that not less than the minimum salaries and wages set forth in the Contract Documents must be paid on this project. The Wage Decision, including modification, must be posted by the Contractor on the job site.
- B. It is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

The awarding body must post or require the prime Contractor to post job site notices prescribed by regulation. (*See* 8 Calif. Code Reg. §16451(d) for the notice that previously was required for projects monitored by the CMU.)

All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (aka California Division of Labor Standards Enforcement).



"General Decision Number: CA20230002 02/10/2023

Superseded General Decision Number: CA20220002

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

County: Imperial County in California.

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be

adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	01/13/2023
2	02/10/2023

ASBE0005-002 07/04/2022

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems).....	\$ 49.58	25.27
Fire Stop Technician (Application of Firestopping Materials for wall openings and penetrations in walls, floors, ceilings and curtain walls).....	\$ 32.09	19.66

ASBE0005-004 07/04/2022

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)....	\$ 23.52	13.37

BRCA0004-002 11/01/2022

	Rates	Fringes
BRICKLAYER; MARBLE SETTER.....	\$ 54.55	19.10

BRCA0018-004 06/01/2022

Rates Fringes

MARBLE FINISHER.....	\$ 37.87	14.13
TILE FINISHER.....	\$ 32.44	12.54
TILE LAYER.....	\$ 45.05	18.33

BRCA0018-010 09/01/2022

Rates Fringes

TERRAZZO FINISHER.....	\$ 38.37	14.13
TERRAZZO WORKER/SETTER.....	\$ 46.49	14.66

CARP0213-001 07/01/2021

Rates Fringes

CARPENTER

(1) Carpenter, Cabinet Installer, Insulation Installer, Hardwood Floor Worker and acoustical installer.....	\$ 51.60	16.28
(2) Millwright.....	\$ 52.10	16.48
(3) Piledrivermen/Derrick Bargeman, Bridge or Dock Carpenter, Heavy Frammer, Rock Bargeman or Scowman, Rockslinger, Shingler (Commercial).....	\$ 51.73	16.28
(4) Pneumatic Nailer, Power Stapler.....	\$ 51.85	16.28
(5) Sawfiler.....	\$ 51.69	16.28
(6) Scaffold Builder.....	\$ 42.80	16.28
(7) Table Power Saw Operator.....	\$ 51.70	16.28

FOOTNOTE: Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre- drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by piledrivers): \$0.13 per hour additional.

CARP0213-002 07/01/2021

Rates Fringes

Diver (1) Wet.....	\$ 834.40	16.28
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(2) Standby.....	\$ 445.84	16.28
(3) Tender.....	\$ 437.84	16.28
(4) Assistant Tender.....	\$ 413.84	16.28

Amounts in ""Rates' column are per day

 CARP0213-004 07/01/2021

Rates Fringes

Drywall		
DRYWALL INSTALLER/LATHER....	\$ 51.60	16.28
STOCKER/SCRAPPER.....	\$ 22.16	8.62

 CARP0721-001 07/01/2021

Rates Fringes

Modular Furniture Installer.....	\$ 21.85	7.15
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 ELEC0569-002 08/31/2020

Rates Fringes

Electricians (Electrical contracts of \$500,000 or less)		
Cable Splicer.....	\$ 48.40	3%+14.88
Tunnel Work.....	\$ 54.36	3%+14.88
Electrician.....	\$ 47.65	3%+14.88
Tunnel Work.....	\$ 53.61	3%+14.88

Electricians: (Electrical
contracts of \$500,000 and
over)

Cable Splicer.....	\$ 51.40	3%+14.88
Tunnel Work.....	\$ 57.36	3%+14.88
Electrician.....	\$ 50.65	3%+14.88
Tunnel Work.....	\$ 56.61	3%+14.88

 ELEC0569-005 06/01/2021

Rates Fringes

Sound & Communications		
Sound Technician.....	\$ 35.20	13.84
SCOPE OF WORK Assembly, installation, operation, service and maintenance of components or systems as used in closed circuit television, amplified master television distribution, CATV on private property, intercommunication, burglar alarm, fire alarm, life support and all security alarms, private and public telephone and related telephone interconnect, public address, paging, audio, language, electronic, background music system less than line voltage or any system acceptable for class two wiring for private, commercial, or industrial use furnished by leased wire, frequency modulation or other		

recording devices, electrical apparatus by means of which electricity is applied to the amplification, transmission, transference, recording or reproduction of voice, music, sound, impulses and video. Excluded from this Scope of Work - transmission, service and maintenance of background music. All of the above shall include the installation and transmission over fiber optics.

SOUND TECHNICIAN: Terminating, operating and performing final check-out

 ELEC0569-006 06/06/2022

Work on street lighting; traffic signals; and underground systems and/or established easements outside of buildings

Rates Fringes

Traffic signal, street light and underground work

Utility Technician #1.....\$ 38.67	9.11
Utility Technician #2.....\$ 30.10	8.85

STREET LIGHT & TRAFFIC SIGNAL WORK:

UTILITY TECHNICIAN #1: Installation of street lights and traffic signals, including electrical circuitry, programmable controller, pedestal-mounted electrical meter enclosures and laying of pre-assembled cable in ducts. The layout of electrical systems and communication installation including proper position of trench depths, and radius at duct banks, location for manholes, street lights and traffic signals.

UTILITY TECHNICIAN #2: Distribution of material at jobsite, installation of underground ducts for electrical, telephone, cable TV land communication systems. The setting, leveling, grounding and racking of precast manholes, handholes and transformer pads.

 ELEC1245-001 06/01/2022

Rates Fringes

LINE CONSTRUCTION

(1) Lineman; Cable splicer..\$ 64.40	22.58
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons	

and below), overhead & underground distribution line equipment).....	\$ 50.00	21.30
(3) Groundman.....	\$ 38.23	20.89
(4) Powderman.....	\$ 51.87	18.79

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day,
Independence Day, Labor Day, Veterans Day, Thanksgiving Day
and day after Thanksgiving, Christmas Day

ELEV0018-001 01/01/2023

Rates Fringes

ELEVATOR MECHANIC.....\$ 63.95 37.335+a+b

FOOTNOTE:

a. PAID VACATION: Employer contributes 8% of regular hourly
rate as vacation pay credit for employees with more than 5
years of service, and 6% for 6 months to 5 years of service.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence
Day, Labor Day, Veterans' Day, Thanksgiving Day, Friday
after Thanksgiving, and Christmas Day.

ENGI0012-003 07/01/2022

Rates Fringes

OPERATOR: Power Equipment
(All Other Work)

GROUP 1.....	\$ 51.90	30.70
GROUP 2.....	\$ 52.68	30.70
GROUP 3.....	\$ 52.97	30.70
GROUP 4.....	\$ 54.46	30.70
GROUP 5.....	\$ 48.96	25.25
GROUP 6.....	\$ 54.68	30.70
GROUP 8.....	\$ 54.79	30.70
GROUP 9.....	\$ 49.29	25.25
GROUP 10.....	\$ 54.91	30.70
GROUP 11.....	\$ 49.41	25.25
GROUP 12.....	\$ 55.08	30.70
GROUP 13.....	\$ 55.18	30.70
GROUP 14.....	\$ 55.21	30.70
GROUP 15.....	\$ 55.29	30.70
GROUP 16.....	\$ 55.41	30.70
GROUP 17.....	\$ 55.58	30.70
GROUP 18.....	\$ 55.68	30.70
GROUP 19.....	\$ 55.79	30.70
GROUP 20.....	\$ 55.91	30.70
GROUP 21.....	\$ 56.08	30.70
GROUP 22.....	\$ 56.18	30.70

GROUP 23.....	\$ 56.29	30.70
GROUP 24.....	\$ 56.41	30.70
GROUP 25.....	\$ 56.58	30.70

OPERATOR: Power Equipment
(Cranes, Piledriving &
Hoisting)

GROUP 1.....	\$ 53.25	30.70
GROUP 2.....	\$ 54.03	30.70
GROUP 3.....	\$ 54.32	30.70
GROUP 4.....	\$ 54.46	30.70
GROUP 5.....	\$ 54.68	30.70
GROUP 6.....	\$ 54.79	30.70
GROUP 7.....	\$ 54.91	30.70
GROUP 8.....	\$ 55.08	30.70
GROUP 9.....	\$ 55.25	30.70
GROUP 10.....	\$ 56.25	30.70
GROUP 11.....	\$ 57.25	30.70
GROUP 12.....	\$ 58.25	30.70
GROUP 13.....	\$ 59.25	30.70

OPERATOR: Power Equipment
(Tunnel Work)

GROUP 1.....	\$ 54.53	30.70
GROUP 2.....	\$ 54.82	30.70
GROUP 3.....	\$ 54.96	30.70
GROUP 4.....	\$ 55.18	30.70
GROUP 5.....	\$ 55.29	30.70
GROUP 6.....	\$ 55.41	30.70
GROUP 7.....	\$ 55.71	30.70

PREMIUM PAY:

\$3.75 per hour shall be paid on all Power Equipment Operator work on the following Military Bases: China Lake Naval Reserve, Vandenberg AFB, Point Arguello, Seely Naval Base, Fort Irwin, Nebo Annex Marine Base, Marine Corp Logistics Base Yermo, Edwards AFB, 29 Palms Marine Base and Camp Pendleton

Workers required to suit up and work in a hazardous material environment: \$2.00 per hour additional. Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

SEE ZONE DEFINITIONS AFTER CLASSIFICATIONS

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Bargeman; Brakeman; Compressor operator; Ditch Witch, with seat or similar type equipment; Elevator operator-inside; Engineer Oiler; Forklift operator (includes loed, lull or similar types under 5 tons; Generator operator; Generator, pump or compressor plant operator; Pump operator; Signalman; Switchman

GROUP 2: Asphalt-rubber plant operator (nurse tank operator);

Concrete mixer operator-skip type; Conveyor operator; Fireman; Forklift operator (includes loed, lull or similar types over 5 tons; Hydrostatic pump operator; oiler crusher (asphalt or concrete plant); Petromat laydown machine; PJU side dum jack; Screening and conveyor machine operator (or similar types); Skiploader (wheel type up to 3/4 yd. without attachment); Tar pot fireman; Temporary heating plant operator; Trenching machine oiler

GROUP 3: Asphalt-rubber blend operator; Bobcat or similar type (Skid steer); Equipment greaser (rack); Ford Ferguson (with dragtype attachments); Helicopter radioman (ground); Stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fireman; Backhoe operator (mini-max or similar type); Boring machine operator; Boxman or mixerman (asphalt or concrete); Chip spreading machine operator; Concrete cleaning decontamination machine operator; Concrete Pump Operator (small portable); Drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum); Equipment greaser (grease truck); Guard rail post driver operator; Highline cableway signalman; Hydra-hammer-aero stomper; Micro Tunneling (above ground tunnel); Power concrete curing machine operator; Power concrete saw operator; Power-driven jumbo form setter operator; Power sweeper operator; Rock Wheel Saw/Trencher; Roller operator (compacting); Screed operator (asphalt or concrete); Trenching machine operator (up to 6 ft.); Vacuum or much truck

GROUP 5: Equipment Greaser (Grease Truck/Multi Shift).

GROUP 6: Articulating material hauler; Asphalt plant engineer; Batch plant operator; Bit sharpener; Concrete joint machine operator (canal and similar type); Concrete planer operator; Dandy digger; Deck engine operator; Derrickman (oilfield type); Drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum); Drilling machine operator; Hydrographic seeder machine operator (straw, pulp or seed), Jackson track maintainer, or similar type; Kalamazoo Switch tamper, or similar type; Machine tool operator; Maginnis internal full slab vibrator, Mechanical berm, curb or gutter(concrete or asphalt); Mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar); Micro tunnel system (below ground); Pavement breaker operator (truck mounted); Road oil mixing machine operator; Roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck); Self-propelled tar pipelining machine operator; Skiploader operator (crawler and wheel type, over 3/4 yd. and up to and

including 1-1/2 yds.); Slip form pump operator (power driven hydraulic lifting device for concrete forms); Tractor operator-bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger hoist operator (1 drum); Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 8: Asphalt or concrete spreading operator (tamping or finishing); Asphalt paving machine operator (Barber Greene or similar type); Asphalt-rubber distribution operator; Backhoe operator (up to and including 3/4 yd.), small ford, Case or similar; Cast-in-place pipe laying machine operator; Combination mixer and compressor operator (guniting work); Compactor operator (self-propelled); Concrete mixer operator (paving); Crushing plant operator; Drill Doctor; Drilling machine operator, Bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum); Elevating grader operator; Grade checker; Gradall operator; Grouting machine operator; Heavy-duty repairman; Heavy equipment robotics operator; Kalamazoo balliste regulator or similar type; Kolman belt loader and similar type; Le Tourneau blob compactor or similar type; Loader operator (Athey, Euclid, Sierra and similar types); Mobark Chipper or similar; Ozzie padder or similar types; P.C. slot saw; Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pumpcrete gun operator; Rock Drill or similar types; Rotary drill operator (excluding caisson type); Rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck); Rubber-tired scraper operator (self-loading paddle wheel type-John Deere, 1040 and similar single unit); Self-propelled curb and gutter machine operator; Shuttle buggy; Skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.); Soil remediation plant operator; Surface heaters and planer operator; Tractor compressor drill combination operator; Tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine); Tractor operator (boom attachments), Traveling pipe wrapping, cleaning and bending machine operator; Trenching machine operator (over 6 ft. depth capacity, manufacturer's rating); trenching Machine with Road Miner attachment (over 6 ft depth capacity); Ultra high pressure waterjet cutting tool system mechanic; Water pull (compaction) operator

GROUP 9: Heavy Duty Repairman

GROUP 10: Drilling machine operator, Bucket or auger types (Calweld 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum); Dual drum mixer, dynamic compactor LDC350 (or similar types); Monorail locomotive operator (diesel, gas or electric); Motor patrol-blade operator (single engine); Multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.); Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Pneumatic pipe ramming tool and similar types; Prestressed wrapping machine operator; Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Rubber tired earth moving equipment operator (multiple engine, Euclid, caterpillar and similar over 25 yds. and up to 50 yds. struck), Tower crane repairman; Tractor loader operator (crawler and wheel type over 6-1/2 yds.); Woods mixer operator (and similar Pugmill equipment)

GROUP 11: Heavy Duty Repairman - Welder Combination, Welder - Certified.

GROUP 12: Auto grader operator; Automatic slip form operator; Drilling machine operator, bucket or auger types (Calweld, auger 200 CA or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum); Hoe ram or similar with compressor; Mass excavator operator less tha 750 cu. yards; Mechanical finishing machine operator; Mobile form traveler operator; Motor patrol operator (multi-engine); Pipe mobile machine operator; Rubber-tired earth- moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-tired self- loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 13: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 14: Canal liner operator; Canal trimmer operator; Remote- control earth-moving equipment operator (operating a second piece of equipment: \$1.00 per hour additional); Wheel excavator operator (over 750 cu. yds.)

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator,

operating equipment with push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 17: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck); Tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 18: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 19: Rotex concrete belt operator (or similar types); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 21: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating with the tandem

push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 24: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 25: Concrete pump operator-truck mounted; Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

CRANES, PILEDIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Hydraulic boom truck; Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist and/or manlift operator; Polar gantry crane operator; Self Climbing scaffold (or similar type); Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds., M.R.C.)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator;

Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane operator; Polar crane operator; Self erecting tower crane operator maximum lifting capacity ten tons

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.); Tower crane operator and tower gantry

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator

(Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy Duty Repairman

GROUP 7: Tunnel mole boring machine operator

ENGINEERS ZONES

\$1.00 additional per hour for all of IMPERIAL County and the portions of KERN, RIVERSIDE & SAN BERNARDINO Counties as defined below:

That area within the following Boundary: Begin in San Bernardino County, approximately 3 miles NE of the intersection of I-15 and the California State line at that point which is the NW corner of Section 1, T17N,m R14E, San Bernardino Meridian. Continue W in a straight line to that point which is the SW corner of the northwest quarter of Section 6, T27S, R42E, Mt. Diablo Meridian. Continue North to the intersection with the Inyo County Boundary at that point which is the NE corner of the western half of the northern quarter of Section 6, T25S, R42E, MDM. Continue W along the Inyo and San Bernardino County boundary until the intersection with Kern County, as that point which is the SE corner of Section 34, T24S, R40E, MDM. Continue W along the Inyo and Kern County boundary until the intersection with Tulare County, at that point which is the SW corner of the SE quarter of Section 32, T24S, R37E, MDM. Continue W along the Kern and Tulare County boundary, until that point which is the NW corner of T25S, R32E, MDM. Continue S following R32E lines to the NW corner of T31S, R32E, MDM. Continue W to the NW corner of T31S, R31E, MDM. Continue S to the SW corner of T32S, R31E, MDM. Continue W to SW corner of SE quarter of Section 34, T32S, R30E, MDM. Continue S to SW corner of T11N, R17W, SBM. Continue E along south boundary of T11N, SBM to SW corner of T11N, R7W, SBM. Continue S to SW corner of T9N, R7W, SBM. Continue E along south boundary of T9N, SBM to SW corner of T9N, R1E, SBM. Continue S along west boundary of R1E, SMB to Riverside County line at the SW corner of T1S, R1E, SBM. Continue E along south boundary of T1s, SBM (Riverside County Line) to SW corner of T1S, R10E, SBM. Continue S along west boundary of R10E, SBM to Imperial County line at the SW corner of T8S, R10E, SBM. Continue W along Imperial and Riverside county line to NW corner of T9S, R9E, SBM. Continue S along the boundary between Imperial and San Diego Counties, along the west edge of R9E, SBM to the south boundary of Imperial County/California state line. Follow the California state line west to Arizona state line, then north to Nevada state line, then continuing NW back to start at the point which is the NW corner of Section 1, T17N, R14E, SBM

\$1.00 additional per hour for portions of SAN LUIS OBISPO, KERN, SANTA BARBARA & VENTURA as defined below:

That area within the following Boundary: Begin approximately 5 miles north of the community of Cholame, on the Monterey County and San Luis Obispo County boundary at the NW corner of T25S, R16E, Mt. Diablo Meridian. Continue south along the west side of R16E to the SW corner of T30S, R16E, MDM. Continue E to SW corner of T30S, R17E, MDM. Continue S to SW corner of T31S, R17E, MDM. Continue E to SW corner of T31S, R18E, MDM. Continue S along West side of R18E, MDM as it crosses into San Bernardino Meridian numbering area and becomes R30W. Follow the west side of R30W, SBM to the SW corner of T9N, R30W, SBM. Continue E along the south edge of T9N, SBM to the Santa Barbara County and Ventura County boundary at that point which is the SW corner of Section 34. T9N, R24W, SBM, continue S along the Ventura County line to that point which is the SW corner of the SE quarter of Section 32, T7N, R24W, SBM. Continue E along the south edge of T7N, SBM to the SE corner to T7N, R21W, SBM. Continue N along East side of R21W, SBM to Ventura County and Kern County boundary at the NE corner of T8N, R21W. Continue W along the Ventura County and Kern County boundary to the SE corner of T9N, R21W. Continue North along the East edge of R21W, SBM to the NE corner of T12N, R21W, SBM. Continue West along the north edge of T12N, SBM to the SE corner of T32S, R21E, MDM. [T12N SBM is a think strip between T11N SBM and T32S MDM]. Continue North along the East side of R21E, MDM to the Kings County and Kern County border at the NE corner of T25S, R21E, MDM, continue West along the Kings County and Kern County Boundary until the intersection of San Luis Obispo County. Continue west along the Kings County and San Luis Obispo County boundary until the intersection with Monterey County. Continue West along the Monterey County and San Luis Obispo County boundary to the beginning point at the NW corner of T25S, R16E, MDM.

\$2.00 additional per hour for INYO and MONO Counties and the Northern portion of SAN BERNARDINO County as defined below:

That area within the following Boundary: Begin at the intersection of the northern boundary of Mono County and the California state line at the point which is the center of Section 17, T10N, R22E, Mt. Diablo Meridian. Continue S then SE along the entire western boundary of Mono County, until it reaches Inyo County at the point which is the NE corner of the Western half of the NW quarter of Section 2, T8S, R29E, MDM. Continue SSE along the entire western boundary of Inyo County, until the intersection with Kern County at the point which is the SW corner of the SE 1/4 of Section 32, T24S, R37E, MDM. Continue E along the Inyo and Kern County boundary until the intersection with San Bernardino County at that point which is the SE corner of section 34, T24S, R40E, MDM. Continue E along the Inyo and San Bernardino County boundary until the point

which is the NE corner of the Western half of the NW quarter of Section 6, T25S, R42E, MDM. Continue S to that point which is the SW corner of the NW quarter of Section 6, T27S, R42E, MDM. Continue E in a straight line to the California and Nevada state border at the point which is the NW corner of Section 1, T17N, R14E, San Bernardino Meridian. Then continue NW along the state line to the starting point, which is the center of Section 18, T10N, R22E, MDM.

REMAINING AREA NOT DEFINED ABOVE RECIEVES BASE RATE

 ENGI0012-004 08/01/2022

Rates Fringes

OPERATOR: Power Equipment
 (DREDGING)

(1) Leverman.....	\$ 61.60	32.50
(2) Dredge dozer.....	\$ 55.63	32.50
(3) Deckmate.....	\$ 55.52	32.50
(4) Winch operator (stern winch on dredge).....	\$ 54.97	32.50
(5) Fireman-Oiler, Deckhand, Bargeman, Leveehand.....	\$ 54.43	32.50
(6) Barge Mate.....	\$ 55.04	32.50

 IRON0229-001 01/01/2023

Rates Fringes

IRONWORKER

Fence Erector.....	\$ 41.28	25.66
Ornamental, Reinforcing and Structural.....	\$ 46.20	34.30

PREMIUM PAY:

\$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland, Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

\$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

\$2.00 additional per hour at the following locations:

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

LABO0300-005 08/01/2022

	Rates	Fringes
Asbestos Removal Laborer.....	\$ 39.23	23.28

SCOPE OF WORK: Includes site mobilization, initial site cleanup, site preparation, removal of asbestos-containing material and toxic waste, encapsulation, enclosure and disposal of asbestos- containing materials and toxic waste by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers and assembly of decontamination stations.

LABO0345-001 07/01/2022

	Rates	Fringes
LABORER (GUNITE)		
GROUP 1.....	\$ 48.50	21.37
GROUP 2.....	\$ 47.55	21.37
GROUP 3.....	\$ 44.01	21.37

FOOTNOTE: GUNITE PREMIUM PAY: Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates. Workers doing gunite and/or shotcrete work in a tunnel shall receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis. Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0"" above base level and which work must be performed in whole or in part more than 75'-0"" above base level, that work performed above the 75'-0"" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Rodmen, Nozzlemen

GROUP 2: Gunmen

GROUP 3: Reboundmen

Rates Fringes

Laborers: (HORIZONTAL DIRECTIONAL DRILLING)

(1) Drilling Crew Laborer...	\$ 40.69	18.25
(2) Vehicle Operator/Hauler.	\$ 40.86	18.25
(3) Horizontal Directional Drill Operator.....	\$ 42.71	18.25
(4) Electronic Tracking Locator.....	\$ 44.71	18.25

Laborers: (STRIPING/SLURRY SEAL)

GROUP 1.....	\$ 41.90	21.32
GROUP 2.....	\$ 43.20	21.32
GROUP 3.....	\$ 45.21	21.32
GROUP 4.....	\$ 46.95	21.32

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades, fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

Rates Fringes

LABORER (TUNNEL)

GROUP 1.....	\$ 45.68	23.30
GROUP 2.....	\$ 46.00	23.30
GROUP 3.....	\$ 46.46	23.30
GROUP 4.....	\$ 47.15	23.30

LABORER

GROUP 1.....	\$ 36.39	21.04
GROUP 2.....	\$ 36.94	21.04
GROUP 3.....	\$ 37.49	21.04
GROUP 4.....	\$ 39.04	21.04
GROUP 5.....	\$ 39.39	21.04

LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type heavy construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer(lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush

shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and similar type; Trenching machine, hand-propelled

GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt- rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and over; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster (nozzle person), water blasting, Porta Shot-Blast

GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power; Toxic waste removal

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Changehouse person; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.)

GROUP 2: Chucktender, cabledtender; Loading and unloading agitator cars; Vibrator person, jack hammer, pneumatic tools (except driller); Bull gang mucker, track person; Concrete crew, including rodder and spreader

GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher

GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

LABO1184-004 07/01/2022

	Rates	Fringes
Brick Tender.....	\$ 37.32	21.45

LABO1414-003 08/03/2022

	Rates	Fringes
LABORER		
PLASTER CLEAN-UP LABORER....	\$ 38.92	23.32
PLASTER TENDER.....	\$ 41.47	23.32

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

Work at Military Bases - \$3.00 additional per hour:
 Coronado Naval Amphibious Base, Fort Irwin, Marine Corps Air Station-29 Palms, Imperial Beach Naval Air Station, Marine Corps Logistics Supply Base, Marine Corps Pickle Meadows, Mountain Warfare Training Center, Naval Air Facility-Seeley, North Island Naval Air Station, Vandenberg AFB.

PAIN0036-001 07/01/2020

	Rates	Fringes
Painters: (Including Lead		

Abatement)

(1) Repaint (excludes San Diego County).....	\$ 29.59	17.12
(2) All Other Work.....	\$ 33.12	17.24

REPAINT of any previously painted structure. Exceptions: work involving the aerospace industry, breweries, commercial recreational facilities, hotels which operate commercial establishments as part of hotel service, and sports facilities.

PAIN0036-008 09/01/2022

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	\$ 46.28	23.52

PAIN0036-013 10/01/2022

	Rates	Fringes
GLAZIER.....	\$ 47.90	20.71

PAIN0036-019 06/01/2022

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 34.77	17.89

PLAS0200-004 08/03/2022

	Rates	Fringes
PLASTERER.....	\$ 47.37	19.64

Work at Naval Air Facility Seeley: \$3.00 additional per hour

PLAS0500-002 07/01/2020

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 38.50	25.91

PLUM0016-008 09/01/2022

	Rates	Fringes
PLUMBER/PIPEFITTER		
Seeley Naval Air Station....	\$ 65.68	26.26
Work ONLY on new additions and remodeling of bars, restaurants, stores and commercial buildings, not		

to exceed 5,000 sq. ft. of floor space.....	\$ 53.51	25.28
Work ONLY on strip malls, light commercial, tenant improvement and remodel work.....	\$ 40.95	23.61
All other work except work on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space and work on strip malls, light commercial, tenant improvement and remodel work.....	\$ 55.18	26.26

 PLUM0345-001 09/01/2022

Rates Fringes

PLUMBER

Landscape/Irrigation Fitter.....	\$ 38.20	25.65
Sewer & Storm Drain Work....	\$ 42.29	23.03

 ROOF0045-001 07/01/2022

Rates Fringes

ROOFER.....	\$ 39.90	11.19
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 SFCA0669-002 01/01/2023

Rates Fringes

SPRINKLER FITTER.....	\$ 43.25	27.33
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 SHEE0206-002 07/01/2020

Rates Fringes

Sheet Metal (TECHNICIAN).....	\$ 30.51	9.49
SHEET METAL WORKER.....	\$ 40.62	29.55

SHEET METAL TECHNICIAN - SCOPE:

LIGHT COMMERCIAL WORK: Any sheet metal, heating and air conditioning work performed on a project where the total construction cost, excluding land, is under \$1,000,000.

TENANT IMPROVEMENT WORK: Any work necessary to finish interior spaces to conform to the occupants of commercial buildings, after completion of the building shell

Rates Fringes

TRUCK DRIVER

GROUP 1.....	\$ 36.19	32.54
GROUP 2.....	\$ 36.34	32.54
GROUP 3.....	\$ 36.47	32.54
GROUP 4.....	\$ 36.66	32.54
GROUP 5.....	\$ 36.69	32.54
GROUP 6.....	\$ 36.72	32.54
GROUP 7.....	\$ 36.97	32.54
GROUP 8.....	\$ 37.22	32.54
GROUP 9.....	\$ 37.42	32.54
GROUP 10.....	\$ 37.72	32.54
GROUP 11.....	\$ 38.22	32.54
GROUP 12.....	\$ 38.65	32.54

WORK ON ALL MILITARY BASES:

PREMIUM PAY: \$3.00 per hour additional.

[29 palms Marine Base, Camp Roberts, China Lake, Edwards AFB, El Centro Naval Facility, Fort Irwin, Marine Corps Logistics Base at Nebo & Yermo, Mountain Warfare Training Center, Bridgeport, Point Arguello, Point Conception, Vandenberg AFB]

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2 axles; Traffic control pilot car excluding moving heavy equipment permit load; Truck mounted broom

GROUP 3: Driver of vehicle or combination of vehicles - 3 axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person (\$0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck, 6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axles; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - \$1.25 additional when operating winch or similar special attachments

GROUP 12: Boom Truck 17K and above

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the

classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISIO"

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 FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

LOCALITY: IMPERIAL COUNTY
 DETERMINATION: IMP-2023-1

CRAFT	CLASSIFICATION	CRAFT FOOTNOTE	ISSUE DATE	EXPIRATION DATE	BASIC HOURLY RATE	BASIC HOURLY RATE FOOTNOTE	HEALTH AND WELFARE FOOTNOTE	PENSION FOOTNOTE	VACATION HOLIDAY FOOTNOTE	VACATION HOLIDAY FOOTNOTE	OTHER PAYMENTS/HOURS FOOTNOTE	OTHER PAYMENTS/HOURS FOOTNOTE	TRAINING FOOTNOTE	TRAINING FOOTNOTE	STRAIGHT-OVERTIME TOTAL HOURLY RATE	DAILY OVERTIME HOURLY RATE FOOTNOTE	DAILY OVERTIME HOURLY RATE FOOTNOTE	SATURDAY OVERTIME HOURLY RATE FOOTNOTE	SUNDAY AND HOLIDAY OVERTIME HOURLY RATE FOOTNOTE	SCOPE OF WORK PROVISIONS	TRAVEL & SUBSISTENCE PROVISIONS
#BRICKLAYER:	MASON FINISHER		02/22/2022	03/31/2023	\$54,550	A	\$9,250	\$8,610	\$0,000	\$0,000		\$0,100	\$0,100	\$0,100	\$101,030	D	\$128,300	\$128,300	Holidays	Scope of Work	Travel & Substitution
#BRICKLAYER:	MASON FINISHER		02/22/2022	03/31/2023	\$41,760	A	\$9,250	\$8,610	\$0,000	\$0,000		\$0,100	\$0,100	\$0,100	\$81,710	D	\$102,990	\$102,990	Holidays	Scope of Work	Travel & Substitution
#BRICK TENDER		E	08/22/2022	08/30/2023	\$37,320		\$8,750	\$9,330	\$4,400	\$4,400		\$0,450	\$0,700	\$0,700	\$79,610	C	\$99,270	\$99,270	Holidays	Scope of Work	Travel & Substitution
#BRICK TENDER	FORKLIFT OPERATOR		08/22/2022	08/30/2023	\$37,770		\$8,750	\$9,330	\$4,400	\$4,400		\$0,450	\$0,700	\$0,700	\$80,290	C	\$99,170	\$99,170	Holidays	Scope of Work	Travel & Substitution
#DRYWALL FINISHER	RESILIENT TILE LAYER		02/22/2022	03/31/2023	\$36,770	H	\$4,100	\$11,220	\$2,050	\$2,050		\$0,920	\$0,850	\$0,850	\$74,300	J	\$92,680	\$92,680	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	INSIDE WIREMAN, TECHNICIAN		08/22/2022	08/31/2023	\$46,280	K	\$8,950	\$8,730	\$5,070	\$5,070		\$1,020	\$0,870	\$0,870	\$53,960	L	\$117,100	\$117,100	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	CABLE SPLICER		02/22/2022	08/04/2023	\$51,950		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$54,820	N	\$121,190	\$121,190	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	CABLE SPLICER FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$54,950		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$56,990	N	\$122,740	\$122,740	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	INSIDE WIREMAN FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$57,600		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$104,710	N	\$134,380	\$134,380	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	TUNNEL CABLE SPLICER		02/22/2022	08/04/2023	\$56,350		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$105,980	N	\$135,920	\$135,920	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	INSIDE WIREMAN, TECHNICIAN FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$54,200		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$99,460	N	\$127,370	\$127,370	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	CABLE SPLICER FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$54,950		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$100,620	N	\$128,920	\$128,920	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	INSIDE WIREMAN FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$60,600		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$109,350	N	\$140,560	\$140,560	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	TUNNEL CABLE SPLICER FOR ELECTRICAL PROJECTS OF MORE THAN \$500,000		02/22/2022	08/04/2023	\$61,350		\$7,160	\$7,450	\$0,000	\$0,000		\$0,240	\$0,870	\$0,870	\$110,510	N	\$142,100	\$142,100	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	SOUND AND SIGNAL TECHNICIAN		08/22/2022	08/31/2023	\$36,780		\$7,160	\$4,750	\$0,000	\$0,000		\$0,140	\$0,870	\$0,870	\$72,840	I	\$92,810	\$92,810	Holidays	Scope of Work	Travel & Substitution
#ELECTRICIAN:	STREET LIGHTING, SIGNAL, UNDERGROUND SYSTEMS JOURNEYMAN TECHNICIAN GRADE 1	E	08/22/2022	08/31/2023	\$36,670		\$6,200	\$1,500	\$0,000	\$0,000		\$0,170	\$0,250	\$0,250	\$67,870	O	\$87,780	\$87,780	Holidays	Scope of Work	Travel & Substitution
ELECTRICIAN:	TECH GRADE 2	E	08/22/2022	08/31/2023	\$30,100		\$6,200	\$1,500	\$0,000	\$0,000		\$0,170	\$0,250	\$0,250	\$54,620	O	\$70,130	\$70,130	Holidays	Scope of Work	Travel & Substitution
ELECTRICIAN:	TECH GRADE 3	E	08/22/2022	08/31/2023	\$27,350		\$6,200	\$1,500	\$0,000	\$0,000		\$0,170	\$0,250	\$0,250	\$50,380	O	\$64,460	\$64,460	Holidays	Scope of Work	Travel & Substitution
#FIELD SURVEYOR:	CHIEF OF PARTY (018,167-010)	E	02/22/2022	08/30/2023	\$59,510		\$12,350	\$13,150	\$5,070	\$5,070		\$0,150	\$1,150	\$1,150	\$121,140	S	\$150,890	\$150,890	Holidays	Scope of Work	Travel & Substitution
#FIELD SURVEYOR:	INSTRUMENTMAN (018,167-034)	E	02/22/2022	08/30/2023	\$54,860		\$12,350	\$13,150	\$4,800	\$4,800		\$0,150	\$1,150	\$1,150	\$113,990	S	\$141,420	\$141,420	Holidays	Scope of Work	Travel & Substitution
#FIELD SURVEYOR:	CHANNAN/RODMAN (869,567-010)	E	02/22/2022	08/30/2023	\$54,280		\$12,350	\$13,150	\$4,850	\$4,850		\$0,150	\$1,150	\$1,150	\$113,070	S	\$140,210	\$140,210	Holidays	Scope of Work	Travel & Substitution
#GLAZIER FINISHER	PAINTER, LEAD ABATEMENT		02/22/2022	08/30/2023	\$47,900	K	\$6,030	\$9,840	\$4,150	\$4,150		\$0,350	\$0,690	\$0,690	\$92,910	U	\$116,960	\$116,960	Holidays	Scope of Work	Travel & Substitution
#PAINTER:	INDUSTRIAL PAINTER	Y	02/22/2022	08/31/2023	\$36,600	H	\$9,000	\$4,270	\$0,000	\$0,000		\$0,410	\$0,880	\$0,880	\$72,460	V	\$91,760	\$91,760	Holidays	Scope of Work	Travel & Substitution
#PAINTER:	INDUSTRIAL PAINTER	Y	02/22/2022	08/30/2023	\$36,420	A	\$9,000	\$5,440	\$3,050	\$3,050		\$1,010	\$0,750	\$0,750	\$73,880	Z	\$92,090	\$92,090	Holidays	Scope of Work	Travel & Substitution
PAINTER:	GRAFFITI REMOVAL (APPLIES ONLY TO PAINT-OVER METHOD)	AA	02/22/2022	08/31/2024	\$25,000	H	\$6,500	\$1,000	\$0,000	\$0,000		\$0,000	\$0,750	\$0,750	\$47,750	AB	\$60,250	\$60,250	Holidays	Scope of Work	Travel & Substitution
PAINTER:	GRAFFITI REMOVAL (APPLIES ONLY TO PAINT-OVER METHOD)	AC	02/22/2022	08/31/2024	\$17,500	H	\$8,500	\$1,000	\$0,000	\$0,000		\$0,000	\$0,750	\$0,750	\$36,500	AB	\$46,250	\$46,250	Holidays	Scope of Work	Travel & Substitution
PAINTER:	WORKER 2 (APPLIES ONLY TO PAINT-OVER METHOD)	AD	02/22/2022	08/31/2024	\$19,370	H	\$8,500	\$1,000	\$0,000	\$0,000		\$0,000	\$0,750	\$0,750	\$37,810	AB	\$46,990	\$46,990	Holidays	Scope of Work	Travel & Substitution
#PLASTER TENDER	PLASTER CLEANUP LABORER	AAH	08/22/2022	08/31/2023	\$40,430		\$9,390	\$9,020	\$6,940	\$6,940		\$1,190	\$1,240	\$1,240	\$88,420	Z	\$108,630	\$108,630	Holidays	Scope of Work	Travel & Substitution
#PLASTER TENDER	INDUSTRIAL AND GENERAL PIPEFITTER		08/22/2022	08/07/2023	\$39,920		\$8,750	\$10,220	\$5,300	\$5,300		\$0,960	\$1,100	\$1,100	\$86,540	AA	\$109,270	\$109,270	Holidays	Scope of Work	Travel & Substitution
#PLUMBER:	SEWER AND STORM DRAIN PIPELAYER	AS	08/22/2022	08/31/2023	\$55,180	AL	\$9,260	\$14,200	\$0,000	\$0,000		\$1,400	\$2,800	\$2,800	\$109,510	AP	\$134,520	\$134,520	Holidays	Scope of Work	Travel & Substitution
PLUMBER:	SEWER AND STORM DRAIN PIPELAYER TRADESMAN	AS	08/22/2022	08/31/2023	\$20,880	AS	\$9,400	\$0,380	\$0,000	\$0,000		\$1,250	\$1,610	\$1,610	\$43,040	AQ	\$62,560	\$62,560	Holidays	Scope of Work	Travel & Substitution
#PLUMBER:	SERVICE & REPAIR (PLUMBER/HVAC-FITTER)		08/22/2022	08/31/2023	\$53,510	AL	\$9,260	\$13,890	\$0,000	\$0,000		\$1,400	\$2,130	\$2,130	\$106,020	AT	\$130,200	\$130,200	Holidays	Scope of Work	Travel & Substitution
#PLUMBER:	LANDSCAPE/IRRIGATION FITTER		08/22/2022	08/31/2023	\$39,200	H	\$9,260	\$14,200	\$0,000	\$0,000		\$1,200	\$2,190	\$2,190	\$94,150	AQ	\$101,870	\$101,870	Holidays	Scope of Work	Travel & Substitution

CRAFT	CLASSIFICATION	CRAFT FOOTNOTE	ISSUE DATE	EXPIRATION DATE	BASIC HOURLY RATE	BASIC HOURLY RATE FOOTNOTE	HEALTH AND WELFARE	HEALTH AND WELFARE FOOTNOTE	PENSION	PENSION FOOTNOTE	VACATION	VACATION HOLIDAY FOOTNOTE	VACATION HOLIDAY FOOTNOTE	TRAINING	TRAINING FOOTNOTE	OTHER PAYMENTS	OTHER PAYMENTS FOOTNOTE	HOURS	STRAIGHT TIME TOTAL HOURLY RATE	DAILY OVERTIME HOURLY RATE	DAILY OVERTIME HOURLY RATE FOOTNOTE	SATURDAY OVERTIME HOURLY RATE	SATURDAY OVERTIME HOURLY RATE FOOTNOTE	SUNDAY AND HOLIDAY OVERTIME HOURLY RATE	SUNDAY AND HOLIDAY OVERTIME HOURLY RATE FOOTNOTE	HOLIDAY PROVISIONS	SCOPE OF WORK PROVISIONS	TRAVEL & SUBSISTENCE PROVISIONS
PLUMBER:	LANDSCAPE/IRRIGATION TRADESMAN	AV	08/22/2023	08/31/2023	\$16.670	H	\$3,000	\$1,160	AM	\$0,000	\$0,000	\$0,100	\$0,100	\$21,930	\$30,270	\$30,270	\$30,270	8.0	AQ	\$30,270	\$30,270	\$30,270	\$30,270	\$30,270	\$30,270	Holidays	Scope of Work	Travel & Subsistence
PLUMBER:	FIRE SPRINKLER FITTER		02/22/2023	03/31/2023	\$15,500	A	\$8,770	\$11,060		\$0,000	\$0,000	\$0,450	\$0,450	\$53,780	\$43,530	AV	AV	8.0		\$43,530	\$43,530	\$43,530	\$43,530	\$43,530	AV	Holidays	Scope of Work	Travel & Subsistence
#ROOFER	PITCH WORK		02/22/2023	06/30/2023	\$39,800	AX	\$8,760	\$2,320		\$0,000	\$0,000	\$0,400	\$0,400	\$51,340	\$70,370	AV	AV	8.0		\$70,370	\$70,370	\$70,370	\$70,370	\$70,370	X	Holidays	Scope of Work	Travel & Subsistence
#SHEET METAL WORKER (HVAC)	SHEET METAL WORKER		02/22/2023	06/30/2023	\$41,300	AX	\$8,760	\$2,320		\$0,000	\$0,000	\$0,400	\$0,400	\$52,840	\$72,820	AV	AV	8.0		\$72,820	\$72,820	\$72,820	\$72,820	\$72,820	X	Holidays	Scope of Work	Travel & Subsistence
SHEET METAL WORKER (HVAC)	SHEET METAL WORKER	BD	08/22/2023	06/30/2023	\$45,660	A	\$10,950	\$18,170	BA	\$0,000	\$0,000	\$1,120	\$1,120	\$76,490	\$99,320	AP	BC	8.0	AQ	\$99,320	\$99,320	\$99,320	\$99,320	\$122,150	X	Holidays	Scope of Work	Travel & Subsistence
SHEET METAL WORKER (HVAC)	SHEET METAL WORKER	BE	08/22/2023	06/30/2023	\$34,300	A	\$7,510	\$1,250	BA	\$0,000	\$0,000	\$1,070	\$1,070	\$44,870	\$61,820	AP	BC	8.0	AQ	\$61,820	\$61,820	\$61,820	\$61,820	\$78,970	X	Holidays	Scope of Work	Travel & Subsistence
#TERRAZO FINISHER	UTILITY WORKER		08/22/2023	06/30/2023	\$19,500	K	\$7,110	\$0,000	BE	\$0,000	\$0,000	\$0,740	\$0,740	\$27,890	\$37,640	AP	BC	8.0	AQ	\$37,640	\$37,640	\$37,640	\$37,640	\$47,390	X	Holidays	Scope of Work	Travel & Subsistence
#TERRAZO WORKER	UTILITY WORKER		02/22/2023	08/31/2023	\$36,370	K	\$9,000	\$4,350		\$0,000	\$0,000	\$0,780	\$0,780	\$52,790	\$71,980	V		8.0	AQ	\$71,980	\$71,980	\$71,980	\$71,980	\$91,160	X	Holidays	Scope of Work	Travel & Subsistence
#FINISHER	UTILITY WORKER		02/22/2023	03/31/2023	\$46,490	K	\$9,000	\$4,610		\$0,000	\$0,000	\$1,050	\$1,050	\$61,500	\$84,750	V		8.0	AQ	\$84,750	\$84,750	\$84,750	\$84,750	\$107,890	X	Holidays	Scope of Work	Travel & Subsistence
#FILE	UTILITY WORKER		02/22/2023	03/31/2023	\$33,170	H	\$9,000	\$2,750		\$0,000	\$0,000	\$0,810	\$0,810	\$46,100	\$62,690	V		8.0	AQ	\$62,690	\$62,690	\$62,690	\$62,690	\$78,270	X	Holidays	Scope of Work	Travel & Subsistence
#TILE LAYER	UTILITY WORKER		02/22/2023	03/31/2023	\$46,030	H	\$9,000	\$8,350		\$0,000	\$0,000	\$1,000	\$1,000	\$64,850	\$87,870	V		8.0	AQ	\$87,870	\$87,870	\$87,870	\$87,870	\$110,980	X	Holidays	Scope of Work	Travel & Subsistence

Go to [Increase Data](#)

FOOTNOTES

- * EFFECTIVE UNTIL SUPERSEDED BY A NEW DETERMINATION ISSUED BY THE DIRECTOR OF INDUSTRIAL RELATIONS. CONTACT THE OFFICE OF THE DIRECTOR - RESEARCH UNIT AT (415) 703-4774 FOR THE NEW RATES AFTER TEN DAYS AFTER THE EXPIRATION DATE IF NO SUBSEQUENT DETERMINATION IS ISSUED.
- # THE RATE TO BE PAID FOR WORK PERFORMED AFTER THIS DATE HAS BEEN DETERMINED. IF WORK WILL EXTEND PAST THIS DATE, THE NEW RATE MUST BE PAID AND SHOULD BE INCORPORATED IN CONTRACTS ENTERED INTO NOW. CONTACT THE OFFICE OF THE DIRECTOR RESEARCH UNIT FOR SPECIFIC RATES AT (415) 703-4774.
- ** INDICATES AN APPRENTICEABLE CRAFT. THE CURRENT APPRENTICE WAGE RATES ARE AVAILABLE ON THE INTERNET @ [HTTP://WWW.DIR.CA.GOV/DIR/PWPPAGE/PWPPAGESTART.ASP](http://www.dir.ca.gov/DIR/PWPPAGE/PWPPAGESTART.ASP).
- & THE BASIC HOURLY RATE AND EMPLOYER PAYMENTS ARE NOT TAKEN FROM A COLLECTIVE BARGAINING AGREEMENT FOR THIS CRAFT OR CLASSIFICATION.
- A INCLUDES AMOUNT WITHHELD FOR WORKING DUES.
- B INCLUDES AN AMOUNT FOR INTERNATIONAL MASONRY INSTITUTE PROMOTION FUND
- C SATURDAYS IN THE SAME WORK WEEK MAY BE WORKED AT STRAIGHT-TIME IF JOB IS SHUT DOWN DURING THE NORMAL WORK WEEK DUE TO INCLEMENT WEATHER, OR REASONS BEYOND THE CONTROL OF THE EMPLOYER.
- D RATE APPLIES TO THE FIRST 2 DAILY AND THE FIRST 8 SATURDAY OVERTIME HOURS WORKED. ALL OTHER OVERTIME IS PAID AT THE SUNDAY RATE.
- E THE RATIO OF BRICK TENDERS TO BRICKLAYERS SHALL BE AS FOLLOWS: ONE (1) BRICK TENDER TO NO MORE THAN THREE (3) BRICKLAYERS DURING THE INSTALLATION OF BLOCK ON A TYPICAL MASONRY PROJECT.
- F INCLUDES AN AMOUNT PER HOUR WORKED FOR SUPPLEMENTAL DUES.
- G INCLUDES AN AMOUNT PER HOUR WORKED FOR ANNUITY TRUST FUND.
- H INCLUDES AMOUNT WITHHELD FOR ADMINISTRATIVE DUES.
- I RATE APPLIES TO FIRST 4 DAILY OVERTIME HOURS; ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY RATE.
- J RATE APPLIES TO FIRST 8 HOURS. DOUBLE TIME THEREAFTER.
- K INCLUDES AMOUNT WITHHELD FOR DUES CHECK OFF.
- L RATE APPLIES TO FIRST 8 HOURS ONLY. DOUBLE TIME THEREAFTER. SATURDAYS IN THE SAME WORK WEEK MAY BE WORKED AT STRAIGHT-TIME IF JOB IS SHUT DOWN DURING THE NORMAL WORK WEEK DUE TO INCLEMENT WEATHER.
- M IN ADDITION, AN AMOUNT EQUAL TO 3% OF THE BASIC HOURLY RATE IS ADDED TO THE TOTAL HOURLY RATE AND OVERTIME HOURLY RATES FOR THE NATIONAL EMPLOYEES BENEFIT BOARD. PURSUANT TO LABOR CODE SECTIONS 1773.1 AND 1773.8, THE AMOUNT PAID FOR THIS EMPLOYER PAYMENT MAY VARY RESULTING IN A LOWER TAXABLE BASIC HOURLY WAGE RATE, BUT THE TOTAL HOURLY RATES FOR STRAIGHT TIME AND OVERTIME MAY NOT BE LESS THAN THE GENERAL PREVAILING RATE OF PER DIEM WAGES.
- N RATE APPLIES TO THE FIRST 4 OVERTIME HOURS MONDAY THROUGH FRIDAY AND THE FIRST 8 HOURS WORKED ON SATURDAY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME RATE.
- O APPLIES TO THE FIRST 8 HOURS. ALL OTHER TIME WILL BE PAID AT DOUBLE THE STRAIGHT-TIME RATE. IF THE WORK WEEK IS TUESDAY THROUGH SATURDAY, THE SATURDAY FOLLOWING A RECOGNIZED HOLIDAY WHICH FALLS ON MONDAY, SHALL BE PAID AT 1 1/2 STRAIGHT-TIME HOURLY RATE.
- P THE FIRST WORKER ON THE SITE MUST BE A JOURNEYMAN TECHNICIAN GRADE #1 OR #2 OR ANY HIGHER PAID JOURNEYMAN CLASSIFICATION, SUCH AS JOURNEYMAN INSIDE WIREMAN; THEREAFTER THE CONTRACTOR MAY EMPLOY FIVE (5) JOURNEYMAN TECHNICIANS.
- Q RATE APPLIES TO THE FIRST 4 DAILY OVERTIME HOURS AND THE FIRST 8 HOURS WORKED ON SATURDAY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME RATE.
- R DICTIONARY OF OCCUPATIONAL TITLES, FOURTH EDITION, 1977, U.S. DEPARTMENT OF LABOR.
- S RATE APPLIES TO THE FIRST 4 DAILY OVERTIME HOURS AND THE FIRST 12 HOURS WORKED ON SATURDAY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME HOURLY RATE.
- T IN THE EVENT CONDITIONS OR CIRCUMSTANCES WHICH ARE BEYOND THE CONTROL OF THE EMPLOYER, PREVENTS EMPLOYEES FROM WORKING ON ANY ONE OF THE REGULAR MONDAY THROUGH FRIDAY WORK DAYS, THEN SATURDAY MAY BE SCHEDULED AS A MAKE-UP DAY AT THE EMPLOYEES REGULAR STRAIGHT TIME RATE.
- U RATE APPLIES TO THE FIRST 2 DAILY OVERTIME HOURS AND THE FIRST 8 HOURS ON SATURDAY ONLY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME HOURLY RATE.
- V RATE APPLIES TO FIRST TWO DAILY OVERTIME HOURS WORKED. ALL OTHER OVERTIME IS PAID AT THE HOLIDAY OVERTIME HOURLY RATE.
- W RATE APPLIES TO THE FIRST 8 HOURS WORKED ON A SIXTH OR SEVENTH CONSECUTIVE DAY DURING ANY ONE CALENDAR WEEK UP TO 50 HOURS IN ANY ONE CALENDAR WEEK. ALL HOURS IN EXCESS OF 10 HOURS DAILY OR 50 HOURS WEEKLY ARE PAID AT THE HOLIDAY RATE. SATURDAYS IN THE SAME WORK WEEK MAY BE WORKED AT STRAIGHT-TIME IF JOB IS SHUT DOWN DURING THE NORMAL WORK WEEK DUE TO INCLEMENT WEATHER.
- X RATE APPLIES TO WORK ON HOLIDAYS ONLY. SUNDAYS ARE PAID AT THE SATURDAY OVERTIME HOURLY RATE.
- Y AN ADDITIONAL \$0.25 PER HOUR WILL BE ADDED TO THE BASIC HOURLY RATE WHEN PERFORMING PAPERHANGING WORK.
- Z DOUBLE TIME SHALL BE PAID FOR ALL HOURS WORKED OVER 12 HOURS IN ANY ONE DAY.
- AA RATE APPLIES AFTER 38 MONTHS OF EXPERIENCE
- AB RATE APPLIES TO THE FIRST 12 HOURS ON SATURDAY. ALL OTHER TIME IS PAID AT DOUBLE TIME.
- AC RATE APPLIES TO FIRST 12 MONTHS OF EXPERIENCE
- AD RATE APPLIES AFTER 12 MONTHS THROUGH 36 MONTHS EXPERIENCE
- AE INCLUDES AN AMOUNT PER HOUR WORKED OR PAID FOR DUES CHECK OFF
- AF SATURDAY IN THE SAME WORK WEEK MAY BE WORKED AT THE STRAIGHT-TIME HOURLY RATE IF IT IS NOT POSSIBLE TO COMPLETE FORTY HOURS OF WORK MONDAY THROUGH FRIDAY WHEN THE JOB IS SHUT DOWN DUE TO INCLEMENT WEATHER OR SIMILAR ACT OF GOD, OR BEYOND THE CONTRACTORS CONTROL.
- AG RATE APPLIES TO THE FIRST 8 HOURS WORKED. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME HOURLY RATE.
- AH THE RATIO OF PLASTER TENDERS TO PLASTERERS SHALL BE AS FOLLOWS. THERE SHALL BE 1 PLASTER TENDER ON THE JOBSITE WHENEVER THERE IS A PLASTERER PERFORMING WORK. FOR INSIDE BROWN COATINGS THERE SHALL BE 2 PLASTER TENDERS FOR UP TO EVERY 3 PLASTERERS. FOR INSIDE FINISH COATINGS THERE SHALL BE 1 PLASTER TENDER FOR UP TO EVERY 2 PLASTERERS.
- AI INCLUDES AN AMOUNT PER HOUR WORKED OR PAID FOR SUPPLEMENTAL DUES.

- AJ ALL WORK PERFORMED AFTER TWELVE (12) HOURS IN A DAY SHALL BE PAID AT THE SUNDAY/HOLIDAY RATE.
- AK RATE APPLIES TO THE FIRST EIGHT HOURS ON SATURDAY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME RATE. SATURDAY WORK MAY BE PAID AT THE STRAIGHT-TIME RATE IF THE JOB IS SHUT DOWN DURING THE NORMAL WORK WEEK DUE TO INCLEMENT WEATHER.
- AL INCLUDES AN AMOUNT WITHHELD FOR ADMINISTRATIVE DUES WHICH IS NOT FACTORED INTO OVERTIME AND AN AMOUNT FOR VACATION WHICH IS FACTORED AT 1.5 TIMES FOR ALL OVERTIME.
- AM INCLUDES AMOUNT FOR NATIONAL PENSION AND RETIREE'S X-MAS FUND.
- AN AMOUNT INCLUDED IN BASIC HOURLY RATE AND FACTORED AT 1.5 TIMES FOR ALL OVERTIME.
- AO INCLUDES AN AMOUNT FOR THE P.I.P.E. LABOR MANAGEMENT COOPERATION COMMITTEE AND THE CONTRACTOR EDUCATION & DEVELOPMENT FUND.
- AP RATE APPLIES TO THE FIRST 2 DAILY OVERTIME HOURS AND THE FIRST 10 HOURS ON SATURDAY. ALL OTHER TIME IS PAID AT THE SUNDAY AND HOLIDAY OVERTIME HOURLY RATE.
- AQ SATURDAYS IN THE SAME WORK WEEK MAY BE WORKED AT STRAIGHT-TIME IF JOB IS SHUT DOWN DURING THE NORMAL WORK WEEK DUE TO INCLEMENT WEATHER.
- AR PIPE TRADESMEN SHALL NOT BE PERMITTED ON ANY JOB WITHOUT A JOURNEYMAN.
- AS INCLUDES AN AMOUNT WITHHELD FOR ADMINISTRATIVE DUES WHICH IS NOT FACTORED IN THE OVERTIME RATES.
- AT SATURDAY MAY BE WORKED AT STRAIGHT-TIME RATE, PROVIDED THAT THE HOURS DO NOT EXCEED 8 HOURS PER DAY OR 40 HOURS PER WEEK.
- AU DOUBLE TIME SHALL BE PAID FOR NEW YEAR'S DAY, EASTER SUNDAY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS.
- AV TRADESMEN SHALL ONLY BE USED IF THE FIRST WORKER ON THE JOB IS A LANDSCAPE/IRRIGATION FITTER. SECOND WORKER MUST BE A LANDSCAPE/IRRIGATION FITTER. THE 3RD AND 4TH MAY BE A TRADESMAN. THE 5TH MUST BE A LANDSCAPE/IRRIGATION FITTER AND THEREAFTER TRADESMEN WILL BE REFERRED ON A 35/50 BASIS, TO JOURNEYMAN OR APPRENTICE.
- AW RATE APPLIES TO ALL TIME WORKED IN EXCESS OF 8 HOURS PER DAY OR 40 HOURS PER WEEK.
- AX INCLUDES AMOUNT FOR WORK ASSESSMENT DUES THAT IS NOT FACTORED INTO OVERTIME.
- AY RATE APPLIES TO ALL HOURS WORKED ON SATURDAY AND SUNDAY. HOWEVER, IF THE EMPLOYEE DID NOT COMPLETE FORTY (40) HOURS MONDAY THROUGH FRIDAY UP TO EIGHT (8) HOURS CAN BE WORKED AT THE STRAIGHT-TIME HOURLY RATE ON SATURDAY.
- AZ INCLUDES AN AMOUNT FOR THE SHEET METAL OCCUPATIONAL HEALTH INSTITUTE TRUST.
- BA INCLUDES AMOUNT FOR 401(A) PLAN, PURSUANT TO LABOR CODE SECTIONS 1773.1 AND 1773.8. THE AMOUNT PAID FOR THIS EMPLOYER PAYMENT MAY VARY RESULTING IN A LOWER TAXABLE BASIC HOURLY WAGE RATE. BUT THE TOTAL HOURLY RATES FOR STRAIGHT TIME AND OVERTIME MAY NOT BE LESS THAN THE GENERAL PREVAILING RATE OF PER DIEM WAGES.
- BB INCLUDES AN AMOUNT FOR INTERNATIONAL TRAINING INSTITUTE.
- BC INCLUDES AMOUNTS FOR NATIONAL ENERGY MANAGEMENT INSTITUTE (NEMI) FUND, SHEET METAL WORKERS' INTERNATIONAL SCHOLARSHIP FUND (SIWWSF) AND INDUSTRY FUND.
- BD ONE TECHNICIAN MAY BE EMPLOYED ON EACH JOB SITE. IN ADDITION, ONE (1) TECHNICIAN MAY BE EMPLOYED FOR EACH THREE (3) BUILDING TRADES JOURNEYMAN, OR PORTION THEREOF, EMPLOYED ON THE SITE.
- BE THE EMPLOYER MAY EMPLOY ONE UTILITY WORKER, PLUS ONE FOR EACH FIVE(5) BUILDING JOURNEYMAN OR PORTION THEREOF.
- BF PURSUANT TO LABOR CODE SECTIONS 1773.1 AND 1773.8, THE AMOUNT PAID FOR THIS EMPLOYER PAYMENT MAY VARY RESULTING IN A LOWER TAXABLE BASIC HOURLY WAGE RATE. BUT THE TOTAL HOURLY RATES FOR STRAIGHT TIME AND OVERTIME MAY NOT BE LESS THAN THE GENERAL PREVAILING RATE OF PER DIEM WAGES.
- BG INCLUDED IN STRAIGHT-TIME HOURLY RATE.
- BH RATE APPLIES TO THE FIRST 8 HOURS WORKED ON A SIXTH OR SEVENTH CONSECUTIVE DAY DURING ANY ONE CALENDAR WEEK UP TO 59 HOURS IN ANY ONE CALENDAR WEEK. ALL OTHER TIME IS PAID AT THE HOLIDAY RATE.

RECOGNIZED HOLIDAYS: HOLIDAYS UPON WHICH THE GENERAL PREVAILING HOURLY WAGE RATE FOR HOLIDAY WORK SHALL BE PAID, SHALL BE ALL HOLIDAYS IN THE COLLECTIVE BARGAINING AGREEMENT APPLICABLE TO THE PARTICULAR CRAFT, CLASSIFICATION, OR TYPE OF WORKER EMPLOYED ON THE PROJECT, WHICH IS ON FILE WITH THE CALIFORNIA INDUSTRIAL UNION OF MARINE AND SHIPBUILDERS (CIUMS) AND THE NATIONAL UNION OF STEEL AND ALUMINUM WORKERS (NLSA). THE GENERAL PREVAILING HOURLY WAGE RATE IS NOT BASED ON A CALENDAR YEAR. THE GENERAL PREVAILING HOURLY WAGE RATE IS BASED ON THE GENERAL PREVAILING HOURLY WAGE RATE FOR THE CURRENT YEAR. THE GENERAL PREVAILING HOURLY WAGE RATE IS BASED ON THE GENERAL PREVAILING HOURLY WAGE RATE FOR THE CURRENT YEAR. YOU MAY OBTAIN THE HOLIDAY PROVISIONS FOR THE CURRENT DETERMINATIONS ON THE INTERNET AT [HTTP://WWW.DIR.CA.GOV/OPRLDPrw/aggdetermination.htm](http://www.dir.ca.gov/OPRLDPrw/aggdetermination.htm). HOLIDAY PROVISIONS FOR THE CURRENT SUPERSEDED DETERMINATIONS MAY BE OBTAINED BY CONTACTING THE OFFICE OF THE DIRECTOR - RESEARCH UNIT AT (415) 763-4774.

TRAVEL AND/OR SUBSISTENCE: IN ACCORDANCE WITH LABOR CODE SECTIONS 1773.1 AND 1773.9, CONTRACTORS SHALL MAKE TRAVEL AND/OR SUBSISTENCE PAYMENTS TO EACH WORKER TO EXECUTE THE WORK. YOU MAY OBTAIN THE TRAVEL AND/OR SUBSISTENCE PROVISIONS FOR THE CURRENT DETERMINATIONS ON THE INTERNET AT [HTTP://WWW.DIR.CA.GOV/OPRLDPrw/aggdetermination.htm](http://www.dir.ca.gov/OPRLDPrw/aggdetermination.htm). TRAVEL AND/OR SUBSISTENCE REQUIREMENTS FOR CURRENT OR SUPERSEDED DETERMINATIONS MAY BE OBTAINED BY CONTACTING THE OFFICE OF THE DIRECTOR - RESEARCH UNIT AT (415) 763-4774.

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GENERAL PREVAILING WAGE APPRENTICE RATES

Apprentice Prevailing Wage Rates are paid only to apprentices registered with the State of California, Division of Apprenticeship Standards, for work the registered apprentice performs in his/her specific craft or trade. You may check whether an Apprentice is registered at the [Division of Apprenticeship Standards Website](https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp) (https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp)

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Building Construction Inspector

Indentured/Other: Field Soils Material Tester

Shift: 1

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$33.880	\$12.350	\$3.500	\$3.850	\$1.050	\$3.90	\$55.020
2	N/A	1,000	\$36.700	\$12.350	\$3.500	\$3.850	\$1.050	\$3.90	\$57.840
3	N/A	1,000	\$39.520	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$70.310
4	N/A	1,000	\$42.350	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$73.140
5	N/A	1,000	\$45.170	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$75.960
6	N/A	1,000	\$50.810	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$81.600

FOOTNOTE(S)

Pension: Includes an amount for Annuity

Vacation and Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund and Southern California Partnership for Jobs Fund.

**JOURNEYMAN PREDETERMINED INCREASES:

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Building Construction Inspector

Indentured/Other: FSMT Special Shift

Shift: 2

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$34.880	\$12.350	\$3.500	\$3.850	\$1.050	\$3.90	\$56.020
2	N/A	1,000	\$37.700	\$12.350	\$3.500	\$3.850	\$1.050	\$3.90	\$58.840
3	N/A	1,000	\$40.520	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$71.310
4	N/A	1,000	\$43.350	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$74.140
5	N/A	1,000	\$46.170	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$76.960
6	N/A	1,000	\$51.810	\$12.350	\$13.150	\$3.850	\$1.050	\$3.90	\$82.600

FOOTNOTE(S)

Rates above are for Special Shift.

Pension: Includes an amount for Annuity

Vacation and Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund and Southern California Partnership for Jobs Fund.

****JOURNEYMAN PREDETERMINED INCREASES:**

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
Office of the Director - Research Unit
P.O. Box 420603
San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Building Construction Inspector

Indentured/Other: FSMT Multi Shift

Shift: 3

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$34.880	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$56.020
2	N/A	1,000	\$37.700	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$58.840
3	N/A	1,000	\$40.520	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$71.310
4	N/A	1,000	\$43.350	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$74.140
5	N/A	1,000	\$46.170	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$76.960
6	N/A	1,000	\$51.810	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$82.600

FOOTNOTE(S)

Rates above are for Multi-Shift.

Pension: Includes an amount for Annuity

Vacation and Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund and Southern California Partnership for Jobs Fund.

****JOURNEYMAN PREDETERMINED INCREASES:**

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
Office of the Director - Research Unit
P.O. Box 420603
San Francisco, CA 94142-0603

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

Craft: Carpenter and Related Trades*

Determination:

SC-23-31-2-2022-2

Issue Date:

August 22, 2022

Expiration date of determination:

June 30, 2023**. The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura counties.

Wages and Employer Payments:

Classification (Journey person)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other ^b	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^c	Saturday Overtime Hourly Rate (1 ½ X) ^d	Sunday/ Holiday Overtime Hourly Rate (2 X)
Carpenter ^{e,f} , Cabinet Installer, Insulation Installer, Hardwood Floor Worker, Acoustical Installer	\$47.24	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.32	\$94.94	\$94.94	\$118.56
Pile Driverman ^g , Derrick Bargeman, Rockslinger, Bridge or Dock Carpenter, Cable Splicer	\$47.37	\$8.00	\$5.66	\$7.31	\$0.62	\$2.49	8.0	\$71.45	\$95.135	\$95.135	\$118.82
Bridge Carpenter ^e	\$47.37	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.45	\$95.135	\$95.135	\$118.82
Shingler ^e	\$47.37	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.45	\$95.135	\$95.135	\$118.82
Saw Filer	\$38.44	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$62.52	\$81.74	\$81.74	\$100.96
Table Power Saw Operator	\$47.33	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.41	\$95.075	\$95.075	\$118.74
Pneumatic Nailor or Power Stapler	\$47.34	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.42	\$95.09	\$95.09	\$118.76

Classification (Journeyperson)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other ^b	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^c	Saturday Overtime Hourly Rate (1 ½ X) ^d	Sunday/ Holiday Overtime Hourly Rate (2 X)
Roof Loader of Shingles	\$33.16	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$57.24	\$73.82	\$73.82	\$90.40
Scaffold Builder	\$38.44	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$62.52	\$81.74	\$81.74	\$100.96
Millwright ^e	\$47.74	\$8.00	\$5.66	\$7.31	\$0.67	\$2.64	8.0	\$72.02	\$95.89	\$95.89	\$119.76
Head Rockslinger	\$47.47	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.55	\$95.285	\$95.285	\$119.02
Rock Bargeman or Scowman	\$47.27	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.35	\$94.985	\$94.985	\$118.62
Diver, Wet (Up To 50 Ft. Depth) ^h	\$102.74 ⁱ	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$126.82	\$178.19	\$178.19	\$229.56
Diver, (Stand-By) ^h	\$51.37 ⁱ	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$75.45	\$101.135	\$101.135	\$126.82
Diver's Tender ^h	\$50.37	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$74.45	\$99.635	\$99.635	\$124.82
Assistant Tender (Diver's) ^h	\$47.37	\$8.00	\$5.66	\$7.31	\$0.67	\$2.44	8.0	\$71.45	\$95.135	\$95.135	\$118.82

Determination:
SC-31-741-1-2022-1

Issue Date:
August 22, 2022

Expiration date of determination:

May 31, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Wages and Employer Payments:

Classification (Journeyperson)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X)	Saturday Overtime Hourly Rate (1 ½ X) ^j	Holiday Overtime Hourly Rate (2 X)
Terrazzo Installer	\$42.86	\$8.00	\$5.66	\$4.62	\$0.57	8.0	\$61.71	\$83.14	\$83.14	\$104.57
Terrazzo Finisher	\$36.36	\$8.00	\$5.66	\$4.62	\$0.57	8.0	\$55.21	\$73.39	\$73.39	\$91.57

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

- # Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWageStart.asp>).
- a Includes an amount for supplemental dues.
- b Includes an amount for Annuity.
- c All overtime worked Mon - Fri shall be paid at 1 1/2 times the straight time rate for the first four (4) hours and double (2x) the straight time for work performed after twelve (12) hours.
- d First eight (8) hours worked paid at 1 1/2 times the straight time rate, all hours after that paid at double (2x) the straight time rate. Saturdays in the same work week may be worked at straight-time rates if a job is shut down during the normal work week due to inclement weather, major mechanical breakdown or lack of materials beyond the control of the Employer.
- e When performing welding work requiring certification, classification will receive an additional \$1.00 per hour.
- f A Carpenter who performs work of forming in the construction of open cut sewers or storm drains shall receive a premium of thirteen cents (\$0.13) per hour in addition to his Carpenter's scale. This premium shall apply only on an operation in which horizontal lagging is used in conjunction with Steel H-Beams driven or placed in pre-drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms, which work is performed by pile drivers.
- g When performing welding work requiring certification, classification will receive an additional \$1.00 per hour. An additional \$0.50 per hour when handling or working with new pressure-treated creosote piling or timber, or driving of used pressure-treated creosote piling.
- h Shall receive a minimum of 8 hours pay for any day or part thereof.
- i For specific rates over 50 ft depth, contact the Office of the Director – Research Unit. Rates for Technicians, Manifold Operators, Pressurized Submersible Operators, Remote Control Vehicle Operators, and Remote Operated Vehicle Operators, as well as rates for Pressurized Bell Diving and Saturation Diving are available upon request.
- j Saturdays in the same work week may be worked at straight-time rates if a job is shut down during the normal work week due to inclement weather, major mechanical breakdown or lack of materials beyond the control of the Employer. Work on Sunday, if it is the 7th consecutive workday, shall be paid at double (2x) the straight-time rate.

GENERAL PREVAILING WAGE APPRENTICE RATES

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Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Carpenter

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$19.500	\$4.000	\$0.000	\$8.310	\$670	\$440	\$32.920
2	N/A	600	\$23.620	\$4.000	\$0.000	\$8.310	\$670	\$440	\$37.040
3	N/A	600	\$28.340	\$8.000	\$0.000	\$8.310	\$670	\$1.440	\$46.760
4	N/A	600	\$30.710	\$8.000	\$1.750	\$7.310	\$670	\$2.440	\$50.880
5	N/A	600	\$33.070	\$8.000	\$2.750	\$7.310	\$670	\$2.440	\$54.240
6	N/A	600	\$35.430	\$8.000	\$2.750	\$7.310	\$670	\$2.440	\$56.600
7	N/A	600	\$37.790	\$8.000	\$3.750	\$7.310	\$670	\$2.440	\$59.960
8	N/A	600	\$42.520	\$8.000	\$3.750	\$7.310	\$670	\$2.440	\$64.690

FOOTNOTE(S)

Indentured on/after July 1, 2018.

Vacation--Includes an amount for Supplemental Dues.

Other--Includes an amount for Contract Administration, Cooperation Committee, Industry Advancement, & Cooperation Committee/Partnership for Jobs. For periods 4-8, includes an amount for Annuity.

** Journeyman Predetermined Increases

Effective July 1, 2023: \$3.25 to be allocated to wages and/or employer payments

Effective July 1, 2024: \$3.25 to be allocated to wages and/or employer payments

Effective July 1, 2025: \$3.50 to be allocated to wages and/or employer payments

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please send a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Carpenter

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$19.500	\$8.000	\$0.000	\$8.310	\$670	\$440	\$36.920
2	N/A	600	\$23.620	\$8.000	\$0.000	\$8.310	\$670	\$440	\$41.040
3	N/A	600	\$28.340	\$8.000	\$0.000	\$8.310	\$670	\$1.440	\$46.760
4	N/A	600	\$30.710	\$8.000	\$5.660	\$7.310	\$670	\$2.440	\$54.790
5	N/A	600	\$33.070	\$8.000	\$5.660	\$7.310	\$670	\$2.440	\$57.150
6	N/A	600	\$35.430	\$8.000	\$5.660	\$7.310	\$670	\$2.440	\$59.510
7	N/A	600	\$37.790	\$8.000	\$5.660	\$7.310	\$670	\$2.440	\$61.870
8	N/A	600	\$42.520	\$8.000	\$5.660	\$7.310	\$670	\$2.440	\$66.600

FOOTNOTE(S)

Indentured prior to July 1, 2018.

Vacation--Includes an amount for Supplemental Dues.

Other--Includes an amount for Contract Administration, Cooperation Committee, Industry Advancement, & Cooperation Committee/Partnership for Jobs. For periods 4-8, includes an amount for Annuity.

** Journeyman Predetermined Increases

Effective July 1, 2023: \$3.25 to be allocated to wages and/or employer payments

Effective July 1, 2024: \$3.25 to be allocated to wages and/or employer payments

Effective July 1, 2025: \$3.50 to be allocated to wages and/or employer payments

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please send a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

GENERAL PREVAILING WAGE APPRENTICE RATES

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Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Cement Mason

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$21.000	\$8.430	\$0.000	\$2.410	\$640	\$240	\$32.720
2	6	N/A	\$23.100	\$8.430	\$0.000	\$2.410	\$640	\$240	\$34.820
3	6	N/A	\$25.200	\$8.430	\$0.000	\$2.410	\$640	\$240	\$36.920
4	6	N/A	\$27.300	\$8.430	\$0.000	\$7.310	\$640	\$240	\$43.920
5	6	N/A	\$29.400	\$8.430	\$10.480	\$7.310	\$640	\$240	\$56.500
6	6	N/A	\$31.500	\$8.430	\$10.480	\$7.310	\$640	\$240	\$58.600
7	6	N/A	\$33.600	\$8.430	\$10.480	\$7.310	\$640	\$240	\$60.700
8	6	N/A	\$37.800	\$8.430	\$10.480	\$7.310	\$640	\$240	\$64.900

FOOTNOTE(S)

Vacation - includes an amount for supplemental dues.

Other - includes amounts for Industry Advancement, Contract Administration, and Labor-Management Cooperation Committee Trust.

**Journeyman Predetermined Increases

Effective 7/1/2023 - an increase of \$2.25 to be allocated: \$0.15 to Pension, and \$2.10 to wages and/or fringes.

Effective 7/1/2024 - an increase of \$2.15 to be allocated: \$0.15 to Pension, and \$2.00 to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please email a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

Craft: Cement Mason*

Determination:
SC-23-203-2-2022-1

Issue Date:
August 22, 2022

Expiration date of determination:
June 30, 2023**. The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:
All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura Counties.

Wages and Employer Payments:

Classification (Journeyperson)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^b	Saturday Overtime Hourly Rate (1 ½ X) ^b _c	Sunday/ Holiday Overtime Hourly Rate (2 X)
Cement Mason, Curb and Gutter Machine Operator; Clary and Similar Type of Screenshot Operator (Cement only); Grinding Machine Operator (all types); Jackson Vibratory, Texas Screed and Similar Type Screenshot Operator; Scoring Machine Operator	\$42.00	\$8.43	\$10.48	\$7.31	\$0.64	\$0.24	8.0	\$69.10	\$90.10	\$90.10	\$111.10
Magnesite, magnesite-terrazzo and mastic composition, Epoxy, Urethanes and exotic coatings, Dex-O-Tex	\$42.12	\$8.43	\$10.48	\$7.31	\$0.64	\$0.24	8.0	\$69.22	\$90.28	\$90.28	\$111.34

Classification (Journeyperson)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^b	Saturday Overtime Hourly Rate (1 ½ X) ^b _c	Sunday/ Holiday Overtime Hourly Rate (2 X)
Floating and Troweling Machine Operator	\$42.25	\$8.43	\$10.48	\$7.31	\$0.64	\$0.24	8.0	\$69.35	\$90.475	\$90.475	\$111.60

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWageStart.asp>).

^a Includes an amount for supplemental dues.

^b Rate applies to the first 4 daily overtime hours and the first 12 hours worked on Saturday. All other time is paid at the double time (2X) rate.

^c Saturday in the same work week may be worked at straight-time rate, up to 8 hours on Saturday or when the employee has worked a total of 40 hours in the work week, if it is not reasonably possible for any individual employee on a particular job site to complete 40 hours of work on a 8 hour day, Monday through Friday, due to inclement weather or similar act of God or a situation beyond the control of the contractor.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

Craft: Horizontal Directional Drilling (Laborer)#

Determination:

SC-102-1184-1-2022-1

Issue Date:

August 22, 2022

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and Employer Payments:

Classification (Journey person)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X)	Saturday Overtime Hourly Rate (1 ½ X) ^b	Sunday/ Holiday Overtime Hourly Rate (2 X)
									\$81.945	\$82.200	\$81.945
Group 1 (Drilling Crew Laborer)	\$40.69	\$8.75	\$7.17	\$3.55	\$0.40	\$1.04	8.0	\$61.60	\$81.945	\$81.945	\$102.290
Group 2 (Vehicle Operator/ Hauler)	\$40.86	\$8.75	\$7.17	\$3.55	\$0.40	\$1.04	8.0	\$61.77	\$82.200	\$82.200	\$102.630
Group 3 (Horizontal Directional Drill Operator)	\$42.71	\$8.75	\$7.17	\$3.55	\$0.40	\$1.04	8.0	\$63.62	\$84.975	\$84.975	\$106.330
Group 4 (Electronic Tracking Locator, Subsurface Imaging Laborer)	\$44.71	\$8.75	\$7.17	\$3.55	\$0.40	\$1.04	8.0	\$65.62	\$87.975	\$87.975	\$110.330

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the

[Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>).

^a Includes an amount for Supplemental Dues.

^b In the event, due to inclement weather, major equipment breakdown, or similar Act of God, it is not reasonably possible to complete forty (40) hours of work Monday through Friday, then the balance of the forty (40) hours may be worked on Saturday at the straight-time rate.

GENERAL PREVAILING WAGE APPRENTICE RATES

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Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Horizontal Directional Drilling (Laborer)

Indentured/Other: Horizontal Directional Drill

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	500	\$21.120	\$6.130	\$3.560	\$3.510	\$700	\$670	\$35.690
2	N/A	500	\$23.230	\$6.130	\$3.560	\$3.510	\$700	\$670	\$37.800
3	N/A	500	\$25.340	\$6.130	\$3.560	\$3.510	\$700	\$670	\$39.910
4	N/A	500	\$29.560	\$6.130	\$3.560	\$3.510	\$700	\$670	\$44.130
5	N/A	500	\$33.780	\$6.130	\$3.560	\$3.510	\$700	\$670	\$48.350
6	N/A	500	\$35.900	\$6.130	\$3.560	\$3.510	\$700	\$670	\$50.470

FOOTNOTE(S)

Note: Apprentice Basic Hourly Rate is based on Group V Journeyman Laborer wage rates.

Vacation -- Includes an amount for Supplemental Dues.

Other -- Includes amounts for Center for Contract Compliance, Industry Fund, Administrative Trust Fund, Contract Administration Fund, and Partnerships for Jobs Industry Advancement Fund.

** Journeyman Predetermined Increases

Effective July 1, 2023, an increase of \$3.20 to be allocated to wages and/or fringes

Effective July 1, 2024, an increase of \$3.30 to be allocated to wages and/or fringes

Effective July 1, 2025, an increase of \$3.40 to be allocated to wages and/or fringes

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please email a request to statistics@dir.ca.gov or send to the following address

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

GENERAL PREVAILING WAGE APPRENTICE RATES

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Determination: 2023-1
Expire Date: 12-31-2023 **
Indentured/Other: Area 1
Counties: San Francisco

Issue Date: 02-22-2023
Craft/Classification: Iron Worker
Shift: 1

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$25.190	\$5.500	\$0.000	\$6.000	\$0.720	\$0.035	\$37.445
2	6	N/A	\$27.710	\$10.200	\$0.000	\$6.000	\$0.720	\$0.505	\$45.135
3	6	N/A	\$30.230	\$10.200	\$3.080	\$6.000	\$0.720	\$0.505	\$50.735
4	6	N/A	\$32.750	\$10.200	\$3.080	\$6.000	\$0.720	\$3.035	\$55.785
5	6	N/A	\$37.790	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$63.905
6	6	N/A	\$40.300	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$66.415
7	6	N/A	\$45.340	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$77.065
8	6	N/A	\$47.860	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$79.585

FOOTNOTE(S)

Other includes amounts for Annuity Fund (Except Period 1-3), Admin. Trust (Except Period 1), LMCT (Except Period 1) & WCTF.

** Journeyman Predetermined Increases

Effective January 1, 2024, an increase of \$2.80 to be allocated to wages and/or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
 Office of the Director - Research Unit
 P.O. Box 420603
 San Francisco, CA 94142-0603

Determination: 2023-1
Expire Date: 12-31-2023 **
Indentured/Other: Area 2
Counties: Alameda, Contra Costa, San Mateo, Santa Clara

Issue Date: 02-22-2023
Craft/Classification: Iron Worker
Shift: 1

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$24.940	\$5.500	\$0.000	\$6.000	\$0.720	\$0.035	\$37.195
2	6	N/A	\$27.430	\$10.200	\$0.000	\$6.000	\$0.720	\$0.505	\$44.855
3	6	N/A	\$29.930	\$10.200	\$3.080	\$6.000	\$0.720	\$0.505	\$50.435
4	6	N/A	\$32.420	\$10.200	\$3.080	\$6.000	\$0.720	\$3.035	\$55.455
5	6	N/A	\$37.410	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$63.525
6	6	N/A	\$39.900	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$66.015
7	6	N/A	\$44.890	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$76.615
8	6	N/A	\$47.390	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$79.115

FOOTNOTE(S)

Other includes amounts for Annuity Fund (Except Period 1-3), Admin. Trust (Except Period 1), LMCT (Except Period 1) & WCTF.

** Journeyman Predetermined Increases

Effective January 1, 2024, an increase of \$2.80 to be allocated to wages and/or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
Office of the Director - Research Unit
P.O. Box 420603
San Francisco, CA 94142-0603

Determination: 2023-1
Expire Date: 12-31-2023 **
Indentured/Other: Area 3
Counties: Los Angeles

Issue Date: 02-22-2023
Craft/Classification: Iron Worker
Shift: 1

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$23.870	\$5.500	\$0.000	\$6.000	\$0.720	\$0.035	\$36.125
2	6	N/A	\$26.250	\$10.200	\$0.000	\$6.000	\$0.720	\$0.505	\$43.675
3	6	N/A	\$28.640	\$10.200	\$3.080	\$6.000	\$0.720	\$0.505	\$49.145
4	6	N/A	\$31.020	\$10.200	\$3.080	\$6.000	\$0.720	\$3.035	\$54.055
5	6	N/A	\$35.800	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$61.915
6	6	N/A	\$38.180	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$64.295
7	6	N/A	\$42.960	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$74.685
8	6	N/A	\$45.340	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$77.065

FOOTNOTE(S)

Applies only to the City of Los Angeles and the following cities/localities within Los Angeles County: Baldwin Hills, Beverly Hills, Burbank, Culver City, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lennox, Lomita, Manhattan Beach, Marina Del Ray, Rancho Palos Verdes, Redondo Beach, Rolling Hills Estates, San Fernando, Santa Monica, Torrance, Universal City, West Hollywood, Westwood, Westwood Veterans Affairs.

Other includes amounts for Annuity Fund (Except Period 1-3), Admin. Trust (Except Period 1), LMCT (Except Period 1) & WCTF.

** Journeyman Predetermined Increases

Effective January 1, 2024, an increase of \$2.45 to be allocated to wages and/or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
Office of the Director - Research Unit
P.O. Box 420603
San Francisco, CA 94142-0603

Determination: 2023-1
Expire Date: 12-31-2023 **
Indentured/Other: Area 4

Issue Date: 02-22-2023
Craft/Classification: Iron Worker
Shift: 1

Counties: Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Humboldt, Imperial, Kern, Kings, Lake, Los Angeles, Madera, Marin, Mariposa, Mendocino, Merced, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Ventura, Yolo, Yuba

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$23.100	\$5.500	\$0.000	\$6.000	\$0.720	\$0.035	\$35.355
2	6	N/A	\$25.410	\$10.200	\$0.000	\$6.000	\$0.720	\$0.505	\$42.835
3	6	N/A	\$27.720	\$10.200	\$3.080	\$6.000	\$0.720	\$0.505	\$48.225
4	6	N/A	\$30.030	\$10.200	\$3.080	\$6.000	\$0.720	\$3.035	\$53.065
5	6	N/A	\$34.650	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$60.765
6	6	N/A	\$36.960	\$10.200	\$6.160	\$6.000	\$0.720	\$3.035	\$63.075
7	6	N/A	\$41.580	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$73.305
8	6	N/A	\$43.890	\$10.200	\$9.240	\$6.000	\$0.720	\$5.565	\$75.615

FOOTNOTE(S)

Applies to the portion of Los Angeles County not covered by Area 3.

Other includes amounts for Annuity Fund (Except Period 1-3), Admin. Trust (Except Period 1), LMCT (Except Period 1) & WCTF.

** Journeyman Predetermined Increases

Effective January 1, 2024, an increase of \$1.85 to be allocated to wages and/or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations
Office of the Director - Research Unit
P.O. Box 420603
San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 12-31-2023 *

Craft/Classification: Iron Worker

Indentured/Other: Area 5

Shift: 1

Counties: Alpine, Del Norte, Inyo, Lassen, Modoc, Mono, Siskiyou, Trinity

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$20.500	\$5.500	\$0.000	\$5.400	\$0.720	\$0.035	\$32.155
2	6	N/A	\$22.550	\$10.200	\$0.000	\$5.400	\$0.720	\$0.505	\$39.375
3	6	N/A	\$24.600	\$10.200	\$3.080	\$5.400	\$0.720	\$0.505	\$44.505
4	6	N/A	\$26.650	\$10.200	\$3.080	\$5.400	\$0.720	\$3.035	\$49.085
5	6	N/A	\$30.750	\$10.200	\$6.160	\$5.400	\$0.720	\$3.035	\$56.265
6	6	N/A	\$32.800	\$10.200	\$6.160	\$5.400	\$0.720	\$3.035	\$58.315
7	6	N/A	\$36.900	\$10.200	\$9.240	\$5.400	\$0.720	\$5.565	\$68.025
8	6	N/A	\$38.950	\$10.200	\$9.240	\$5.400	\$0.720	\$5.565	\$70.075

FOOTNOTE(S)

Other includes amounts for Annuity Fund (Except Period 1-3), Admin. Trust (Except Period 1), LMCT (Except Period 1) & WCTF.

* No Predetermined Increases

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 12-31-2023 *

Craft/Classification: Iron Worker

Indentured/Other: Fence Erector

Shift: 1

Counties: Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Imperial, Inyo, Kern, Kings, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo, Yuba

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	6	N/A	\$20.640	\$5.500	\$0.000	\$4.620	\$0.510	\$0.035	\$31.305
2	6	N/A	\$22.700	\$8.030	\$0.000	\$4.620	\$0.510	\$0.175	\$36.035
3	6	N/A	\$24.770	\$8.030	\$2.250	\$4.620	\$0.510	\$0.175	\$40.355
4	6	N/A	\$26.830	\$8.030	\$2.250	\$4.620	\$0.510	\$1.935	\$44.175
5	6	N/A	\$30.960	\$8.030	\$4.500	\$4.620	\$0.510	\$1.935	\$50.555
6	6	N/A	\$33.020	\$8.030	\$4.500	\$4.620	\$0.510	\$1.935	\$52.615
7	6	N/A	\$37.150	\$8.030	\$6.740	\$4.620	\$0.510	\$3.685	\$60.735
8	6	N/A	\$39.220	\$8.030	\$6.740	\$4.620	\$0.510	\$3.685	\$62.805

FOOTNOTE(S)

Other includes amounts for Annuity Fund, Admin. Trust, LMCT & WCTF.

* No Predetermined Increases

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

Craft: Iron Worker #

Determination:

C-20-X-1-2023-1

Issue Date:

February 22, 2023

Expiration date of determination:

December 31, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

- Area 1: San Francisco County.
- Area 2: Alameda, Contra Costa, San Mateo and Santa Clara County
- Area 3: City of Los Angeles and the following cities/localities within Los Angeles County: Baldwin Hills, Beverly Hills, Burbank, Culver City, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lennox, Lomita, Manhattan Beach, Marina Del Rey, Rancho Palos Verdes, Redondo Beach, Rolling Hills Estates, San Fernando, Santa Monica, Torrance, Universal City, West Hollywood, Westwood, Westwood Veterans Affairs.
- Area 4: Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Humboldt, Imperial, Kern, Kings, Lake, Los Angeles (portions not covered in Area 3), Madera, Marin, Mariposa, Mendocino, Merced, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Ventura, Yolo and Yuba Counties
- Area 5: Alpine, Del Norte, Inyo, Lassen, Modoc, Mono, Siskiyou and Trinity Counties

Wages and Employer Payments:

<u>Classification</u> (Journey person)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate	Saturday Overtime Hourly Rate	Sunday/Holiday Overtime Hourly Rate
									(1 ½ X) ^b	(1 ½ X) ^b	(2 X)
Iron Worker (Ornamental, Reinforcing, Structural) (Area 1)	\$50.38	\$10.20	\$12.32	\$6.00	\$0.72	\$5.565	8.0	\$85.185	\$110.375	\$110.375	\$135.565

<u>Classification</u> (Journey person)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^a	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^b	Saturday Overtime Hourly Rate (1 ½ X) ^b	Sunday/ Holiday Overtime Hourly Rate (2 X)
Iron Worker (Ornamental, Reinforcing, Structural) (Area 2)	\$49.88	\$10.20	\$12.32	\$6.00	\$0.72	\$5.565	8.0	\$84.685	\$109.625	\$109.625	\$134.565
Iron Worker (Ornamental, Reinforcing, Structural) (Area 3)	\$47.73	\$10.20	\$12.32	\$6.00	\$0.72	\$5.565	8.0	\$82.535	\$106.400	\$106.400	\$130.265
Iron Worker (Ornamental, Reinforcing, Structural) (Area 4)	\$46.20	\$10.20	\$12.32	\$6.00	\$0.72	\$5.565	8.0	\$81.005	\$104.105	\$104.105	\$127.205
Iron Worker (Ornamental, Reinforcing, Structural) (Area 5)	\$41.00	\$10.20	\$12.32	\$5.40	\$0.72	\$5.565	8.0	\$75.205	\$95.705	\$95.705	\$116.205
Fence Erector (All Areas)	\$41.28	\$8.03	\$8.99	\$4.62	\$0.51	\$3.685	8.0	\$67.115	\$87.755	\$87.755	\$108.395

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWageStart.asp>).

^a Includes supplemental dues

^b Rate applies to the first 2 daily overtime hours and the first 8 hours on Saturday. All other overtime is at the Sunday/Holiday rate.

GENERAL PREVAILING WAGE APPRENTICE RATES

Apprentice Prevailing Wage Rates are paid only to apprentices registered with the State of California, Division of Apprenticeship Standards, for work the registered apprentice performs in his/her specific craft or trade. You may check whether an Apprentice is registered at the [Division of Apprenticeship Standards Website](https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp) (<https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp>)

Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Laborer

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	500	\$21.120	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$35.690
2	N/A	500	\$23.230	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$37.800
3	N/A	500	\$25.340	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$39.910
4	N/A	500	\$29.560	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$44.130
5	N/A	500	\$33.780	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$48.350
6	N/A	500	\$35.900	\$6.130	\$3.560	\$3.510	\$.700	\$.670	\$50.470

FOOTNOTE(S)

Note: Apprentice rates are based on JM Laborer Group V rates.

Vacation -- Includes an amount for supplemental dues.

Other -- Includes amounts for Center for Contract Compliance, Industry Fund, and Administrative Trust Fund, Contract Administration Fund and Partnership for Jobs Industry Advancement Fund.

JOURNEYMAN PREDETERMINED INCREASES:

Effective 7/1/2023, there will be an increase of \$3.20 to be allocated to wages and or employer payments.

Effective 7/1/2024, there will be an increase of \$3.30 to be allocated to wages and or employer payments.

Effective 7/1/2025, there will be an increase of \$3.40 to be allocated to wages and or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

Craft: Laborer and Related Classifications #

Determination:
SC-23-102-2-2022-1

Issue Date:
August 22, 2022

Expiration date of determination: June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities: All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, and Ventura counties.

Wages and Employer Payments:

Classification ^a (Journey person)	Basic Hourly Rate	Health and Welfare	Pension	Vacation and Holiday ^b	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate (1 ½ X) ^c	Saturday Overtime Hourly Rate (1 ½ X) ^{cd}	Sunday/ Holiday Overtime Hourly Rate (2 X)
Group 1	\$39.23	\$8.75	\$10.82	\$5.02	\$0.70	\$0.67	8.0	\$65.19	\$84.805	\$84.805	\$104.420
Group 2	\$39.78	\$8.75	\$10.82	\$5.02	\$0.70	\$0.67	8.0	\$65.74	\$85.630	\$85.630	\$105.520
Group 3	\$40.33	\$8.75	\$10.82	\$5.02	\$0.70	\$0.67	8.0	\$66.29	\$86.455	\$86.455	\$106.620
Group 4	\$41.88	\$8.75	\$10.82	\$5.02	\$0.70	\$0.67	8.0	\$67.84	\$88.780	\$88.780	\$109.720
Group 5	\$42.23	\$8.75	\$10.82	\$5.02	\$0.70	\$0.67	8.0	\$68.19	\$89.305	\$89.305	\$110.420

Group 1

Boring Machine Helper (Outside)
Certified Confined Space Laborer
Cleaning and Handling of Panel Forms
Concrete Screeding for Rough Strike-Off Concrete, Water Curing
Demolition Laborer, the cleaning of brick if performed by an employee performing any other phase of demolition work, and the cleaning of lumber
Fiberoptic Installation, Blowing, Splicing, and Testing Technician on public right-of-way only
Fire Watcher, Limbers, Brush Loaders, Pilers and Debris Handlers
Flagman
Gas, Oil and/or Water Pipeline Laborer
Laborer, Asphalt-Rubber Material Loader
Laborer, General or Construction
Laborer, General Cleanup
Laborer, Jetting
Laborer, Temporary Water and Air Lines
Plugging, Filling of Shee-Bolt Holes; Dry Packing of Concrete and Patching
Post Hole Digger (Manual)
Railroad Maintenance, Repair Trackman and Road Beds; Streetcar and Railroad Construction Track Laborers
Rigging and Signaling
Scaler
Slip Form Raisers
Tarmen and Mortar Man
Tool Crib or Tool House Laborer
Traffic Control by any method
Water Well Driller Helper
Window Cleaner
Wire Mesh Pulling - All Concrete Pouring Operations

Group 2

Asphalt Shoveler
Cement Dumper (on 1 yard or larger mixer and handling bulk cement)
Cesspool Digger and Installer
Chucktender
Chute Man, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks,

floors, foundations, footings, curbs, gutters and sidewalks
Concrete Curer-Impervious Membrane and Form Oiler
Cutting Torch Operator (Demolition)
Fine Grader, Highways and Street Paving, Airport, Runways, and similar type heavy construction
Gas, Oil and/or Water Pipeline Wrapper-Pot Tender and Form Man
Guinea Chaser
Headerboard Man-Asphalt
Installation of all Asphalt Overlay Fabric and Materials used for Reinforcing Asphalt
Laborer, Packing Rod Steel and Pans
Membrane Vapor Barrier Installer
Power Broom Sweepers (small)
Riprap, Stonepaver, placing stone or wet sacked concrete
Roto Scraper and Tiller
Sandblaster (Pot Tender)
Septic Tank Digger and Installer (leadman)
Tank Scaler and Cleaner
Tree Climber, Faller, Chain Saw Operator, Pittsburgh Chipper and similar type Brush Shredders
Underground Laborer, including Caisson Bellow

Group 3

Asphalt Installation of all fabrics
Buggymobile Man
Compactor (all types including Tampers, Barko, Wacker)
Concrete Cutting Torch
Concrete Pile Cutter
Driller, Jackhammer, 2 1/2 ft. drill steel or longer
Dri Pak-it Machine
Gas, Oil and/or Water Pipeline Wrapper - 6-inch pipe and over by any method, inside and out
Impact Wrench, Multi-Plate
Kettlemen, Potmen and Men applying asphalt, lay-kold, creosote, lime caustic and similar type materials
Laborer, Fence Erector
Material Hoseman (Walls, Slabs, Floors and Decks)
Operators of Pneumatic, Gas, Electric Tools, Vibrating Machines, Pavement Breakers, Air Blasting, Come-

Alongs, and similar mechanical tools not separately classified herein; operation of remote controlled robotic tools in connection with Laborers work
Pipelayer's backup man, coating, grouting, making of joints, sealing, caulking, clapping and including rubber gasket joints, pointing and any and all other services
Power Post Hole Digger
Rock Slinger
Rotary Scarifier or Multiple Head Concrete Chipping Scarifier
Steel Headerboard Man and Guideline Setter
Trenching Machine, Hand Propelled

Group 4

Any Worker Exposed to Raw Sewage
Asphalt Raker, Luteaman, Ironer, Asphalt Dumpman, and Asphalt Spreader Boxes (all types)
Concrete Core Cutter (walls, floors or ceilings), Grinder or Sander
Concrete Saw Man, Cutting Walls or Flat Work, Scoring old or new concrete
Cribber, Shorer, Lagging, Sheeting and Trench Bracing, Hand-Guided Lagging Hammer
Head Rock Slinger
High Scaler (including drilling of same)
Laborer, Asphalt-Rubber Distributor Bootman
Laser Beam in connection with Laborer's work
Oversize Concrete Vibrator Operator, 70 pounds and over
Pipelayer
Prefabricated Manhole Installer
Sandblaster (Nozzleman), Water Blasting, Porta Shot-Blast
Subsurface Imaging Laborer
Traffic Lane Closure, certified

Group 5

Blasters Powderman
Driller
Toxic Waste Removal
Welding, certified or otherwise in connection with Laborers' work

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>).

a For classification within each group, see next page.

b Includes an amount per hour worked for supplemental dues.

c Any hours worked over 12 hours in a single workday are double (2) time.

d Saturdays in the same work week may be worked at straight-time if job is shut down during work week due to inclement weather or similar Act of God, or a situation beyond the employer's control.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: OPERATING ENGINEER#

Determination:

SC-23-63-2-2023-1

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journeyman)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$53.90	8	\$84.69	\$111.640	\$111.640	\$138.590
Group 2	\$54.68	8	\$85.47	\$112.810	\$112.810	\$140.150
Group 3	\$54.97	8	\$85.76	\$113.245	\$113.245	\$140.730
Group 4	\$56.46	8	\$87.25	\$115.480	\$115.480	\$143.710
Group 6	\$56.68	8	\$87.47	\$115.810	\$115.810	\$144.150
Group 8	\$56.79	8	\$87.58	\$115.975	\$115.975	\$144.370
Group 10	\$56.91	8	\$87.70	\$116.155	\$116.155	\$144.610
Group 12	\$57.08	8	\$87.87	\$116.410	\$116.410	\$144.950
Group 13	\$57.18	8	\$87.97	\$116.560	\$116.560	\$145.150
Group 14	\$57.21	8	\$88.00	\$116.605	\$116.605	\$145.210
Group 15	\$57.29	8	\$88.08	\$116.725	\$116.725	\$145.370
Group 16	\$57.41	8	\$88.20	\$116.905	\$116.905	\$145.610
Group 17	\$57.58	8	\$88.37	\$117.160	\$117.160	\$145.950
Group 18	\$57.68	8	\$88.47	\$117.310	\$117.310	\$146.150
Group 19	\$57.79	8	\$88.58	\$117.475	\$117.475	\$146.370
Group 20	\$57.91	8	\$88.70	\$117.655	\$117.655	\$146.610
Group 21	\$58.08	8	\$88.87	\$117.910	\$117.910	\$146.950
Group 22	\$58.18	8	\$88.97	\$118.060	\$118.060	\$147.150
Group 23	\$58.29	8	\$89.08	\$118.225	\$118.225	\$147.370
Group 24	\$58.41	8	\$89.20	\$118.405	\$118.405	\$147.610
Group 25	\$58.58	8	\$89.37	\$118.660	\$118.660	\$147.950

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: OPERATING ENGINEER (SPECIAL SHIFT) #

Determination:

SC-23-63-2-2023-1

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journey person)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$54.90	8	\$85.69	\$113.140	\$113.140	\$140.590
Group 2	\$55.68	8	\$86.47	\$114.310	\$114.310	\$142.150
Group 3	\$55.97	8	\$86.76	\$114.745	\$114.745	\$142.730
Group 4	\$57.46	8	\$88.25	\$116.980	\$116.980	\$145.710
Group 6	\$57.68	8	\$88.47	\$117.310	\$117.310	\$146.150
Group 8	\$57.79	8	\$88.58	\$117.475	\$117.475	\$146.370
Group 10	\$57.91	8	\$88.70	\$117.655	\$117.655	\$146.610
Group 12	\$58.08	8	\$88.87	\$117.910	\$117.910	\$146.950
Group 13	\$58.18	8	\$88.97	\$118.060	\$118.060	\$147.150
Group 14	\$58.21	8	\$89.00	\$118.105	\$118.105	\$147.210
Group 15	\$58.29	8	\$89.08	\$118.225	\$118.225	\$147.370
Group 16	\$58.41	8	\$89.20	\$118.405	\$118.405	\$147.610
Group 17	\$58.58	8	\$89.37	\$118.660	\$118.660	\$147.950
Group 18	\$58.68	8	\$89.47	\$118.810	\$118.810	\$148.150
Group 19	\$58.79	8	\$89.58	\$118.975	\$118.975	\$148.370
Group 20	\$58.91	8	\$89.70	\$119.155	\$119.155	\$148.610
Group 21	\$59.08	8	\$89.87	\$119.410	\$119.410	\$148.950
Group 22	\$59.18	8	\$89.97	\$119.560	\$119.560	\$149.150
Group 23	\$59.29	8	\$90.08	\$119.725	\$119.725	\$149.370
Group 24	\$59.41	8	\$90.20	\$119.905	\$119.905	\$149.610
Group 25	\$59.58	8	\$90.37	\$120.160	\$120.160	\$149.950

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: OPERATING ENGINEER (MULTI-SHIFT)#

Determination:

SC-23-63-2-2023-1

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journey person)	Basic Hourly Rate	Hours ^f	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$54.90	8	\$85.69	\$113.140	\$113.140	\$140.590
Group 2	\$55.68	8	\$86.47	\$114.310	\$114.310	\$142.150
Group 3	\$55.97	8	\$86.76	\$114.745	\$114.745	\$142.730
Group 4	\$57.46	8	\$88.25	\$116.980	\$116.980	\$145.710
Group 5	\$57.56	8	\$88.35	\$117.130	\$117.130	\$145.910
Group 6	\$57.68	8	\$88.47	\$117.310	\$117.310	\$146.150
Group 7	\$57.78	8	\$88.57	\$117.460	\$117.460	\$146.350
Group 8	\$57.79	8	\$88.58	\$117.475	\$117.475	\$146.370
Group 9	\$57.89	8	\$88.68	\$117.625	\$117.625	\$146.570
Group 10	\$57.91	8	\$88.70	\$117.655	\$117.655	\$146.610
Group 11	\$58.01	8	\$88.80	\$117.805	\$117.805	\$146.810
Group 12	\$58.08	8	\$88.87	\$117.910	\$117.910	\$146.950
Group 13	\$58.18	8	\$88.97	\$118.060	\$118.060	\$147.150
Group 14	\$58.21	8	\$89.00	\$118.105	\$118.105	\$147.210
Group 15	\$58.29	8	\$89.08	\$118.225	\$118.225	\$147.370
Group 16	\$58.41	8	\$89.20	\$118.405	\$118.405	\$147.610
Group 17	\$58.58	8	\$89.37	\$118.660	\$118.660	\$147.950
Group 18	\$58.68	8	\$89.47	\$118.810	\$118.810	\$148.150
Group 19	\$58.79	8	\$89.58	\$118.975	\$118.975	\$148.370
Group 20	\$58.91	8	\$89.70	\$119.155	\$119.155	\$148.610
Group 21	\$59.08	8	\$89.87	\$119.410	\$119.410	\$148.950
Group 22	\$59.18	8	\$89.97	\$119.560	\$119.560	\$149.150
Group 23	\$59.29	8	\$90.08	\$119.725	\$119.725	\$149.370
Group 24	\$59.41	8	\$90.20	\$119.905	\$119.905	\$149.610

Classification ^a (Journey person)	Basic Hourly Rate	Hours ^f	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 25	\$59.58	8	\$90.37	\$120.160	\$120.160	\$149.950

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

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In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Classifications:

Group 1

Bargeman
Brakeman
Compressor Operator
Ditchwitch, with seat or similar type equipment
Elevator Operator - Inside
Engineer Oiler
Forklift Operator (includes loed, lull or similar types – under 5 tons)
Generator Operator
Generator, Pump or Compressor Plant Operator
Heavy Duty Repairman Helper
Inertial Profiler Operator
Pump Operator
Signalman
Switchman

Group 2

Asphalt-Rubber Plant Operator (Nurse Tank Operator)
Coil Tubing Rig Operator
Concrete Mixer Operator – Skip Type
Conveyor Operator
Fireman
Forklift Operator (includes loed, lull or similar types – over 5 tons)
Hydrostatic Pump Operator
Oiler Crusher (Asphalt or Concrete Plant)
Petromat Laydown Machine
PJU Side Dump Jack
Rotary Drill Helper (Oilfield)
Screening and Conveyor Machine Operator (or similar types)
Skiploader (Wheel type up to ¾ yd. without attachment)
Tar Pot Fireman
Temporary Heating Plant Operator
Trenching Machine Oiler

Group 3

Asphalt Rubber Blend Operator
Bobcat or similar type (Skid Steer, with all attachments)
Equipment Greaser (rack)
Ford Ferguson (with dragtype attachments)
Helicopter Radioman (ground)

Stationary Pipe Wrapping and Cleaning Machine Operator

Group 4

Asphalt Plant Fireman
Backhoe Operator (mini-max or similar type)
Boring Machine Operator
Boring System Electronic Tracking Locator
Boxman or Mixerman (asphalt or concrete)
Chip Spreading Machine Operator
Concrete Cleaning Decontamination Machine Operator
Concrete Pump Operator (small portable)
Drilling Machine Operator, Small Auger types (Texoma Super Economatic, or similar types – Hughes 100 or 200, or similar types – drilling depth of 30 maximum)
Equipment Greaser (grease truck)
Excavator Track/Rubber-Tired-with all attachments (Operating weight under 21,000 lbs)
Guard Rail Post Driver Operator
Highline Cableway Signalman
Hydra-Hammer-Aero Stomper
Hydraulic Casing Oscillator Operator – drilling depth of 30' maximum
Micro Tunneling Operator (above ground tunnel)
Power Concrete Curing Machine Operator
Power Concrete Saw Operator
Power – Driver Jumbo Form Setter Operator
Power Sweeper Operator
Rock Wheel Saw/Trencher
Roller Operator (compacting)
Screed Operator (asphalt or concrete)
Trenching Machine Operator (up to 6 ft.)
Vacuum or Muck Truck

Group 5 (for multi-shift rate, see Pages 5 and 6)

Equipment Greaser (Grease Truck/Multi-Shift)

Group 6

Articulating Material Hauler
Asphalt Plant Engineer
Batch Plant Operator
Bit Sharpener
Concrete Joint Machine Operator (canal and similar type)
Concrete Placer Operator
Concrete Planer Operator

Dandy Digger
Deck Engine Operator
Deck Engineer
Derrickman (oilfield type)
Drilling Machine Operator, Bucket or Auger types
(Calweld 100 bucket or similar types – Watson
1000 auger or similar types – Texoma 330, 500 or
600 auger or similar types – drilling depth of 45'
maximum)
Drilling Machine Operator (including water wells)
Forced Feed Loader
Hydraulic Casing Oscillator Operator – drilling depth
of 45' maximum
Hydro Seeder Machine Operator (straw, pulp or seed)
Jackson Track Maintainer, or similar type
Kalamazoo Switch Tamper, or similar type
Machine Tool Operator
Maginnis Internal Full Slab Vibrator
Mechanical Berm, Curb or Gutter (concrete or
asphalt)
Mechanical Finisher Operator (concrete, Clary-
Johnson-Bidwell or similar)
Micro Tunnel System Operator (below ground)
Pavement Breaker Operator
Railcar Mover
Road Oil Mixing Machine Operator
Roller Operator (asphalt or finish)
Rubber-Tired Earthmoving Equipment (single
engine, up to and including 25 yds. struck)
Self-Propelled Tar Pipelining Machine Operator
Skiploader Operator (crawler and wheel type, over
 $\frac{3}{4}$ yds. and up to and including $1\frac{1}{2}$ yds.)
Slip Form Pump Operator (power driven hydraulic
lifting device for concrete forms)
Tractor Operator – Bulldozer, Tamper-Scraper
(single engine, up to 100 H.P. flyweel and similar
types, up to and including D-5 and similar types)
Tugger Hoist Operator (1 drum)
Ultra High Pressure Waterjet Cutting Tool System
Operator
Vacuum Blasting Machine Operator
Volumetric Mixer Operator
Welder - General

Group 7 (for multi-shift rate, see Pages 5 and 6)

Welder - General (Multi-Shift)

Group 8

Asphalt or Concrete Spreading Operator (tamping or
finishing)
Asphalt Paving Machine Operator (barber greene or
similar type, one (1) Screedman)
Asphalt-Rubber Distributor Operator
Backhoe Operator (up to and including $\frac{3}{4}$ yds.)
small ford, case or similar types
Backhoe Operator (over $\frac{3}{4}$ yd. and up to 5 cu. yds.
M.R.C.)
Barrier Rail Mover (BTM Series 200 or similar types)
Cast in Place Pipe Laying Machine Operator
Cold Foamed Asphalt Recycler
Combination Mixer and Compressor Operator
(gunite work)
Compactor Operator – Self Propelled
Concrete Mixer Operator – Paving
Crushing Plant Operator
Drill Doctor
Drilling Machine Operator, Bucket or Auger types
(Calweld 150 bucket or similar types – Watson
1500, 2000, 2500 auger or similar types –
Texoma 700, 800 auger or similar types – drilling
depth of 60' maximum)
Elevating Grader Operator
Excavator Track/Rubber-Tired with all attachments
(Operating Weight 21,000 lbs – 100,000 lbs)
Global Positioning System/GPS (or Technician)
Grade Checker
Gradall Operator
Grouting Machine Operator
Heavy Duty Repairman/Pump Installer
Heavy Equipment Robotics Operator
Hydraulic Casing Oscillator Operator – drilling depth
of 60' maximum
Hydraulic Operated Grout Plant (excludes hand
loading)
Kalamazoo Ballast Regulator or similar type
Klemm Drill Operator or similar types
Kolman Belt Loader and similar type
Le Tourneau Blob Compactor or similar type
Lo Drill
Loader Operator (Athey, Euclid, Sierra and similar
types)
Master Environmental Maintenance Mechanic
Mobark Chipper or similar types
Ozzie Padder or similar types
P.C. 490 Slot Saw

Pneumatic Concrete Placing Machine Operator
(Hackley-Presswell or similar type)
Prentice 721E Hydro-Ax
Pumpcrete Gun Operator
Rock Drill or Similar Types (see Miscellaneous
Provision #4 for additional information regarding
this classification)
Rotary Drill Operator (excluding caison type)
Rubber-Tired Earth Moving Equipment Operator
(single engine, caterpillar, euclid, atthey wagon,
and similar types with any and all attachments
over 25 yds. and up to and including 50 cu yds.
struck)
Rubber-Tired Earth Moving Equipment Operator
(multiple engine – up to and including 25 yds.
struck)
Rubber-Tired Scraper Operator (self-loading paddle
wheel type – John Deere, 1040 and similar single
unit)
Self-Propelled Curb and Gutter Machine Operator
Shuttle Buggy
Skiploader Operator (crawler and wheel type over 1
½ yds. up to and including 6 ½ yds.)
Soil Remediation Plant Operator (CMI, Envirotech or
Similar)
Soil Stabilizer and Reclaimer (WR-2400)
Somero SXP Laser Screed
Speed Swing Operator
Surface Heaters and Planer Operator
Tractor Compressor Drill Combination Operator
Tractor Operator (any type larger than D-5 – 100
flyweel H.P. and over, or similar – bulldozer,
tamper, scraper and push tractor, single engine)
Tractor Operator (boom attachments)
Traveling Pipe Wrapping, Cleaning and Bending
Machine Operator)
Trenching Machine Operator (over 6 ft. depth
capacity, manufacturer's rating)
Trenching Machine with Road Miner Attachment
(over 6ft. depth capacity, manufacturer's rating –
Oiler or Journeyman Trainee required)
Ultra High Pressure Waterjet Cutting Tool System
Mechanic
Water Pull (compaction)

Group 9 (for multi-shift rate, see Pages 5 and 6)
Heavy Duty Repairman (Multi-Shift)

Group 10

Backhoe Operator (over 5 cu. yds. M.R.C.)
Drilling Machine Operator, Bucket or Auger types
(Calweld 200 B bucket or similar types – Watson
3000 or 5000 auger or similar types – Texoma
900 auger or similar types – drilling depth of 105'
maximum)
Dual Drum Mixer
Dynamic Compactor LDC350 or similar types
Heavy Duty Repairman-Welder combination
Hydraulic Casing Oscillator Operator – drilling depth
of 105' maximum
Monorail Locomotive Operator (diesel, gas or
electric)
Motor Patrol – Blade Operator (single engine)
Multiple Engine Tractor Operator (euclid and similar
type – except quad 9 cat.)
Pneumatic Pipe Ramming Tool and similar types
Pre-stressed Wrapping Machine Operator (2
Operators required)
Rubber – Tired Earth Moving Equipment Operator
(single engine, over 50 yds. struck)
Rubber – Tired Earth Moving Equipment Operator
(multiple engine, euclid caterpillar and similar –
over 25 yds. and up to 50 yds. struck)
Tower Crane Repairman
Tractor Loader Operator (crawler and wheel-type
over 6 ½ yds.)
Unmanned Aircraft Systems (UAS Drones) Operator
(when used in conjunction with hoisting and
placing materials)
Welder – Certified
Woods Mixer Operator (and similar pugmill
equipment)

Group 11 (for multi-shift rate, see Pages 5 and 6)

Heavy Duty Repairman – Welder Combination
(Multi-Shift)
Welder – Certified (Multi-Shift)

Group 12

Auto Grader Operator
Automatic Slip Form Operator
Backhoe Operator (over 7 cu. yds. M.R.C.)
Drilling Machine Operator, Bucket or Auger types
(Calweld, auger 200 CA or similar types –
Watson, auger 6000 or similar types – hughes
super duty, auger 200 or similar types – drilling
depth of 175' maximum)

Excavator Track/Rubber Tired- with all attachments
(Operating Weight 100,000 lbs. – 200,000 lbs.)
Hoe Ram or similar with compressor
Hydraulic Casing Oscillator Operator – drilling depth
of 175' maximum
Mass Excavator Operator – less than 750 cu. yds.
Mechanical Finishing Machine Operator
Mobile Form Traveler Operator
Motor Patrol Operator (multi-engine)
Pipe Mobile Machine Operator
Rubber-Tired Earth Moving Equipment Operator
(multiple engine, euclid, caterpillar and similar
type, over 50 cu. yds. struck)
Rubber-Tired Self-Loading Scraper Operator
(paddle-wheel-auger type self-loading – (two (2)
or more units)

Group 13

Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(single engine, up to and including 25 yds. struck)

Group 14

Canal Liner Operator
Canal Trimmer Operator
Drilling Machine Operator, Bucket or Auger types
(Calweld, auger 200 CA or similar types –
watson, auger 6000 or similar types – hughes
super duty, auger 200 or similar types – drilling
depth of 300' maximum)
Remote Controlled Earth Moving Operator (\$1.00
per hour additional to base rate)
Wheel Excavator Operator (over 750 cu. yds. per
hour)

Group 15

Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(single engine, caterpillar, euclid, athey wagon,
and similar types with any and all attachments
over 25 and up to and including 50 cu. yds.
struck)
Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(multiple engine - up to and including 25 yds.
struck)

Group 16

Excavator Track/Rubber Tired – with all attachments
(Operating Weight exceeding 200,000 lbs.)

Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(single engine, over 50 yds. struck)
Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(multiple engine, euclid, caterpillar, and similar,
over 25 yds. and up to 50 yds. struck)

Group 17

Rubber-Tired Earth Moving Equipment Operator,
Operating Equipment with the Push-Pull System
(multiple engine, euclid, caterpillar, and similar
type, over 50 cu. yds. struck)
Tandem Tractor Operator (operating crawler type
tractors in tandem – Quad 9 and similar type)

Group 18

Rubber-Tired Earth Moving Equipment Operator,
Operating in Tandem (scrapers, belly dumps, and
similar types in any combination, excluding
compaction units - single engine, up to and
including 25 yds. struck)

Group 19

Rotex Concrete Belt Operator
Rubber-Tired Earth Moving Equipment Operator,
Operating in Tandem (scrapers, belly dumps, and
similar types in any combination, excluding
compaction units - single engine, caterpillar,
euclid, athey wagon, and similar types with any
and all attachments over 25 yds. and up to and
including 50 cu. yds. struck)
Rubber-Tired Earth Moving Equipment Operator,
Operating in Tandem (scrapers, belly dumps, and
similar types in any combination, excluding
compaction units - multiple engines, up to and
including 25 yds. struck)

Group 20

Rubber-Tired Earth Moving Equipment Operator,
Operating in Tandem (scrapers, belly dumps, and
similar types in any combination, excluding
compaction units - single engine, over 50 yds.
struck)
Rubber-Tired Earth Moving Equipment Operator,
Operating in Tandem (scrapers, belly dumps, and
similar types in any combination, excluding
compaction units - multiple engine, euclid,
caterpillar and similar, over 25 yds. and up to 50
yds. struck)

Group 21

Rubber-Tired Earth Moving Equipment Operator, Operating in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, euclid, caterpillar and similar type, over 50 cu. yds. struck)

Group 22

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (single engine, up to and including 25 yds. struck)

Group 23

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (single engine, caterpillar, euclid, athey wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck)

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (multiple engine, up to and including 25 yds. struck)

Group 24

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (single engine, over 50 yds. Struck)

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (multiple engine, euclid, caterpillar and similar, over 25 yds. and up to 50 yds. struck)

Group 25

Concrete Pump Operator-Truck Mounted Pedestal Concrete Pump Operator

Rubber-Tired Earth Moving Equipment Operator, Operating Equipment with the Tandem Push-Pull System (multiple engine, euclid, caterpillar and similar over 50 cu. yds struck)

MISCELLANEOUS PROVISIONS:

1. Operators on hoists with three drums shall receive fifty cents (50¢) per hour additional pay to the regular rate of pay. The additional pay shall be added to the regular rate and become the base rate for the entire shift.
2. All heavy duty repairman and heavy duty combination shall receive one dollar (\$1.00) per hour tool allowance in addition to their regular rate of pay and this shall become their base rate of pay.
3. Employees required to suit up and work in a hazardous material environment, shall receive Two Dollars (\$2.00) per hour in addition to their regular rate of pay, and that rate shall become the basic hourly rate of pay.
4. A review of rock drilling is currently pending. The minimum acceptable rate of pay for this classification or type of work on public works projects is Laborer and Related Classifications/Group 5 (Driller) as published in the Director's General Prevailing Wage Determinations. However, the published rate for the craft/classification of Operating Engineer/Group 8 (Rock Drill or Similar Types) may be used by contractors to perform rock drilling on public works projects.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>).

^a For classifications within each group, see Pages 7 through 11.

^b Rate applies to the first 4 overtime hours. All other daily overtime is paid at the Sunday rate.

^c Rate applies to the first 12 hours worked. All other time is paid at the Sunday rate.

^d Includes an amount for Annuity.

^e Includes an amount withheld for supplemental dues.

^f The Third Shift shall work 6.5 hours, exclusive of meal period, for which 8 hours straight-time shall be paid at the non-shift rate, Monday through Friday.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: CRANES, PILE DRIVER AND HOISTING EQUIPMENT (OPERATING ENGINEER) #

Determination:

SC-23-63-2-2023-1B

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journeyman)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$55.25	8	\$86.04	\$113.665	\$113.665	\$141.290
Group 2	\$56.03	8	\$86.82	\$114.835	\$114.835	\$142.850
Group 3	\$56.32	8	\$87.11	\$115.270	\$115.270	\$143.430
Group 4	\$56.46	8	\$87.25	\$115.480	\$115.480	\$143.710
Group 5	\$56.68	8	\$87.47	\$115.810	\$115.810	\$144.150
Group 6	\$56.79	8	\$87.58	\$115.975	\$115.975	\$144.370
Group 7	\$56.91	8	\$87.70	\$116.155	\$116.155	\$144.610
Group 8	\$57.08	8	\$87.87	\$116.410	\$116.410	\$144.950
Group 9	\$57.25	8	\$88.04	\$116.665	\$116.665	\$145.290
Group 10	\$58.25	8	\$89.04	\$118.165	\$118.165	\$147.290
Group 11	\$59.25	8	\$90.04	\$119.665	\$119.665	\$149.290
Group 12	\$60.25	8	\$91.04	\$121.165	\$121.165	\$151.290
Group 13	\$61.25	8	\$92.04	\$122.665	\$122.665	\$153.290

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: CRANES, PILE DRIVER AND HOISTING EQUIPMENT
(OPERATING ENGINEER, SPECIAL SHIFT) #**

Determination:

SC-23-63-2-2023-1B

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journeyman)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$56.25	8	\$87.04	\$115.165	\$115.165	\$143.290
Group 2	\$57.03	8	\$87.82	\$116.335	\$116.335	\$144.850
Group 3	\$57.32	8	\$88.11	\$116.770	\$116.770	\$145.430
Group 4	\$57.46	8	\$88.25	\$116.980	\$116.980	\$145.710
Group 5	\$57.68	8	\$88.47	\$117.310	\$117.310	\$146.150
Group 6	\$57.79	8	\$88.58	\$117.475	\$117.475	\$146.370
Group 7	\$57.91	8	\$88.70	\$117.655	\$117.655	\$146.610
Group 8	\$58.08	8	\$88.87	\$117.910	\$117.910	\$146.950
Group 9	\$58.25	8	\$89.04	\$118.165	\$118.165	\$147.290
Group 10	\$59.25	8	\$90.04	\$119.665	\$119.665	\$149.290
Group 11	\$60.25	8	\$91.04	\$121.165	\$121.165	\$151.290
Group 12	\$61.25	8	\$92.04	\$122.665	\$122.665	\$153.290
Group 13	\$62.25	8	\$93.04	\$124.165	\$124.165	\$155.290

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: CRANES, PILE DRIVER AND HOISTING EQUIPMENT
(OPERATING ENGINEER, MULTI-SHIFT) #**

Determination:

SC-23-63-2-2023-1B

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023**The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages:

Classification ^a (Journey person)	Basic Hourly Rate	Hours ^f	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^c (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group 1	\$56.25	8	\$87.04	115.165	115.165	\$143.290
Group 2	\$57.03	8	\$87.82	116.335	116.335	\$144.850
Group 3	\$57.32	8	\$88.11	116.770	116.770	\$145.430
Group 4	\$57.46	8	\$88.25	116.980	116.980	\$145.710
Group 5	\$57.68	8	\$88.47	117.310	117.310	\$146.150
Group 6	\$57.79	8	\$88.58	117.475	117.475	\$146.370
Group 7	\$57.91	8	\$88.70	117.655	117.655	\$146.610
Group 8	\$58.08	8	\$88.87	117.910	117.910	\$146.950
Group 9	\$58.25	8	\$89.04	118.165	118.165	\$147.290
Group 10	\$59.25	8	\$90.04	119.665	119.665	\$149.290
Group 11	\$60.25	8	\$91.04	121.165	121.165	\$151.290
Group 12	\$61.25	8	\$92.04	122.665	122.665	\$153.290
Group 13	\$62.25	8	\$93.04	124.165	124.165	\$155.290

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$12.35
Pension ^d	\$13.15
Vacation and Holiday ^e	\$3.85
Training	\$1.05
Other	\$0.39

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Classifications:

Group 1

Engineer Oiler

Group 2

Truck Crane Oiler

Group 3

A-Frame or Winch Truck Operator
Ross Carrier Operator (Jobsite)

Group 4

Bridge-Type Unloader and Turntable Operator
Helicopter Hoist Operator
Ojjo Earth Truss Driver Machine Operator or similar types
Snobble Unit (pin-n-go or similar type)

Group 5

Hydraulic Boom Truck/Knuckleboom
Stinger Crane (Austin-Western or similar type)
Tugger Hoist Operator (1 drum)

Group 6

Bridge Crane Operator
Cretor Crane Operator
Hoist Operator (Chicago Boom and similar type)
Lift Mobile Operator
Lift Slab Machine Operator (Vagtborg and similar types)
Material Hoist and/or Manlift Operator
Polar Gantry Crane Operator
Prentice Self-Loader
Self Climbing Scaffold (or similar type)

Shovel, Dragline, Clamshell Operator (over ¾ yd and up to 5 cu yds, M.R.C.)

Silent Piler

Tugger Hoist Operator (2 drum)

Group 7

Pedestal Crane Operator
Shovel, Dragline, Clamshell Operator (over 5 cu yds, M.R.C.)
Tower Crane Repairman
Tugger Hoist Operator (3 drum)

Group 8

Crane Operator (up to and including 25 ton capacity)
Crawler Transporter Operator
Derrick Barge Operator (up to and including 25 ton capacity)
Hoist Operator, Stiff Legs, Guy Derrick or similar type (up to and including 25 ton capacity)
Rotational Telehandler Operator
Self-Propelled Modular Transporter (Schuerle, Goldhofer or similar types)
Shovel, Dragline, Clamshell Operator (over 7 cu yds M.R.C.)

Group 9

Crane Operator (over 25 tons, up to and including 50 ton M.R.C.)
Derrick Barge Operator (over 25 tons, up to and including 50 ton M.R.C.)
Highline Cableway Operator

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 25 tons, up to and including 50 ton M.R.C.)

K-Crane

Polar Crane Operator

Self Erecting Tower Crane Operator Maximum Lifting Capacity ten (10) tons

Group 10

ABI/IFundex Machine

Crane Operator (over 50 tons, up to and including 100 ton M.R.C.)

Derrick Barge Operator (over 50 tons, up to and including 100 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 50 tons, up to and including 100 ton M.R.C.)

Mobile Tower Crane Operator (over 50 tons, up to and including 100 ton M.R.C.)

Shovel, Dragline, Clamshell Operator (over 10 cu. yds.)

Group 11

Crane Operator (over 100 tons, up to and including 200 ton M.R.C.)

Derrick Barge Operator (over 100 tons, up to and including 200 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 100 tons, up to and including 200 ton M.R.C.)

Mobile Tower Crane Operator (over 100 tons, up to and including 200 ton M.R.C.)

Tower Crane Operator and Tower Gantry

Group 12

Crane Operator (over 200 tons, up to and including 300 ton M.R.C.)

Derrick Barge Operator (over 200 tons, up to and including 300 ton M.R.C.)

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 200 tons, up to and including 300 ton M.R.C.)

Mobile Tower Crane Operator (over 200 tons, up to and including 300 ton M.R.C.)

Group 13

Crane Operator (over 300 tons)

Derrick Barge Operator (over 300 tons)

Helicopter Pilot

Hoist Operator, Stiff Legs, Guy Derrick or similar type (over 300 tons)

Hydraulically Controlled Lift Gantry Operator BCR Lift System (over 300 tons)

Mobile Tower Crane Operator (over 300 tons)

MISCELLANEOUS PROVISIONS:

1. Operators on hoists with three drums shall receive fifty cents (50¢) per hour additional pay to the regular rate of pay. The additional pay shall be added to the regular rate and become the base rate for the entire shift.
2. All heavy duty repairman and heavy duty combination shall receive one dollar (\$1.00) per hour tool allowance in addition to their regular rate of pay and this shall become their base rate of pay.
3. Employees required to suit up and work in a hazardous material environment, shall receive two dollars per hour in addition to their regular rate of pay, and that rate shall become the basic hourly rate of pay.

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>).

^a For classifications within each group, see Pages 4 and 5.

^b Rate applies to the first 4 overtime hours. All other daily overtime is paid at the Sunday rate.

^c Rate applies to the first 12 hours worked. All other time is paid at the Sunday rate.

^d Includes an amount for Annuity.

^e Includes an amount withheld for supplemental dues.

^f The Third Shift shall work 6.5 hours, exclusive of meal period, for which 8 hours straight-time shall be paid at the non-shift rate, Monday through Friday.

GENERAL PREVAILING WAGE APPRENTICE RATES

Apprentice Prevailing Wage Rates are paid only to apprentices registered with the State of California, Division of Apprenticeship Standards, for work the registered apprentice performs in his/her specific craft or trade. You may check whether an Apprentice is registered at the [Division of Apprenticeship Standards Website](https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp) (https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp)

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Operating Engineer

Shift: 1

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$34.010	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$55.150
2	N/A	1,000	\$36.840	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$57.980
3	N/A	1,000	\$39.680	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$70.470
4	N/A	1,000	\$42.510	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$73.300
5	N/A	1,000	\$45.340	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$76.130
6	N/A	1,000	\$51.010	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$81.800

FOOTNOTE(S)

Operating Engineers Group 13 through 25 apprentice wage rates are based on the applicable journeyman's wage rates for that group.

Pension: Includes an amount for Annuity.

Vacation & Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund, and Southern California Partnership for Jobs Fund.

Rates above also apply to crafts:

Tunnel Operating Engineer

Crane, Pile Driver, and Hoisting Equipment Operating Engineer

** JOURNEYMAN PREDETERMINED INCREASES:

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Operating Engineer

Indentured/Other: Special Shift

Shift: 2

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$35.010	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$56.150
2	N/A	1,000	\$37.840	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$58.980
3	N/A	1,000	\$40.680	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$71.470
4	N/A	1,000	\$43.510	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$74.300
5	N/A	1,000	\$46.340	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$77.130
6	N/A	1,000	\$52.010	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$82.800

FOOTNOTE(S)

Special Shift Rates

Operating Engineers Group 13 through 25 apprentice wage rates are based on the applicable journeyman's wage rates for that group.

Pension: Includes an amount for Annuity.

Vacation & Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund, and Southern California Partnership for Jobs Fund.

Rates above also apply to crafts:

Tunnel Operating Engineer

Crane, Pile Driver, and Hoisting Equipment Operating Engineer

****JOURNEYMAN PREDETERMINED INCREASES:**

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

Determination: 2023-1

Issue Date: 02-22-2023

Expire Date: 06-30-2023 **

Craft/Classification: Operating Engineer

Indentured/Other: Multi-shift

Shift: 3

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	1,000	\$35.010	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$56.150
2	N/A	1,000	\$37.840	\$12.350	\$3.500	\$3.850	\$1.050	\$.390	\$58.980
3	N/A	1,000	\$40.680	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$71.470
4	N/A	1,000	\$43.510	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$74.300
5	N/A	1,000	\$46.340	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$77.130
6	N/A	1,000	\$52.010	\$12.350	\$13.150	\$3.850	\$1.050	\$.390	\$82.800

FOOTNOTE(S)

Rates above are for Multi-shift

Operating Engineers Group 13 through 25 apprentice wage rates are based on the applicable journeyman's wage rates for that group.

Pension: Includes an amount for Annuity

Vacation & Holiday: Includes an amount for Supplemental Dues.

Other: Includes amounts for Industry Fund, Engineers Contract Compliance Committee (ECCC), Contract Administration Fund, and Southern California Partnership for Jobs Fund.

Rates above also apply to crafts:

Tunnel Operating Engineer

Crane, Pile Driver, and Hoisting Equipment Operating Engineer

**** JOURNEYMAN PREDETERMINED INCREASES:**

7-1-2023: \$4.00 to be allocated to wages and/or fringes.

7-1-2024: \$4.00 to be allocated to wages and/or fringes.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

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Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

GENERAL PREVAILING WAGE APPRENTICE RATES

Apprentice Prevailing Wage Rates are paid only to apprentices registered with the State of California, Division of Apprenticeship Standards, for work the registered apprentice performs in his/her specific craft or trade. You may check whether an Apprentice is registered at the [Division of Apprenticeship Standards Website](https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp) (<https://www.dir.ca.gov/DAS/appcertpw/AppCertSearch.asp>)

Determination: 2023-1

Issue Date: 08-22-2022

Expire Date: 06-30-2023 **

Craft/Classification: Teamster

Counties: Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura

Period	Duration Months	OJT Hours	Basic Hourly Rate	Health & Welfare	Pension	Vacation/ Holiday	Training	Other	Total Hourly Rate
1	N/A	600	\$19.990	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$41.770
2	N/A	600	\$22.630	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$44.410
3	N/A	600	\$25.650	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$47.430
4	N/A	600	\$28.290	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$50.070
5	N/A	600	\$32.060	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$53.840
6	N/A	600	\$35.830	\$15.060	\$3.000	\$1.450	\$1.820	\$.450	\$57.610

FOOTNOTE(S)

Vacation & Holiday - Includes Amount for Supplemental Dues.

Apprentice rates based on Group X Journeyman Rates.

** Journeyman Predetermined Increases

Effective July 1, 2023, there will be an increase of \$3.15 to be allocated to wages and/or employer payments.

Effective July 1, 2024, there will be an increase of \$3.30 to be allocated to wages and/or employer payments.

There may be corresponding predetermined increase(s) to the apprentices associated with this journeyman craft/classification. Please e-mail a request to statistics@dir.ca.gov or send to the following address:

Department of Industrial Relations

Office of the Director - Research Unit

P.O. Box 420603

San Francisco, CA 94142-0603

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

CRAFT: #TEAMSTER (APPLIES ONLY TO WORK ON THE CONSTRUCTION SITE)

Determination:

SC-23-261-2-2022-1

Issue Date:

August 22, 2022

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director – Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journey person)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group I	\$36.19	8	\$68.73	\$86.825	\$86.825	\$104.92
Group II	\$36.34	8	\$68.88	\$87.05	\$87.05	\$105.22
Group III	\$36.47	8	\$69.01	\$87.245	\$87.245	\$105.48
Group IV	\$36.66	8	\$69.20	\$87.53	\$87.53	\$105.86
Group V	\$36.69	8	\$69.23	\$87.575	\$87.575	\$105.92
Group VI	\$36.72	8	\$69.26	\$87.62	\$87.62	\$105.98
Group VII	\$36.97	8	\$69.51	\$87.995	\$87.995	\$106.48
Group VIII	\$37.22	8	\$69.76	\$88.37	\$88.37	\$106.98
Group IX	\$37.42	8	\$69.96	\$88.67	\$88.67	\$107.38
Group X	\$37.72	8	\$70.26	\$89.12	\$89.12	\$107.98
Group XI	\$38.22	8	\$70.76	\$89.87	\$89.87	\$108.98

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$3.15
Training	\$1.82
Other	\$0.45

Wages and total hourly rates (including employer payments):

Classification ^d (Subjourneyman)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½x)	Sunday/Holiday Overtime Hourly Rate (2 x)
0-2000 hours	\$22.40	8	\$53.79	\$64.99	\$64.99	\$76.19
2001-4000 hours	\$24.40	8	\$56.04	\$68.24	\$68.24	\$80.44
4001-6000 hours	\$26.40	8	\$58.29	\$71.49	\$71.49	\$84.69

Over 6000 hours and thereafter at journeyman rates.

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$2.00 (\$2.25 for 2001-4000 hours; \$2.50 for 4001-6000 hours)
Training	\$1.82
Other	\$0.45

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: #TEAMSTER (SPECIAL SHIFT)
(APPLIES ONLY TO WORK ON THE CONSTRUCTION SITE)**

Determination:

SC-23-261-2-2022-1

Issue Date:

August 22, 2022

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director – Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journey person)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group I	\$37.19	8	\$69.73	\$88.325	\$88.325	\$106.92
Group II	\$37.34	8	\$69.88	\$88.55	\$88.55	\$107.22
Group III	\$37.47	8	\$70.01	\$88.745	\$88.745	\$107.48
Group IV	\$37.66	8	\$70.20	\$89.03	\$89.03	\$107.86
Group V	\$37.69	8	\$70.23	\$89.075	\$89.075	\$107.92
Group VI	\$37.72	8	\$70.26	\$89.12	\$89.12	\$107.98
Group VII	\$37.97	8	\$70.51	\$89.495	\$89.495	\$108.48
Group VIII	\$38.22	8	\$70.76	\$89.87	\$89.87	\$108.98
Group IX	\$38.42	8	\$70.96	\$90.17	\$90.17	\$109.38
Group X	\$38.72	8	\$71.26	\$90.62	\$90.62	\$109.98
Group XI	\$39.22	8	\$71.76	\$91.37	\$91.37	\$110.98

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$3.15
Training	\$1.82
Other	\$0.45

Wages and total hourly rates (including employer payments):

Classification ^d (Subjourneyman)	Basic Hourly Rate	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½x)	Sunday/Holiday Overtime Hourly Rate (2 x)
0-2000 hours	\$22.40	8	\$53.79	\$64.99	\$64.99	\$76.19
2001-4000 hours	\$24.40	8	\$56.04	\$68.24	\$68.24	\$80.44
4001-6000 hours	\$26.40	8	\$58.29	\$71.49	\$71.49	\$84.69

Over 6000 hours and thereafter at journeyman rates.

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$2.00 (\$2.25 for 2001-4000 hours; \$2.50 for 4001-6000 hours)
Training	\$1.82
Other	\$0.45

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: #TEAMSTER (SECOND SHIFT)
(APPLIES ONLY TO WORK ON THE CONSTRUCTION SITE)**

Determination:

SC-23-261-2-2022-1

Issue Date:

August 22, 2022

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director – Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and total hourly rates (including employer payments):

Classification ^a (Journey person)	Basic Hourly Rate	Hours ^e	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½ x)	Sunday/Holiday Overtime Hourly Rate (2 x)
Group I	\$38.19	8	\$70.73	\$89.825	\$89.825	\$108.92
Group II	\$38.34	8	\$70.88	\$90.05	\$90.05	\$109.22
Group III	\$38.47	8	\$71.01	\$90.245	\$90.245	\$109.48
Group IV	\$38.66	8	\$71.20	\$90.53	\$90.53	\$109.86
Group V	\$38.69	8	\$71.23	\$90.575	\$90.575	\$109.92
Group VI	\$38.72	8	\$71.26	\$90.62	\$90.62	\$109.98
Group VII	\$38.97	8	\$71.51	\$90.995	\$90.995	\$110.48
Group VIII	\$39.22	8	\$71.76	\$91.37	\$91.37	\$110.98
Group IX	\$39.42	8	\$71.96	\$91.67	\$91.67	\$111.38
Group X	\$39.72	8	\$72.26	\$92.12	\$92.12	\$111.98
Group XI	\$40.22	8	\$72.76	\$92.87	\$92.87	\$112.98

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$3.15
Training	\$1.82
Other	\$0.45

Wages and total hourly rates (including employer payments):

Classification ^d (Subjourneyman)	Basic Hourly Rate	Hours ^e	Total Hourly Rate	Daily Overtime Hourly Rate ^b (1½ x)	Saturday Overtime Hourly Rate ^b (1½x)	Sunday/Holiday Overtime Hourly Rate (2 x)
0-2000 hours	\$22.40	8	\$53.79	\$64.99	\$64.99	\$76.19
2001-4000 hours	\$24.40	8	\$56.04	\$68.24	\$68.24	\$80.44
4001-6000 hours	\$26.40	8	\$58.29	\$71.49	\$71.49	\$84.69

Over 6000 hours and thereafter at journeyman rates.

Employer Payments:

Type of Fund	Amount per Hour
Health and Welfare	\$20.12
Pension	\$7.00
Vacation and Holiday ^c	\$2.00 (\$2.25 for 2001-4000 hours; \$2.50 for 4001-6000 hours)
Training	\$1.82
Other	\$0.45

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

In accordance with Labor Code Sections 1773.1 and 1773.9, contractors shall make travel and/or subsistence payments to each worker to execute the work. You may obtain the travel and/or subsistence provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Travel and/or subsistence requirements for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Classifications:

Group I

Warehouseman and Teamster

Side Dump Trucks

Flow Boy Dump Trucks

Group II

Driver of Vehicle or Combination of Vehicles - 2 axles
Traffic Control Pilot Car, excluding moving heavy
equipment permit load
Truck Mounted Power Broom

Group VII

A Frame, Swedish Crane or Similar
Forklift Driver
Ross Carrier Driver

Group III

Driver of Vehicle or Combination of Vehicles - 3 axles
Bootman
Cement Mason Distribution Truck
Fuel Truck Driver
Water Truck - 2 axles
Dump Truck of less than 16 yards water level
Erosion Control Driver

Group VIII

Dump Truck of 25 yds to 49 yards water level
Truck Repairman
Water Pull Single Engine
Welder

Group IV

Driver of Transit Mix Truck-Under 3 yds
Dumpcrete Truck Less than 6½ yards water level
Truck Repairman Helper

Group IX

Truck Repairman Welder
Low Bed Driver, 9 axles or over

Group V

Water Truck 3 or more axles
Warehouseman Clerk
Slurry Truck Driver

Group X

Working Truck Driver
Truck Greaser and Tireman - \$0.50 additional for
Tireman
Pipeline and Utility Working Truck Driver, including
Winch Truck and Plastic Fusion, limited to Pipeline
and Utility Work
Dump Truck and Articulating - 50 yards or more water
level
Water Pull Single Engine with attachment

Group VI

Driver of Transit Mix Truck - 3 yds or more
Dumpcrete Truck 6½ yds water level and over
Driver of Vehicle or Combination of Vehicles - 4 or
more axles
Driver of Oil Spreader Truck
Dump Truck 16 yds to 25 yds water level

Group XI

Water Pull Twin Engine
Water Pull Twin Engine with attachments
Winch Truck Driver - \$0.25 additional when operating
a Winch or similar special attachment

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp>).

^a For classifications within each group, see Page 7.

^b Rate applies to the first 4 daily overtime hours on weekdays and the first 12 hours on Saturday. All other overtime is paid at the Sunday/Holiday double-time rate.

^c Includes an amount for Supplemental Dues.

^d Subjourneyman may be employed at a ratio of one subjourneyman for every five journeyman.

^e The third shift shall work 6.5 hours, exclusive of meal period, for which 8-hours straight time shall be paid at the non-shift rate, Monday through Friday.

**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
FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS**

CRAFT: BUILDING/CONSTRUCTION INSPECTOR AND FIELD SOILS AND MATERIAL TESTER*

Determination:

SC-23-63-2-2023-1D

Issue Date:

February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and Employer Payments:

Classification ^a (Journey person)	Basic Hourly Rate	Health and Welfare	Pension ^b	Vacation and Holiday ^c	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^d (1½ x)	Saturday Overtime Hourly Rate ^e (1½ x)	Sunday/ Holiday Overtime Hourly Rate (2 x)
Group 1	\$54.68	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$85.47	\$112.810	\$112.810	\$140.150
Group 2	\$56.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$87.25	\$115.480	\$115.480	\$143.710
Group 3	\$58.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$89.25	\$118.480	\$118.480	\$147.710

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
 FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: BUILDING/CONSTRUCTION INSPECTOR AND FIELD SOILS AND MATERIAL TESTER#
 (SPECIAL SHIFT)**

Determination:
 SC-23-63-2-2023-1D

Issue Date:
 February 22, 2023

Expiration date of determination:

June 30, 2023** The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

Localities:

All localities within Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Luis Obispo, Santa Barbara and Ventura Counties.

Wages and Employer Payments:

Classification ^a (Journey person)	Basic Hourly Rate	Health and Welfare	Pension ^b	Vacation and Holiday ^c	Training	Other	Hours	Total Hourly Rate	Daily Overtime Hourly Rate ^d (1½ x)	Saturday Overtime Hourly Rate ^e (1½ x)	Sunday/ Holiday Overtime Hourly Rate (2 x)
Group 1	\$55.68	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$86.47	\$114.310	\$114.310	\$142.150
Group 2	\$57.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$88.25	\$116.980	\$116.980	\$145.710
Group 3	\$59.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$90.25	\$119.980	\$119.980	\$149.710

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
 FOR COMMERCIAL BUILDING, HIGHWAY, HEAVY CONSTRUCTION AND DREDGING PROJECTS

**CRAFT: BUILDING/CONSTRUCTION INSPECTOR AND FIELD SOILS AND MATERIAL TESTER #
 (MULTI-SHIFT)**

Determination:
 SC-23-63-2-2023-1D

Issue Date:
 February 22, 2023

Expiration date of determination:

June 30, 2023**The rate to be paid for work performed after this date has been determined. If work will extend past this date, the new rate must be paid and should be incorporated in contracts entered into now. Contact the Office of the Director - Research Unit for specific rates at (415) 703-4774.

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Wages and Employer Payments:

Classification ^a (Journey person)	Basic Hourly Rate	Health and Welfare	Pension ^b	Vacation and Holiday ^c	Training	Other	Hours ^f	Total Hourly Rate	Daily Overtime Hourly Rate ^d (1½ x)	Saturday Overtime Hourly Rate ^e (1½ x)	Sunday/ Holiday Overtime Hourly Rate (2 x)
Group 1	\$55.68	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$86.47	114.310	114.310	\$142.150
Group 2	\$57.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$88.25	116.980	116.980	\$145.710
Group 3	\$59.46	\$12.35	\$13.15	\$3.85	\$1.05	\$0.39	8	\$90.25	119.980	119.980	\$149.710

Recognized holidays:

Holidays upon which the general prevailing hourly wage rate for Holiday work shall be paid, shall be all holidays in the collective bargaining agreement, applicable to the particular craft, classification, or type of worker employed on the project, which is on file with the Director of Industrial Relations. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code. You may obtain the holiday provisions for the current determinations on the [Director's General Prevailing Wage Determinations Website](http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm) (<http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>). Holiday provisions for current or superseded determinations may be obtained by contacting the Office of the Director – Research Unit at (415) 703-4774.

Travel and/or subsistence payment:

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Classifications:

Group 1

Field Soils and Materials Tester
Field Asphaltic Concrete (Soils and Materials Tester)
Field Earthwork (Grading Excavation and Filling)
Roof Inspector
Water Proofer

Group 2

AWS-CWI Welding Inspector
Building/Construction Inspector
Licensed Grading Inspector
Reinforcing Steel
Reinforced Concrete
Pre-Tension Concrete

Post-Tension Concrete

Structural Steel and Welding Inspector
Glue-Lam and truss Joints
Truss-Type Joint Construction
Shear Wall and Floor System used as diaphragms
Concrete batch Plant
Spray-Applied Fireproofing
Structural masonry

Group 3

Nondestructive Testing (NDT)
Unmanned Aircraft Systems (UAS Drones) Operator (when used in conjunction with field soils and material testing – building/construction inspection

Indicates an apprenticeable craft. The current apprentice wage rates are available on the [Prevailing Wage Apprentice Determinations Website](http://www.dir.ca.gov/OPRL/PWAppWageStart.asp) (<http://www.dir.ca.gov/OPRL/PWAppWageStart.asp>).

^a For classifications within each group, see Page 4.

^b Includes an amount for Annuity.

^c Includes an amount withheld for supplemental dues.

^d Rate applies to the first 4 overtime hours. All other daily overtime is paid at the Sunday rate.

^e Rate applies to the first 12 hours worked. All other time is paid at the Sunday rate.

^f The Third Shift shall work 6.5 hours, exclusive of meal period, for which 8 hours straight-time shall be paid at the non-shift rate, Monday through Friday.

4. BID FORM

Project Identification: **Palo Verde County Water District Water Well Replacement Project – Phase II**

Contract Identification and Number: **CDBG Grant No. 18-CDBG-12925**

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ARTICLE 1 - BID RECIPIENT

1.01 This Bid Is Submitted To: **Office of the Clerk of the Board of Supervisors
940 Main Street, Suite 209
El Centro, CA 92243**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in the Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER’S ACKNOWLEDGMENTS

2.01 The Bidder accepts all of the terms and conditions of the Advertisement and Instructions to Bidders, including without limitations those dealing with the dispositions of Bid Security. The Bid will remain subject to acceptance for **sixty (60) days** after the Bid Opening, or for such longer period of time that the Bidder may agree to in writing upon a request from the Owner.

ARTICLE 3 - BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, the Bidder represents that:

A. The Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

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

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

- C. The Bidder is familiar with and is satisfied as to all Federal, State, and Local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. The Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities), if any, which have been identified in Supplementary Conditions 4.02, and (2) reports and drawings of a Hazard Environmental Condition, if any, which has been identified in Supplementary Conditions 4.06.
- E. The Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by the Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by the Bidder, and safety precautions and programs incident thereto.
- F. The Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. The Bidder is aware of the general nature of the Work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. The Bidder has correlated the information known to the Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. The Bidder has given the Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that the Bidder has discovered in the Bidding Documents, and the written resolution thereof by the Engineer is acceptable to the Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. The Bidder will submit written evidence of its authority to do business in the State where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 - FURTHER REPRESENTATIONS

4.01 The Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation;
- B. The Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. The Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. The Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over the Owner.

ARTICLE 5 – BASIS OF BID – SCHEDULE OF VALUES

5.01 The Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

<u>Item No</u>	<u>Item Description</u>	<u>Lump Sum Cost</u>
1	Mobilization for installation of New North Well Site Number 2 as detailed in the Plans, Contract Documents, Specifications, and any addendum(a).	\$ _____
2	Construct site access road for Water Well Site Number 2 as illustrated in the Plans and Project Manual and any addendum(a).	\$ _____
3	Sawcut, remove and dispose of concrete sidewalk as illustrated in Plans the Project Manual and any addendum(a).	\$ _____
4	Conduct Geotechnical Testing for Water Well Site Number 2 in conformance with Specifications of the Project Manual, Improvement Plans and any addendum(a).	\$ _____
5	Demolish the existing north well site number 2 per plan sheets and all other requirements of the project manual and any addendum(a). This item includes the cost of the Well Decommissioning and Demolition Report.	\$ _____
6	Construct the new north well number 2 per Plans, Project Manual and any addendum(a) unless otherwise stated by this Bid Item. This item includes the preparation of the Water Well Report. This item does not include the Water Well and Downstream Pipeline Disinfection or Water Quality Testing included in the Technical Specifications of the Project Manual.	\$ _____
7	Conduct the disinfection of north well number 2 and the downstream piping in conformance with the Technical Specifications of the Project Manual and any addendum(a).	\$ _____
8	Conduct the Water Quality Testing of north well number 2 in conformance with the Technical Specifications of the Project Manual and any addendum(a).	\$ _____

<u>Item No</u>	<u>Item Description</u>	<u>Lump Sum Cost</u>
9	Install the piping between the north well number 2 and point of connection at the existing filter units per Plans, Project Manual and any addendum(a). This includes the hydrostatic testing of the piping and fittings. This item does not include the installation of the Magnetic Flowmeter.	\$ _____
10	Install the magnetic flowmeter, amplifier, electrical cable extending between the magnetic flowmeter and amplifier for well site number 2 per the project manual and any addendum(a). This item includes the supplying of the magnetic flowmeter, amplifier, and electrical cable materials. This item does not include the electrical and instrumentation work associated with installing the magnetic flowmeter, amplifier and electrical cable.	\$ _____
11	Install all electrical work as illustrated on the plans, Technical Specifications, including the electrical and control work for the Magnetic Flowmeter and all other portions of the Project Manual and any addendum(a) except for the installation of circuitry for Water Well Site Number 2. This item <u>does not include</u> the installation of conduits from the new electrical pull box approximately 22 feet northeast from the Electrical Building to Water Well Site Number 2.	\$ _____
12	Install electrical circuitry from the Electrical Building to water well site number 2. Include conduit installation from the new electrical pull-box approximately 22 feet northeast from the Electrical Building to water well site number 2.	\$ _____
13	Calibration and start-up of the flowmeter system for water well site numbers 2 by the Magnetic Flowmeter manufacturer/supplier in conformance with the Magnetic Flowmeter Technical Specifications, Improvement Plans, Project Manual and any addendum(a).	\$ _____

<u>Item No</u>	<u>Item Description</u>	<u>Lump Sum Cost</u>
14	Calibration and integration of the output signal of the flowmeter amplifier for water well site number 2 with the existing Filter Control Panel in the Control Building. The calibration, integration and start-up shall be coordinated with the assistance of the Filter Control Panel supplier/manufacturer in conformance with the Magnetic Flowmeter Technical Specifications, Improvement Plans, Project Manual and any addendum(a).	\$ _____
15	Install new turbidimeter analyzer’s assemblies per Improvement Plans, Project Manual and any addendum(a).	\$ _____
16	Conduct programming and integration of the Filter Control Panel to include input / output and controls of new well site number 2, flowmeter and analyzers per Improvement Plans, Project Manual and any addendum(a).	\$ _____
17	Install shade structure over new south well number 2 per Improvement Plans, Project Manual and any addendum(a).	\$ _____

TOTAL FOR COMPARISON

TOTAL BID in Figures \$ _____

TOTAL BID in Words _____

ARTICLE 6 - TIME OF COMPLETION

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

ARTICLE 7 - ATTACHMENTS TO BID

- 7.01 The following documents are attached to and made a condition of the Bid:
 - A. Non-Collusion Affidavit;
 - B. Required Bid Security of ten percent (10%) in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (circle type of security provided);
 - C. If Bid amount exceeds \$10,000, signed Compliance Statement/Certifications of Non-segregated Facilities RD 400-6). Refer to specific equal opportunity requirements set forth in Paragraph 18.10 of the General Conditions;
 - D. If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion- Lower Tier Covered Transactions (AD-1048);
 - E. If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grant, and Loans. Refer to paragraph 18.11 of the General Conditions;
 - F. Worker’s Compensation Certification;
 - G. A Tabulation of Subcontractors with Names and Addresses and percent of Total Contract;
 - H. Required Bidder Qualifications Statement with supporting data;
 - I. Tabulation of Major Material Suppliers; and
 - J. Federal and State Contract Language Inclusion – January 1, 2018 – Exhibit ‘A’

ARTICLE 8 - DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

SEAL,
if required
by State

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

SEAL,
if required
by State

Name (typed or printed): _____

A Corporation

Corporation Name: _____

State of Incorporation: _____

Type (General Business, Profession, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest _____
(Signature of Corporate Secretary)

CORPORATE
SEAL,
if required by State

Date of Qualification to do business in _____ California is ___/___/_____

A Joint Venture

Name of Joint Venture: _____

First Joint Venture Name: _____

By: _____

(Signature of joint venture partner -- attach evidence of authority to sign)

SEAL,
if required
by State

Name (typed or printed): _____

Title: _____

Second Joint Venture Name: _____

By: _____

(Signature of joint venture partner -- attach evidence of authority to sign)

SEAL,
if required
by State

Name (typed or printed): _____

Title: _____

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

Bidder's Business Address:

Business Phone No. (____) _____

Business Fax No. (____) _____

Business E-Mail Address _____

State Contractor License No. _____.

Employer's Tax ID No. _____

Phone and Fax Numbers, and Address for receipt of official communications, if different from Business Contact Information:

9.02 Bid submitted on _____, 2023.

5. NON COLLUSION AFFIDAVIT
(Public Contract Code Section 7106)

State of California

County of _____

_____, being first duly sworn, deposes and says that he or she is _____ of _____, the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

By: _____

Subscribed and sworn to before me on _____
(Date)

(Notary Public)

(SEAL)

6. BID BOND

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

BIDDER (Name and Address):

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

OWNER (Name and Address):

**County of Imperial
Imperial County Workforce & Economic Development
2799 S 4th Street
El Centro, CA 92243**

BID

Bid Due Date:

Project: **Palo Verde County Water District Water Well Replacement Project – Phase II**

BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum _____ (Words) _____ (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal) _____
Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: Above addresses are to be used for giving required notice.

Palo Verde County Water District Water Well Replacement Project – Phase II

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

7. COMPLIANCE STATEMENT

This statement relates to a proposed contract with County of Imperial
(Name of borrower or grantee)

Who expects to finance the contract with assistance from the Community Development Block Grant (CDBG) or their successor agencies, California Department of Housing and Community Development (HCD) (whether by a loan, grant, loan insurance, guarantee, or other form of financial assistance). I am the Undersigned Bidder or Prospective Contractor. I represent that:

1. I have, have not, participated in a previous contract or subcontract subject to Executive Order 11246 (regarding equal employment opportunity) or a preceding similar Executive Order.
2. If I have participated in such a contract or subcontract, I have, have not, filed all Compliance Reports that I have been required to file in connection with the contract or subcontract.

If the proposed contract is for \$50,000 or more and I have 50 or more employees, I also represent that:

3. I have, have not, previously had contracts subject to the written Affirmative Action Program Requirements of the Secretary of Labor.
4. If I have participated in such a contract or subcontract, I have, have not, developed and placed on file at each establishment Affirmative Action Programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required by me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an arrangement regarding such reports that is satisfactory to the CDBG, or to the office of the governing agency where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity Clause in my contract. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods).

**7A. NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS
FOR
CERTIFICATIONS OF NON-SEGREGATED FACILITIES**

A certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually)

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date: _____

(Signature of Bidder or Prospective Contractor)

Address (including Zip Code)

8. FEDERAL AND STATE CONTRACT LANGUAGE INCLUSION - JANUARY 01, 2018 - EXHIBIT 'A'

The Contractor shall submit the Exhibit 'A' – Federal and State Contract Language Inclusion dated January 1, 2018 as a part of the Bid. Exhibit 'A' is attached as follows:

FEDERAL AND STATE CONTRACT LANGUAGE INCLUSION

JANUARY 01, 2018

Public Works Projects Required Bid Language

Required contract language for all state Public Works construction contracts between an awarding agency and the prime contractor;
And subcontractor contracts with the prime contractor.

SB 854, made important changes to the requirements from California for the contractors bidding or awarded a 'Public Works' contract.

AB 854 was signed into law on **June 20, 2014** and became effective immediately. All contractors and subcontractors who bid or work on a public works project must register and pay an annual fee to the State of California, Department of Industrial Relations (DIR). The phased-in timetable is as follows:

PUBLIC WORKS CONTRACTOR REGISTRATION PROGRAM

All contractors and subcontractors who bid on a public works project must register and pay an annual fee to the California Department of Industrial Relations. The phased-in timetable is as follows:

- **July 01, 2014:** the registration program became effective and all contractors may register on line and pay the required fee to the State of California, DIR. These early registrations will be valid through June 30, 2015.
- **March 01, 2015:** **NO** contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with DIR. Registration with DIR becomes mandatory on March 01, 2015 for bids on a public works contract.
- **April 01, 2015:** **NO** contractor or subcontractor may work on a public works project unless registered with DIR. Registration with DIR becomes mandatory on April 01, 2015 for performing work on a public works contract.

An awarding body may NOT accept a bid or enter into a contract for public works from an unregistered contractor.

NOTICE REQUIREMENTS,

January 01, 2015: The call for bids and contract documents must include the following information:

- **No contractor** or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 01, 2015) unless registered with the California Department of Industrial Relations pursuant to the California Labor Code section 1725.5 [with limited exception from this requirement for bid purposes only under California Labor Code section 1771.1(a)].
- **No contractor** or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 01, 2015) unless registered with the California Department of Industrial Relations pursuant to California Labor Code section 1725.5.
- This project is subject to compliance monitoring and enforcement by the California Department of Industrial Relations.

ELECTRONIC PAYROLL RECORDS,

All contractors and subcontractors must furnish electronic payroll records directly to the Labor Commissioner (aka California Division of Labor Standards Enforcement). The phased-in timetable for this requirement is as follows:

- **June 20, 2014 [Immediate]:** Any project that was being monitored by the CMU/Labor Commissioner prior to the adoption of SB 854 will continue to be monitored by the Labor Commissioner afterward; and the contractors on those projects must continue to furnish certified payroll records to the Labor Commissioner until the project is complete.
- **April 01, 2015:** For all new projects awarded on or after this date, the contractors and subcontractors must furnish electronic certified payroll records to the Labor Commissioner. **In addition hard copies must be provided to the awarding agency or their contracted agent on a weekly basis.**
- **Anytime:** For projects besides those listed above, the Labor Commissioner may at any time require the contractors and subcontractors to furnish electronic certified payroll records. *The Labor Commissioner anticipates requiring this for green energy school projects that receive Proposition 39 funding.*
- **January 01, 2016:** The requirement to furnish electronic certified payroll records to the Labor Commissioner will apply to all public works projects, whether new or ongoing.
- **Exceptions:** The Labor Commissioner may (but is not required to) excuse contractors and subcontractors from furnishing electronic certified payroll records to the Labor Commissioner on a project that is under jurisdiction of one of the four legacy California DIR-approved labor compliance programs (Caltrans, City of Los Angeles, Los Angeles Unified School District, and the County of Sacramento) or that is covered by a qualifying Project Labor Agreement (PLA).

These new requirements will apply to all public works that are subject to the prevailing wage requirements of the California Labor Code, without regard to the funding source.

California Labor Codes:

This Public Works project is funded by Agencies in California and requires compliance with the California Labor Standards, California Code of Regulations pertaining to Public Works projects, California Labor Codes and the California prevailing wage requirements with special attention to CLC §1720, CLC §1770, CLC § 1771, CLC § 1775, CLC § 1776, CLC §1777.5, CLC §1777.7, CLC §1810 through § 1815 and CLC §3700.

The contract executed between the contractor and the subcontractor or the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813, and 1815.

CLC § 1720; State prevailing wage rates shall apply when the State wage rate is higher than the Federal wage rate. All contractors and subcontractors are subject to the application of Section 1720 et seq. of the California Labor Code which details the regulations and procedures governing the payment of State prevailing wages. Etc.

CLC § 1727; (a) Before making payments to the contractor of money due under a contract for public work, the awarding body shall withhold and retain there from all amounts required to satisfy any civil wage and penalty assessment issued by the Labor Commissioner under this chapter. The amounts required to satisfy a civil wage and penalty assessment shall not be disbursed by the awarding body until receipt of a final order that is no longer subject to judicial review. Etc.

CLC § 1729; It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of the subcontractor's failure to comply with the terms of this chapter, and if payment has already been made to the subcontractor the contractor may recover from him the amount of the penalty or forfeiture in a suit at law.

CLC § 1729; It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of the subcontractor's failure to comply with the terms of this chapter, and if payment has already been made to the subcontractor the contractor may recover from him the amount of the penalty or forfeiture in a suit at law. Etc.

CLC § 1771.2; A joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) may bring an action in any court of competent jurisdiction against an employer that fails to pay the prevailing wage to its employees, as required by this article.

CLC § 1774;The contractor to whom the contract is awarded, and any subcontractor under him, shall pay not less than the specified prevailing rates of wages to all workmen employed in the execution of the contract.

CLC § 1775; PENALTIES FOR INCORRECT WAGES

1775. (a) (1) The contractor and any subcontractor under the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit not more than two hundred dollars (\$200) for **each calendar day**, or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the contractor or, except as provided in subdivision (b), by any subcontractor under the contractor.

CLC § 1776; Each contractor and subcontractor 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 him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

CLC § 1777.5 APPRENTICE REQUIREMENTS;

When the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected.

CLC § 1777.7 APPRENTICE PENALTIES; A contractor or subcontractor that is determined by the Chief of the Division of Apprenticeship Standards to have knowingly violated Section 1777.5 shall forfeit as a civil penalty an amount not exceeding one hundred dollars (\$100) for each full calendar day of noncompliance. The amount of this penalty may be reduced by the Chief if the amount of the penalty would be disproportionate to the severity of the violation. A contractor or subcontractor that knowingly commits a second or subsequent violation of Section 1777.5 within a three-year period, where the noncompliance results in apprenticeship training not being provided as required by this chapter, shall forfeit as a civil penalty the sum of not more than three hundred dollars (\$300) for each full calendar day of noncompliance.

CLC § 1810-1814; All contractors and subcontractors are subject to the provisions of Sections 1810-1814 of the California Labor Code which provide that the maximum hours a worker is to be employed is limited to eight hours a day and 40 hours a week and the contractor or subcontractor shall forfeit, as a penalty, \$25 for each worker employed in the execution of the contract for each calendar day during which a worker is required or permitted to labor more than eight hours in any calendar day or more than 40 hours in any calendar week and is not paid overtime. Etc.

CLC § 1815; of the California Labor Code requires that notwithstanding the provisions of Sections 1810-1814, employees of contractors who work in excess of eight hours per day and 40 hours per week shall be compensated for all hours worked in excess of eight hours per day at not less than 1-1/2 times the basic rate of pay. Etc.

CLC § Section 1860; The awarding body shall cause to be inserted in every public works contract a clause providing that, in accordance with the provisions of Section 3700 of the Labor Code, every contractor will be required to secure the payment of compensation to his employees.

CLC § 1861; Each contractor to whom a public works contract is awarded shall sign and file with the awarding body the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

CONFLICT OF INTEREST:

Contractor needs to be aware of the following provisions regarding current or former state employees. If Contractor has any questions on the status of any person rendering services or involved with the Agreement, the Department must be contacted immediately for clarification. The following explanations are general in nature. Please review the actual text of the statutes for detailed application.

Public Contracts Code section 10410 – Current State Employees:

- 1) No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any state agency, unless the employment, activity or enterprise is required as a condition of regular state employment.
- 2) No officer or employee shall contract on his or her own behalf as an independent contractor with any state agency to provide goods or services.

Public Contracts Code section 10411—Former State Employees:

- 1) For the two-year period from the date he or she left state employment, no former state officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any state agency.
- 2) For the twelve-month period from the date he or she left state employment, no former state officer or employee may enter into a contract with any state agency if he or she was employed by that state agency in a policy-making position in the same general subject area as the proposed contract within the twelve (12) month period prior to his or her leaving state service.

Public Contracts Code section 10420:

If Contractor violates any provisions of above paragraphs, such action by Contractor shall render this Agreement void.

Public Contracts Code section 10430 (e):

Members of boards and commissions are exempt from this section if they do not receive payment other than payment of each meeting of the board or commission, payment for preparatory time and payment for per diem.

NONDISCRIMINATION:

The Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, religion, ancestry, national origin, sex, disability or other handicap, age, marital/familial status, or status with regard to public assistance. The Contractor will take affirmative action to insure that all employment practices are free from such discrimination. Such employment practices include, but are not limited to, the following: hiring, upgrading, demotion, transfer, recruitment or recruitment advertising layoff, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting agency setting forth the provisions of the nondiscrimination clause.

TERMINATION FOR CAUSE:

The City/County may terminate this Agreement and be relieved of any payments should the Contractor fail to perform the requirements of this Agreement at the time and in the manner herein provided. In the event of such termination, the City/County may proceed with the work in any manner deemed proper by the City/County. All costs to the City/County shall be deducted from any sum due the Contractor under this Agreement and the balance, if any, shall be paid to the Contractor.

CHILD SUPPORT COMPLIANCE ACT:

For any agreement in excess of \$100,000, the Contractor acknowledges in accordance with, that:

- 1) The contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and
- 2) The contractor, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

UNION ORGANIZING:

By signing this agreement, Contractor hereby acknowledges the applicability of Government Code section 16645 through section 16649 to this agreement.

- a. Contractor will not assist, promote or deter union organizing by employees performing work on a state construction contract, including a public works contract.
- b. No state funds received under this agreement will be used to assist, promote or deter union organizing.
- c. Contractor will not, for any business conducted under this agreement, use any state property to hold meetings with employees or supervisors, if the purpose of such meetings is to assist, promote or deter union organizing, unless the state property is equally available to the general public for holding meetings.
- d. If Contractor incurs costs, or makes expenditures to assist, promote or deter union organizing, the Contractor will maintain records sufficient to show that no reimbursement from state funds has been sought for these costs, and that Contractor shall provide those records to the Attorney General upon request.

DRUG FREE WORKPLACE:

By signing this Agreement, Contractor hereby certifies under penalty of perjury under the laws of the State of California that Contractor will comply with the requirements of the Drug-Free Workplace Act of 1990 (Gov. Code, §8350 et seq.) and will provide a drug-free workplace by taking the following actions:

- a. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.
- b. Establish a Drug-Free Awareness Program to inform employees about: (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available counseling, rehabilitation and employee assistance programs; and (4) penalties that may be imposed upon employees for drug abuse violations.
- c. Every employee who works at the Property will: (1) receive a copy of the Contractor's drug-free workplace policy statement; and (2) agree to abide by the terms of the Contractor's statement as a condition of employment at the Property.

Failure to comply with these requirements may result in suspension of payments under the Agreement or termination of the Agreement or both and Contractor may be ineligible for award of any future state agreements if the department determines that any of the following has occurred: (1) the Contractor has made false certification, or violated the certification by failing to carry out the requirements as noted above. (Gov. Code, §8350 et seq.)

WORKMAN'S COMP. & LIABILITY INSURANCES.

Contractor shall at his own expense carry all workmen's compensation insurance to protect Contractor's employees and public liability insurance necessary for the full protection of Contractor and Awarding Agency from injury to persons or property arising from the acts of Contractor or his Subcontractors during the progress of the work. Certificates of such insurance shall be filed with Awarding Agency and with the Construction Lender if Awarding Agency so requires, and shall be subject to the approval of both of them as to adequacy of protection.

INSURANCE & BONDING:

The Contractor shall carry sufficient insurance coverage for unemployment, disability, and liability to protect contract assets from loss due to theft, fraud and/or undue physical damage, and as a minimum shall purchase a blanket fidelity bond covering all employees in an amount equal to cash advances from the Grantee. The Consultant shall comply with the bonding and insurance requirements of Attachment B of OMB Circular A-110, Bonding and Insurance.

STATE LABOR STANDARDS PROVISIONS

State prevailing wage rates shall apply when the State wage rate is higher than the Federal wage rate. All contractors and subcontractors are subject to the application of Section 1720 et seq. of the California Labor Code which details the regulations and procedures governing the payment of State prevailing wages.

All contractors and subcontractors are subject to the provisions of Section 3700 of the California Labor Code which requires that every employer be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of the code.

All contractors and subcontractors are subject to the provisions of Sections 1810-1814 of the California Labor Code which provide that the maximum hours a worker is to be employed is limited to eight hours a day and 40 hours a week and the contractor or subcontractor shall forfeit, as a penalty, \$25 for each worker employed in the execution of the contract for each calendar day during which a worker is required or permitted to labor more than eight hours in any calendar day or more than 40 hours in any calendar week and is not paid overtime.

Section 1815 of the California Labor Code requires that notwithstanding the provisions of Sections 1810-1814, employees of contractors who work in excess of eight hours per day and 40 hours per week shall be compensated for all hours worked in excess of eight hours per day at not less than 1-1/2 times the basic rate of pay.

THE IMMIGRATION REFORM AND CONTROL ACT: (E-Verify.com)

The Immigration Reform and Control Act of 1986 (IRCA) legally mandates that U.S. employers verify the employment eligibility status of newly-hired employees. IRCA made it unlawful for employers to knowingly hire or continue to employ unauthorized workers. In response to the law, the Immigration and Naturalization Service (INS), now an integrated component of the Department of Homeland Security (DHS), created Form I-9 and mandated its accurate and timely completion by all U.S. employers and their employees.

For employers who fail to properly complete, retain, or make I-9 Forms available for inspection, fines range from \$100 to \$1,100 per individual I-9.

For employers who knowingly hire or knowingly continue to employ unauthorized workers, civil penalties range from \$250 to \$11,000 per violation.

For employers engaging in a pattern or practice of knowingly hiring or continuing to employ unauthorized workers, fines can be as much as \$3,000 per employee and/or 6 months of imprisonment. http://www.formi9.com/

SUBCONTRACTOR: _____

Signature: _____ Title: _____

Print Name

Initials _____

THE DAVIS-BACON AND RELATED ACTS: (DBRA)

Published in Chapter 3, section 276(a) 7 et seq. of U.S.C. Title 40. The Davis Bacon and Related Acts (DBRA) requires all contractors and subcontractors performing work on federal construction contracts or federally assisted contracts in excess of \$2,000 to pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits for corresponding classes of laborers and mechanics employed on similar projects in the area. The prevailing wage rates and fringe benefits are determined by the Secretary of Labor for inclusion in covered contracts.

THE COPELAND "ANTI-KICKBACK" ACT: (ANTI-KICKBACK)

Published in Chapter 3, section 276(c) of U.S.C. Title 40. The Copeland "Anti-Kickback" Act generally prohibits federal contractors or subcontractors engaged in building construction or repair from inducing an employee to give up any part of the compensation to which he or she is entitled under his or her employment contract and requires such contractors and subcontractors to submit weekly statements of compliance.

THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, AS AMENDED: (CWHSSA)

Published in Chapter 5, Subchapter II, section 327 et seq. of U.S.C. Title 40. The Contract Work Hours and Safety Standards Act (CWHSSA) applies to federal service contracts and federal and federally assisted construction contracts over \$100,000. It requires contractors and subcontractors on covered contracts to pay laborers and mechanics employed in the performance of the contracts one and one-half times their basic rate of pay for all hours worked over 40 in a workweek. This Act also prohibits unsanitary, hazardous, or dangerous working conditions on federal and federally financed and assisted construction projects.

THE FAIR LABOR STANDARDS ACT: (FLSA)

Is published in Chapter 9, sections 201 et seq. of U.S.C. Title 29 which prescribes standards for the basic minimum wage and overtime pay, affects most private and public employment. It requires employers to pay covered employees who are not otherwise exempt at least the federal minimum wage and overtime pay of one-and-one-half-times the regular rate of pay. For nonagricultural operations, it restricts the hours that children under age 16 can work and forbids the employment of children under age 18 in certain jobs deemed too dangerous. For agricultural operations, it prohibits the employment of children under age 16 during school hours and in certain jobs deemed too dangerous. The Act is administered by the Employment Standards Administration's Wage and Hour Division within the U.S. Department of Labor.

ACCESS AND RETENTION OF RECORDS: (24 CFR 92.508)

The awarding agency, the State of California, the U S DOL, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the contractor which are directly pertinent to this specific contract, for the purpose of making audit, examination, excerpts, and transcriptions. Under federal regulations all required records must be maintained by the contractor for five years after grantee makes final payments and all other pending matters are closed (this is two years longer than the old federal requirement of three years). The Contractor agrees to the above specified requirements.

WORKMAN'S COMP. & LIABILITY INSURANCES.

Contractor shall at his own expense carry all workmen's compensation insurance to protect Contractor's employees and public liability insurance necessary for the full protection of Contractor and Awarding Agency from injury to persons or property arising from the acts of Contractor or his Subcontractors during the progress of the work. Certificates of such insurance shall be filed with Awarding Agency and with the Construction Lender if Awarding Agency so requires, and shall be subject to the approval of both of them as to adequacy of protection.

INSURANCE & BONDING:

The Contractor shall carry sufficient insurance coverage for unemployment, disability, and liability to protect contract assets from loss due to theft, fraud and/or undue physical damage, and as a minimum shall purchase a blanket fidelity bond covering all employees in an amount equal to cash advances from the Grantee. The Consultant shall comply with the bonding and insurance requirements of Attachment B of OMB Circular A-110, Bonding and Insurance.

CLEAN AIR ACT:

The contractor is required to comply with all aspects for the federal Clean Air Act which is the law that defines EPA's responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The last major change in the law, the Clean Air Act Amendments of 1990, was enacted by Congress in 1990. Legislation passed since then has made several minor changes. The Clean Air Act, like other laws enacted by Congress, was incorporated into the United States Code as Title 42, Chapter 85. The House of Representatives maintains a current version of the U.S. Code, which includes Clean Air Act changes enacted since 1990.

LOBBYING:

The Contractor hereby certifies that:

- a. No Federal appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress 'in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;
- b. If any funds other than Federal appropriated funds have been paid or will be paid to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its 'instructions;
- c. It will require that the language of paragraph (d) of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all Consultants shall certify and disclose accordingly; and
- d. Lobbying Certification - Paragraph_This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$ 100,000 for each such failure.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION

LOWER TIER COVERED TRANSACTIONS
NONDEBARMENT CERTIFICATION

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98, Section 98.510, Participants' Responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160 – 19211).

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR CERTIFICATION)

(1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization

Name & Title of Authorized Representative

Signature

Date

INSTRUCTIONS FOR CERTIFICATION REGARDING DEBARMENT:

1. By signing and submitting this proposal, the prospective recipient of Federal assistance funds is providing the certification as set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal government, the Department of Labor (DOL) may pursue available remedies, including suspension and/or debarment.
3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction" "debarred", "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the definitions and coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective recipient of Federal assistance funds agrees by submitting the proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the DOL.
6. The prospective recipient of Federal assistance funds further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but it is not required to, check the List of Parties Excluded from Procurement or Non-procurement Programs.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transactions knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal government, the DOL may pursue available remedies, including suspension and/or debarment.

**STANDARD CONTRACT LANGUAGE REQUIRED FOR ALL
CONTRACTS AND SUBCONTRACTS**

1. The Civil Rights, HCD, and Age Discrimination Acts Assurances:

During the performance of this Contract, the Contractor assures that no otherwise qualified person shall be excluded from participation or employment, denied program benefits, or be subjected to discrimination based on race, color, national origin, sex, age, or handicap, under any program or activity funded by this Contract, as required by Title VI of the Civil Rights Act of 1964, Title I of the Housing and Community Development Act of 1974, as amended, and the Age Discrimination Act of 1975, and all implementing regulations.

2. State Nondiscrimination Clause:

- a. During the performance of this contract, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of the following: race, religion, color, national origin, ancestry, disability, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code, Section 12900 et seq.) and the applicable regulations promulgated there under (California Code of Regulations, Title 2, Section 7258.0 et seq.) The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this contract by reference and made a part hereof as if set forth in full, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
- b. This Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

STANDARD EQUAL OPPORTUNITY CLAUSE
(CONSTRUCTION OVER \$10,000)

The Contractor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or disabilities. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin or disabilities.
3. The Contractor will send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the Contractor's noncompliance with the discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rules, regulations, or orders of the Secretary of Labor, or as otherwise provided by law.
7. The Contractor will include the portion of the sentence immediately preceding paragraph "1" and the provisions of paragraphs "1" through "7" in every contract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 504 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each contractor or vendor. The Contractor will take such action with respect to any contract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a Contractor

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

8. The Contractor further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally- assisted construction work; provided that if the Contractor so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the contract.
9. The Contractor agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the Department and HUD and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.
10. The Contractor further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, government contracts and federally-assisted construction contracts, pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Contractor agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this funding commitment (contract, loan, grant, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such Contractor; and refer the case to the Department of Justice for appropriate legal proceedings.

MBE/WBE STANDARD
BID DOCUMENT LANGUAGE FOR CONSTRUCTION CONTRACTS OVER \$10,000

(The following notice shall be included in and shall be a part of all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in geographical areas designated by the Secretary of Labor.)

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The offeror or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered areas are as follows:

GOALS FOR MINORITY GOALS FOR FEMALE

<u>PARTICIPATION IN</u> <u>TIMETABLES</u>	<u>PARTICIPATION IN</u> <u>EACH TRADE</u>	<u>EACH TRADE</u>
___ 16.9% ___	___ 6.9% ___	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

These goals are applicable to all contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its Federally involved and non-Federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform through the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs, U.S. Department of Labor, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any).

MBE/WBE
STANDARD CONTRACT LANGUAGE - CONSTRUCTION OVER \$10,000

FEMALE AND MINORITY GOALS AND TIMETABLES

The following goals and timetables for female utilization shall be included in all Federal and Federally-assisted construction contracts and subcontracts in excess of \$10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or Federally-assisted construction contract or subcontract.

AREA COVERED
(Goals for females apply nationwide)

<u>Timetable</u>	<u>Goal</u>
From April 1, 1981, until further notice	6.9%

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or Federally-assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, Federally-assisted, or non-Federally related project, contract, or subcontract.

Construction contractors participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this appendix.

ECONOMIC AREAS

<u>Area Covered</u>	<u>Goal Percent</u>
San Diego Economic Area	
Imperial County	18.2%
Riverside County	19.0%
San Diego County	16.9%

**MBE/WBE SUGGESTED
BID DOCUMENT LANGUAGE FOR
MINORITY/WOMEN'S BUSINESS ENTERPRISE CONSTRUCTION PROJECTS**

- (a) It is the policy of the _____ to take positive steps to maximize the utilization of minority and women's business enterprises in all contract activity administered by the _____.
- (b) The contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, the term "minority or women's business enterprise" means a business, at least 50% of which is owned by minority group members or women or, in the case of publicly-owned businesses, at least 51% of the stock is owned by minority group members or women. For the purpose of this definition, minority group members are Black, Hispanics, Asians, Native Americans, Alaskans or Pacific Islanders.
- (c) The contractor will submit the following statement as part of his/her sealed bid:

I have taken affirmative action to seek out and consider minority and women's business enterprises for the portions of work to be subcontracted. Such actions are fully documented in my records and available upon request. Results are as follows:

<u>Name and Address of Minority/ Women's Firms Contractor Anticipates Utilizing*</u>	<u>Category of Work</u>	<u>Dollar Value of Participation</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total Bid _____ Total Subcontract Amount _____

Minority/Women's Enterprise Total of Subcontract Amount _____

*Indicate whether business is owned by a minority or a woman.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (CONSTRUCTION OVER \$10,000)

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted.
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
- c. "Employer identification number" means the federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d. "Minority" includes:
 - (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin).
 - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race).
 - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, southeast Asia, the Indian subcontinent or the Pacific Islands).
 - (4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, contracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and women participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan's goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7.a. through 7.p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total

hours of employment and training of minority and women utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and women goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs or from federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. **Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.**
6. **In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.**
7. **The Contractor shall take specific affirmative action's to ensure equal employment opportunity.** The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority individuals or women working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and women recruitment sources, provide written notification to minority and women recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or women referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the Contractor or when the

contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

- e. Develop on the job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b. above.
- f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions, including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and women-focused news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, women and community organizations, to schools with minority- and women-students and to minority and women-recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and women employees to recruit other minority persons and women and, where reasonable, provide after-school summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60.3.
- l. Conduct at least annually, an inventory and evaluation at least of all minority and women personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., or other advancement opportunities.

- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel- and employment-related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority- and women-owned construction companies, contractors and suppliers, including circulation of solicitations to minority- and women-focused Contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.
- 8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7.a. through 7.p.).** The efforts of a contractor association, joint contractor/union, contractor/community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7.a. through 7.p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and women workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
- 9. A single goal for minorities and a separate single goal for women have been established.** The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both men and women, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
- 10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.**
- 11. The Contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.**
- 12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs.** Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order

11246, as amended.

13. **The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.**
14. **The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company's EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.**
15. **Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area resident (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).**
16. **By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he/she does not maintain or provide for his/her employees any segregated facility at any of his/her establishments, and that he/she does not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. He/she certifies further that he/she will not maintain or provide for employees any segregated facilities at any of his/her establishments, and he/she will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause of this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas,* transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, habits, local custom, or otherwise. He/she further agrees that (except where he/she has obtained identical certifications from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that he/she will retain such certifications in his/her files; and that he/she will forward the following notice to such proposed subcontractors (except where proposed subcontractors have submitted identical certifications for specific time periods).*Parking lots, drinking fountains, recreation or entertainment areas.**

CALIFORNIA STATE LABOR STANDARDS AND PREVAILING WAGES

All contractors and subcontractors shall give the following certification to the grantee and forward this certification to the grantee within 10 days after the execution of any contract or subcontract.

- A. "I am aware of the provisions of Section **1720 et seq.** of the California Labor Code which requires that the State prevailing wage rate shall be paid to employees where this rate exceeds the Federal wage rate."
- B. "I am aware of the provisions of Section **3700** of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this contract."
- C. "It is further agreed that, except as may be provided in Section **1810-1814** of the California Labor Code, the maximum hours a worker is to be employed is limited to eight hours a day and 40 hours a week and the subcontractor shall forfeit, as a penalty, \$25 for each worker employed in the execution of the subcontract for each calendar day during which a worker is required or permitted to labor more than eight hours in any calendar day or more than 40 hours in any calendar week."
- D. "I am aware of the provisions of California Labor Code Section **1815** notwithstanding the provisions of 1810-1814 inclusive, of this code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 1-1/2 times the basic rate."
- E. "I am aware of the provisions of California Labor Code, Section **1777.5** which requires the employment of apprentices on all public works projects and the payment of training contributions to the proper agency."
- F. Section **1861** of the California Labor Code; Each contractor to whom a public works contract is awarded shall sign and file with the awarding body the following certification prior to performing the work of the contract: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

STATE LABOR STANDARDS PROVISIONS

State prevailing wage rates shall apply when the State wage rate is higher than the Federal wage rate. All contractors and subcontractors are subject to the application of Section 1720 et seq. of the California Labor Code which details the regulations and procedures governing the payment of State prevailing wages.

All contractors and subcontractors are subject to the provisions of Section 3700 of the California Labor Code which requires that every employer be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of the code.

All contractors and subcontractors are subject to the provisions of Sections 1810-1814 of the California Labor Code which provide that the maximum hours a worker is to be employed is limited to eight hours a day and 40 hours a week and the contractor or subcontractor shall forfeit, as a penalty, \$25 for each worker employed in the execution of the contract for each calendar day during which a worker is required or permitted to labor more than eight hours in any calendar day or more than 40 hours in any calendar week and is not paid overtime.

Section 1815 of the California Labor Code requires that notwithstanding the provisions of Sections 1810-1814, employees of contractors who work in excess of eight hours per day and 40 hours per week shall be compensated for all hours worked in excess of eight hours per day at not less than 1-1/2 times the basic rate of pay.

Federal Labor Standards Provisions:

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (1) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR-5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

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

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any

laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or sub-contractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (l) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1 (b)(2)(B) of the Davis-Bacon Act the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-WO14-1), U.S. Government Printing Office, Washington, DC. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract

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

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3 (i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment advance, or guarantee of funds. Further- more, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.1 2.

4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not

less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any sub-contracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (1) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is greater.

(2) **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory, for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in sub-paragraph (1) of this paragraph, in the sum of \$1 0 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) **Withholding for unpaid wages and liquidated damages.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91 -54, 83 Stat 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

SUBCONTRACTOR: _____

Signature: _____ Title: _____

Print Name

9. CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form – LLL, “Disclosure of Lobbying Activities,” in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including contracts, subcontracts, and subgrants under grants and loans) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1354, Title 34, US Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(Organization/Firm)

(Name & Title of Authorized Representative)

(Signature)

(Date)

**10. CONTRACTOR’S CERTIFICATION REGARDING WORKER’S
COMPENSATION INSURANCE**

State of California

County of _____

I am aware of the requirements that every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that applicable codes, and I will comply with such provisions before commencing the performance of the work of this Contract.

(Organization/Firm)

(Name & Title of Authorized Representative)

(Signature)

(Date)

11. TABULATION OF SUBCONTRACTORS

No.	Subcontractor	Work To Be Performed	Percent Of Total Contract
1.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		
2.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		
3.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		
4.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		
5.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		
6.	Name:		
	Address:		
	DIR Registration #:		
	SAM Registration #:		

(ATTACH ADDITIONAL NUMBERED PAGES IF NEEDED)

12. BIDDER QUALIFICATIONS STATEMENT

The bidder shall submit, as part of its proposal, the following statements as to its experience qualifications. The bidder certifies that all statements and information set forth are true and accurate.

- a. The bidder has been engaged in the contracting business under its present business name for _____ years.
- b. Experience in work of nature similar in type and magnitude to that set forth in the specification extends over a period of _____ years.
- c. The bidder, as Contractor, has satisfactorily completed all contracts awarded to it, except as follows: (Name any and all exceptions and reasons therefore. Bidder should attach additional pages if necessary).
 - 1. _____
 - 2. _____
- d. The following contracts cover work similar in type and magnitude to that set forth in the specification have been satisfactorily completed within the last **five (5) years** for the following owners (person, firms or authorities):

No.	Owner	Telephone No.	Contract Amount	Type of Work	Year Complete
1.					
2.					
3.					
4.					
5.					
6.					
7.					

- e. The bidder shall provide an audited financial statement (no more than two years old) with accompanying notes. (An audited financial statement with accompanying notes of a parent company guarantor may be substituted. A financial statement that is not audited is not acceptable. A letter verifying availability of a line of credit is not a substitute for the required financial statement.)

Yes

No

- f. The bidder shall fill in the following blanks based on the bidder's attached financial statement.

Current Assets: \$ _____

Current Liabilities: \$ _____

Total Net Worth: \$ _____

Current Ratio (Assets/Liabilities): _____

Working Capital (Current Assets – Current Liabilities): \$ _____

13. TABULATION OF MAJOR MATERIAL SUPPLIERS

The contractor shall indicate opposite each item of equipment or material listed below the name of the manufacturer and supplier of the equipment or material proposed to be furnished under the bid.

No.	Item	Manufacturer	Supplier
1.	24 Inch Diameter Steel Surface		
	Casing		
2.	12 Inch Diameter Steel Casing		
3.	Stainless Steel Wire Wrapped		
	Screen		
4.	15 HP Submersible Motors		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

Palo Verde County Water District Water Wells Replacement Project – Phase II

13.			
14			
15			
16			
17			
18			
19			
20			
21.			
22.			
23.			
24.			
25.			

(ATTACH ADDITIONAL NUMBERED PAGES IF NEEDED)

14. NOTICE OF AWARD

Dated: _____

Project: Palo Verde County Water District Water Well Replacement Project – Phase II	Owner: County of Imperial	Owner's Contract No.:
---	-------------------------------------	-----------------------

Contract:	Engineer's Project No.:
	821.028

Bidder: _____

Bidder's Address (send Certified Mail, Return Receipt Requested):

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for the construction of the **Palo Verde County Water District Water Well Replacement Project – Phase II**.

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

You must comply with the following conditions within **fifteen (15) days** of the date you receive this Notice of Award.

1. Deliver to the Owner four (4) fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Performance and Payment Bonds and Insurance Certificate as specified in the Instructions to Bidders (Article 20), and General Conditions (Paragraph 5.01)

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

Within **ten (10) days** after you comply with the above conditions, the Owner will return to you one (1) fully executed counterpart of the Contract Documents.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

County of Imperial
(Owner)

(Authorized Signature)

(Title)

14A. ACCEPTANCE NOTICE

Receipt of above NOTICE OF AWARD is hereby acknowledged

By: _____,

this the _____ day of _____, 2022.

By: _____
(Authorized Signature)

(Title)

State of _____ }

County of _____ }

On _____, before me, _____,

Notary Public, personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within
instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that
by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted,
executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true
and correct.

WITNESS my hand and official seal.

Signature of Notary Public

**15. AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)
FUNDING AGENCY EDITION**

THIS AGREEMENT is by and between _____ **COUNTY OF IMPERIAL** _____ (“Owner”) and _____ (“Contractor”).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

TABLE OF ARTICLES	Page
Agreement	00521-1
Article 1-Work	00521-1
Article 2-The Project	00521-1
Article 3-Engineer	00521-1
Article 4-Contract Times	00521-2
Article 5-Contract Price	00521-2
Article 6-Payment Procedures	00521-2
Article 7-Interest	00521-4
Article 8-Contractor’s Representatives	00521-4
Article 9-Contract Documents	00521-4
Article 10-Miscellaneous	00521-6

ARTICLE 1 – WORK

1.01 The Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Palo Verde County Water District Water Well Replacement Project – Phase II

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Palo Verde County Water District Water Well Replacement Project – Phase II

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by *The Holt Group, Inc.* (Engineer), who is to act as the Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to the Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIME

4.01 *Time is of the Essence*

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

4.02 *Days to Achieve Final Completion*

- A. The Work will be completed and ready for Final Payment within **one hundred sixty (160) calendar** days after the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions.

4.03 *Liquidated Damages*

- A. The Contractor and the Owner recognize that time is of the essence for this Agreement and that the Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Owner and the Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay Owner **\$2,000.00** for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A and 5.01.B below:

- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.B:
- B. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. The Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. The Owner shall make progress payments on account of the Contract Price on the basis of the Contractor's Applications for Payment on or about the 20th day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the Schedule of Values established as provided in Paragraph 2.07.A of the General Conditions.
 - 1. Prior to Substantial Completion, Progress Payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and

less such amounts as the Engineer may determine or the Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

- a. **Ninety-five percent (95%)** of Work completed (with the balance being retainage); and
 - b. **Ninety-five percent (95%)** of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
2. Upon Substantial Completion, the Owner shall pay an amount sufficient to increase total payments to the Contractor to **ninety-five percent (95%)** of the Work completed, less such amounts as the Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

6.03 *Final Payment*

- A. Upon receipt of the final Application for Payment accompanied by the Engineer's recommendation of payment in accordance with Paragraph 14.07 of the General Conditions, the Owner shall pay the Contractor as provided in Paragraph 14.07 of the General Conditions the remainder of the Contract Price as recommended by the Engineer as provided in said Paragraph 14.07, less any sum the Owner is entitled to set off against the Engineer's recommendation, including but not limited to liquidated damages.

6.04 *Substitution of Security*

Upon Contractor's request, COUNTY will make payment of funds withheld from progress payments to ensure performance under the contract pursuant to the requirements of California Public Contracts Code, Section 22300, if the Contractor deposits in escrow with COUNTY, or with a bank acceptable to COUNTY, securities eligible for investment under Government Code Section 16430 or bank savings and loan certifications of deposit, subject to the following conditions:

- A. Contractor shall bear the expense of COUNTY and the escrow agent, and COUNTY and the bank, in connection with the escrow deposit made.
- B. Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amount of retention to be paid to the Contractor pursuant to this Article.
- C. Contractor shall enter into an escrow agreement satisfactory to COUNTY, which agreement shall include provisions governing, inter alia:
 1. the amount of securities to be deposited,
 2. the providing of powers of attorney or other documents necessary for the transfer of the securities to be deposited,
 3. conversion of cash to provide funds to meet defaults by Contractor including, but not limited to, termination of Contractor's control over the work, stop notice filed pursuant to law or other amounts to be kept or retained under the provisions of the contract,
 4. decrease in value of securities on deposit,
 5. the termination of the escrow upon completion of the contract.
- D. Contractor shall obtain the written consent of the surety to such agreement.

ARTICLE 7 – INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at **eight percent (8%)** per annum.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce the Owner to enter into this Agreement the Contractor makes the following representations:

- A. The Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. The Contractor has visited the Site and become familiar with and is satisfied as to the General, Local, and Site Conditions that may affect cost, progress, and performance of the Work.
- C. The Contractor is familiar with and is satisfied as to all Federal, State, and Local Laws and Regulations that may affect the cost, progress, and performance of the Work.
- D. The Contractor has obtained and carefully studied (or assumes responsibility for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (Surface, Subsurface, and Underground Facilities) at or contiguous to the Site which may affect the cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- E. The Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- F. The Contractor is aware of the general nature of work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- G. The Contractor has correlated the information known to the Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- H. The Contractor has given the Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that the Contractor has discovered in the Contract Documents, and the written resolution thereof by the Engineer is acceptable to the Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey a clear understanding of all terms and conditions for the performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement

2. Performance Bond
 3. Payment Bond
 4. General Conditions
 5. Supplementary Conditions
 6. Technical Conditions
 7. Special Conditions
 8. Specifications as listed in the Table of Contents of the Project Manual
 9. Drawings consisting of 6 sheets.
 10. Addenda
 11. Exhibits to this Agreement
 - a. The Contractor’s Bid
 - b. Documentation submitted by the Contractor prior to the Notice of Award
 - c. Federal and State Contract Language Inclusion – January 01, 2018 – Exhibit ‘A’
 13. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed
 - b. Work Change Directives
 - c. Change Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement.
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.
- E. Contractor represents and warrants that it and its subcontractors are not ineligible to work for COUNTY due to violations of Labor Code Sections 1777.1 and 1777.7.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

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

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

- A. The Owner and the 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 to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

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

10.05 *Prevailing Wage*

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

IN WITNESS WHEREOF, the Owner and the Contractor have signed this Agreement in four (4) copies. One (1) counterpart each has been delivered to the Owner, the Contractor, the Engineer, and the Agency. All portions of the Contract Documents have been signed, initialed, or identified by the Owner and the Contractor or identified by the Engineer on their behalf.

Palo Verde County Water District Water Well Replacement Project – Phase II

This Agreement is dated_____. This Agreement shall not be effective unless and until the Agency's designated representative concurs.

OWNER: **COUNTY OF IMPERIAL**

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Agent for service of process:

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

Agency Concurrence:

As lender or insurer of funds to defray the costs of this Contract, and without liability for any payments there under, the Agency hereby concurs in the form, content, and execution of this Agreement.

Agency: _____

By: _____

Date: _____

Title: _____

16. NOTICE TO PROCEED

Dated: _____

Project: Palo Verde County Water District Water Well Replacement Project – Phase II	Owner: County of Imperial	Owner's Contract No.:
---	-------------------------------------	-----------------------

Contract:	Engineer's Project No.:
	821.028

Contractor: _____

Contractor's Address (send Certified Mail, Return Receipt requested):

You are notified that the Contract Times under the above contract will commence to run on _____.
On or before that date, you are to start performing your obligations under the Contract Documents.

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

You are required to return an acknowledged copy of this NOTICE TO PROCEED to the OWNER.

	County of Imperial
_____ Contractor	_____ Owner
Given by:	Given by:
_____ Authorized Signature	_____ Authorized Signature
_____ Title	_____ Title
_____ Date	_____ Date

Copy to Engineer

17. PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

**County of Imperial
Imperial County Workforce and Economic Development
2799 South 4th Street
El Centro, CA 92243**

CONTRACT

Date:

Amount:

Description: **Palo Verde County Water District Water Well Replacement Project – Phase II**

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

The Surety and the Contractor, intending to be legally bound hereby, subject to the terms hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)
Name and Title:

SURETY

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: _____
Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)
Name and Title:

SURETY

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title:

Palo Verde County Water District Water Well Replacement Project – Phase II

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference.
2. If the Contractor performs the Contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
 - 3.1 The Owner has notified the Contractor and the Surety, at the addresses described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than **fifteen (15) days** after receipt of such notice to discuss methods of performing the Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than **twenty (20) days** after the Contractor and the Surety have received notice as provided in Paragraph 3.1; and
 - 3.3 The Owner has agreed to pay the Balance of the Contract Price to:
 1. The Surety in accordance with the terms of the Contract;
 2. Another Contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Contract; or
 - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Owner and the Contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor Default; or
 - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or
 2. Deny liability in whole or in part and notify the Owner citing reasons therefore.
5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond **fifteen (15) days** after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
6. After the Owner has terminated Contractor's right to complete the Contract, and if the Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the

Palo Verde County Water District Water Well Replacement Project – Phase II

Contract. To a limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

- 6.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract;
- 6.2 Additional Legal, Design Professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and
- 6.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
- 8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.
- 9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within **two (2) years** after Contractor Default or within **two (2) years** after the Contractor ceased working or within **two (2) years** after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties

as a defense in the jurisdiction of the suit shall be applicable.

- 10. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the signature page.
- 11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
- 12. Definitions.
 - 12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
 - 12.2 Contract: The agreement between the Owner and the Contractor identified on the signature page, including all the Contract Documents and changes thereto.
 - 12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
 - 12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY	
(Name, Address and Telephone)	
SURETY AGENCY OR BROKER	_____

OWNER'S REPRESENTATIVE	_____

18. PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

**County of Imperial
Imperial County Workforce and Economic Development
2799 South 4th Street
El Centro, CA 92243**

CONTRACT

Date:

Amount:

Description: **Palo Verde County Water District Water Well Replacement Project – Phase II**

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

The Surety and the Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: _____ (Seal)

Name and Title:

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: _____ (Seal)

Name and Title:

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless the Owner from all claims, demands, liens, or suits alleging non-payment by the Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided the Owner has promptly notified the Contractor and the Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with the Contractor:
 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within **ninety (90) days** after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from the Contractor, or not received within **thirty (30) days** of furnishing the above notice any communication from the Contractor by which the Contractor had indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above **thirty (30) days**, have sent a written notice to the Surety and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by the Owner to the Contractor or to the Surety that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1 Send an answer to that Claimant, with a copy to the Owner, within **forty-five (45) days** after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the Owner to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the Work.

9. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of **one (1) year** from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by the Surety, the Owner, or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions

conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions.

15.1 Claimant: An individual or entity having a direct contract with the Contractor, or with a first-tier subcontractor of the Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, Architectural and Engineering Services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY (Name, Address and Telephone)	
SURETY AGENCY OR BROKER:	_____

OWNER'S REPRESENTATIVE:	_____

**19. CERTIFICATE OF OWNER’S ATTORNEY
EXHIBIT GC-A**

I, the undersigned, _____ the duly authorized and acting legal representative of

County of Imperial do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Signature: _____

Name: _____

Title: _____

Date: _____

20. CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: Palo Verde County Water District Water Well Replacement Project – Phase II	Owner: County of Imperial	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.: 821.028

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- All Work under the Contract Documents: The following specified portions:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of the Owner, the Contractor and the Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A (tentative) (revised tentative) (definitive) list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between the OWNER and the CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- Amended Responsibilities Not Amended

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:

The following documents are attached to and made part of this Certificate:

Palo Verde County Water District Water Well Replacement Project – Phase II

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

Executed by Engineer

Date

Accepted by Contractor

Date

Accepted by Owner

Date

21. STANDARD GENERAL CONDITIONS

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. *Agency* – The Federal or State Agency named as such in the Agreement.
 3. *Agreement* – The written instrument which is evidence of the agreement between the Owner and the Contractor covering the Work.
 4. *Application for Payment* – The form acceptable to the Engineer which is to be used by the 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.
 5. *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.
 6. *Bid* – The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 7. *Bidder* – The individual or entity who submits a Bid directly to the Owner.
 8. *Bidding Documents* – The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 9. *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.
 10. *Change Order* – A document recommended by the Engineer which is signed by the Contractor and the Owner and Agency 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.
 11. *Claim* – A demand or assertion by the Owner or Contractor seeking an adjustment of the 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.
 12. *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.
 13. *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's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

14. *Contract Price* – The moneys payable by the Owner to the 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).
15. *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 the Engineer’s written recommendation of final payment.
16. *Contractor* – The individual or entity with whom the Owner has entered into the Agreement.
17. *Cost of the Work* – See Paragraph 11.01.A for definition.
18. *Drawings* – That part of the Contract Documents prepared or approved by the Engineer which graphically shows the scope, extent, and character of the Work to be performed by the Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
19. *Effective Date of the Agreement* – The date indicated in the Agreement on which it becomes effective; 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.
20. *Engineer* – The individual or entity named as such in the Agreement.
21. *Field Order* – A written order issued by the Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Time.
22. *General Requirements* – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.
23. *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 in connection with the Work.
24. *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.
25. *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.
26. *Liens* – Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
27. *Milestone* – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to the Substantial Completion of all of the Work.
28. *Notice of Award* – The written notice by the Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, the Owner will sign and deliver the Agreement.
29. *Notice to Proceed* – A written notice given by the Owner to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform the Work under the Contract Documents.
30. *Owner* – The individual or entity with whom the Contractor has entered into the Agreement and for whom the Work is to be performed.

31. *PCBs* – Polychlorinated Biphenyls.
32. *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.
33. *Progress Schedule* – A schedule prepared and maintained by the Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Time.
34. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
35. *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.
36. *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.
37. *Related Entity* – An officer, director, partner, employee, agent, consultant, or subcontractor.
38. *Resident Project Representative* – The authorized representative of the Engineer who may be assigned to the Site or any part thereof.
39. *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.
40. *Schedule of Submittals* – A schedule, prepared and maintained by the Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
41. *Schedule of Values* – A schedule, prepared and maintained by the Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing the Contractor’s Applications for Payment.
42. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the Work.
43. *Site* – Lands or areas indicated in the Contract Documents as being furnished by the Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by the Owner which are designated for the use of the Contractor.
44. *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.
45. *Subcontractor* – An individual or entity having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
46. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the 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.

47. *Successful Bidder* – The Bidder submitting a responsive Bid to whom the Owner makes an award.
48. *Supplementary Conditions* – That part of the Contract Documents which amends or supplements these General Conditions.
49. *Supplier* – A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with the Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by the Contractor or any Subcontractor.
50. *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.
51. *Unit Price Work* – Work to be paid for on the basis of unit prices.
52. *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.
53. *Work Change Directive* – A written statement to the Contractor issued on or after the Effective Date of the Agreement and signed by the Owner and the Agency upon recommendation of the 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 Time 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 Time.

1.02 Terminology

- A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 the 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 the 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 requirements of and information in the Contract Documents and conformance with the Design Concept of the Completed 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 the 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 **twenty-four (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 the Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by the 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 the Contractor, “provide” is implied.

- F. Unless stated otherwise in the Contract Documents, words or phrases which 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 the Contractor delivers the executed counterparts of the Agreement to the Owner, the Contractor shall also deliver to the Owner such bonds as the Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, the 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 the Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. The Owner shall furnish to the Contractor ten (10) sets of printed or hard copies of the “Issued for Construction” Drawings and “Conformed” Project Manuals. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Time; Notice to Proceed*

- A. The Contract Time 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.

2.04 *Starting the Work*

- A. The Contractor shall start to perform the Work on the date when the Contract Time commences to run. No Work shall be done at the Site prior to the date on which the Contract Time commences to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within **ten (10) days** after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), the Contractor shall submit to the Engineer for timely review:
 - 1. A Preliminary Progress Schedule;
 - 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 the 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*

- A. Before any Work at the Site is started, a Conference attended by the Owner, Contractor, Engineer, Agency, 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 project records.

2.07 *Initial Acceptance of Schedules*

- A. At least **ten (10) days** before submission of the first Application for Payment a conference attended by the Contractor, Engineer, and others as appropriate will be held to review for acceptability to the Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. The Contractor shall have an additional **five (5) days** to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to the Contractor until acceptable schedules are submitted to the Engineer.
 - 1. The Progress Schedule will be acceptable to the Engineer if it provides an orderly progression of the Work to completion within the Contract Time. Such acceptance will not impose on the Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve the Contractor from the Contractor’s full responsibility therefore.
 - 2. The Contractor’s Schedule of Submittals will be acceptable to the Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. The Contractor's Schedule of Values will be acceptable to the 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 may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to the Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by the 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 the 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 the Owner, or Engineer, or any of their Related Entities, 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, the Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. The Contractor shall promptly report in writing to the Engineer any conflict, error, ambiguity, 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.
 2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, the Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, the Contractor shall promptly report it to the Engineer in writing. The 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. The Contractor shall not be liable to the Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless the Contractor knew or reasonably should have known 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, code, or instruction (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. The 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 the Engineer or the Engineer's consultants, including electronic media editions; or
 2. Reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without the written consent of the Owner and Engineer and specific written verification or adaptation by the Engineer.
- B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude the Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Copies of data furnished by the Owner or Engineer to the Contractor or the Contractor to the 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 shall 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 **sixty (60) days**, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the **sixty (60) days** 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; REFERENCE POINTS; HAZARDOUS ENVIRONMENTAL CONDITIONS

4.01 *Availability of Lands*

- A. The Owner shall furnish the Site. The Owner shall notify the Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which the Contractor must comply in performing the Work. The Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If the 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 the Owner's furnishing the Site or a part thereof, the Contractor may make a Claim therefore as provided in Paragraph 10.05.
- B. Upon reasonable written request, the Owner shall furnish the Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and the 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. The 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:*
- B. The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that the Engineer has used in preparing the Contract Documents; and
 - 2. Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that the Engineer has used in preparing the Contract Documents.
- C. *Limited Reliance by the Contractor on Technical Data Authorized:*
- D. The Contractor may rely upon the general 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," the Contractor may not rely upon or make any claim against the Owner or Engineer, or any of their Related Entities with respect to:
 - 1. The completeness of such reports and drawings for the Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the 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 the Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. Is of such a nature as to establish that any “technical data” on which the 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;
5. then the 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 the Owner and the Engineer in writing about such condition. The 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, the Engineer will promptly review the pertinent condition, determine the necessity of the Owner obtaining additional exploration or tests with respect thereto, and advise the Owner in writing (with a copy to the Contractor) of the Engineer’s findings and conclusions.

C. *Possible Price and Time Adjustments*

1. The Contract Price or the Contract Time, 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 the 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. The Contractor shall not be entitled to any adjustment in the Contract Price or Contract Time if:
 - a. The Contractor knew of the existence of such conditions at the time the Contractor made a final commitment to the Owner with respect to the Contract Price and Contract Time 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 the Contractor prior to the Contractor’s making such final commitment; or
 - c. The Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If the 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 Time, or both, a Claim may be made therefore as provided in Paragraph 10.05. However, the Owner and Engineer, and any of their Related Entities shall not be liable to the 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 the 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 upon information and data furnished to the Owner or Engineer by the owners of such Underground Facilities, including the Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and
2. the cost of all of the following will be included in the Contract Price, and the 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 the 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, the 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 the Owner and Engineer. The 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, the Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If the 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 Time, 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 the Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If the Owner and Contractor are unable to agree upon entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Time, the Owner or Contractor may make a Claim therefore as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. The Owner shall provide engineering surveys to establish reference points for construction which in the Engineer’s judgment are necessary to enable the Contractor to proceed with the Work. The 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 the Owner. The Contractor shall report to the 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:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general 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 Related Entities 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. The Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the Scope of the Work. The Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by the Contractor, Subcontractors, Suppliers, or anyone else for whom the Contractor is responsible.
- D. If the Contractor encounters a Hazardous Environmental Condition or if the Contractor or anyone for whom the Contractor is responsible creates a Hazardous Environmental Condition, the 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 the Owner and Engineer (and promptly thereafter confirm such notice in writing). The Owner shall promptly consult with the Engineer concerning the necessity for the Owner to retain a Qualified Expert to evaluate such condition or take corrective action, if any.
- E. The Contractor shall not be required to resume Work in connection with such condition or in any affected area until after the Owner has obtained any required permits related thereto and delivered to the Contractor written notice: (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 the Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Time, or both, as a result of such Work stoppage or such special conditions under which the Work is agreed to be resumed by the Contractor, either party may make a Claim therefore as provided in Paragraph 10.05.

- F. If after receipt of such written notice the Contractor does not agree to resume such Work based upon a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then the Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If the Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Time as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Paragraph 10.05. The Owner may have such deleted portion of the Work performed by the Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, and Engineer, and the officers, directors, 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 the Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate the 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, the Contractor shall indemnify and hold harmless the Owner and Engineer, and the officers, directors, 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 the Contractor or by anyone for whom the Contractor is responsible. Nothing in Paragraph 4.06. H shall obligate the 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. The 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 the Contractor's obligations under the Contract Documents. These bonds shall remain in effect until **one (1) 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. The 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 current 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 must be accompanied by a certified copy of the agent's authority to act.
- C. If the surety on any bond furnished by the 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, the Contractor shall promptly notify the Owner and Engineer and shall, within **twenty (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 the 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 coverage's 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. The Contractor shall deliver to the Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by the Owner or any other additional insured) which the Contractor is required to purchase and maintain.
- B. The Owner shall deliver to the Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by the Contractor or any other additional insured) which the Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

- A. The Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and shall provide protection from claims set forth below which may arise out of or result from the Contractor's performance of the Work and the Contractor's other obligations under the Contract Documents, whether it is to be performed by the 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 the Contractor's employees;
 - 3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than the 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 there from; 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, include as additional insurer (subject to any customary exclusion regarding professional liability) the Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insurers, and include coverage for the respective officers, directors, partners,

employees, agents, consultants and subcontractors of each and any of all such additional insurers, and the insurance afforded to these additional insurers shall provide primary coverage for all claims covered thereby;

2. Include at least the specific coverage's 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 completed operations insurance;
4. Include contractual liability insurance covering the Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
5. Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least **thirty (30) days** prior written notice has been given to the 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);
6. Remain in effect at least until final payment and at all times thereafter when the Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
7. With respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least **two (2) years** after final payment.
 - a. The Contractor shall furnish the Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to the Owner and any such additional insured of continuation of such insurance at final payment and **one (1) year** thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by the Contractor under Paragraph 5.04, the Owner, at the Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect the Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, the Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (the Contractor shall be responsible for any deductible or self-insured retention.). This insurance shall:
 1. Include the interests of the Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, 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 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 the Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by the Engineer;
 5. Allow for partial utilization of the Work by the Owner;
 6. Include testing and startup; and
 7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by the Owner, Contractor, and Engineer within **thirty (30) days** written notice to each other additional insured to whom a certificate of insurance has been issued.
- B. The Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of the Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, 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 an insured or additional insured.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with 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 **thirty (30) days** prior written notice has been given to the Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. The Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of the 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 the 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.

5.07 *Waiver of Rights*

- A. The Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect the Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, 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 insured or additional insured there under. The Owner and Contractor waive all rights against each other and their respective officers, directors, 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 the Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, 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 the Contractor as trustee or otherwise payable under any policy so issued.

- B. Owner waives all rights against the Contractor, Subcontractors, and Engineer, and the officers, directors, 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 the Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by the 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 the 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 the 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 the Contractor, Subcontractors, or Engineer, and the officers, directors, 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 the Contractor and made payable to the Contractor as fiduciary for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. The Contractor 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.
- B. The Contractor 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 **fifteen (15) days** after the occurrence of loss to the Contractor's exercise of this power. If such objection be made, the Contractor 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, the Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, the Contractor as fiduciary shall provide a bond for the proper performance of such duties.

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

- A. If either the 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 **ten (10) days** after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. The 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 the 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. The 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. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The Contractor shall not be responsible for the negligence of the 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, the Contractor shall assign a competent Resident Superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be the Contractor’s representative at the Site and shall have authority to act on behalf of the Contractor. All communications given to or received from the superintendent shall be binding on the Contractor.

6.02 *Labor; Working Hours*

- A. The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The 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. The Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without the Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to the Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, the 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 the Owner. If required by the Engineer, the 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. The 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. The Contractor shall submit to the 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 Time. 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 Time shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Time 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 the Engineer for review under the circumstances described below.
 - 1. *“Or-Equal” Items:* If in the Engineer’s sole discretion an item of material or equipment proposed by the 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 the Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in the 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 the Engineer determines that:
 - 1) It is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) It will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) It has a proven record of performance and availability of responsive service; and
 - b. The 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 Time, and
 - 2) It will conform substantially to the detailed requirements of the item named in the Contract Documents.
 - 2. Substitute Items
 - a. If in the Engineer’s sole discretion an item of material or equipment proposed by the Contractor does not qualify as an “or-equal” item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
 - b. The Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and

an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by the Engineer from anyone other than the Contractor.

- c. The procedural requirements for review by the Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as the Engineer may decide is appropriate under the circumstances.
 - d. The Contractor shall make written application to the Engineer for review of a proposed substitute item of material or equipment that the Contractor seeks to furnish or use. The application:
 - 1) *Shall certify that the proposed substitute item will:*
 1. Perform adequately the functions and achieve the results called for by the general design,
 2. be similar in substance to that specified, and be suited to the same use as that specified;
 - 2) *Will state:*
 1. The extent, if any, to which the use of the proposed substitute item will prejudice the Contractor's achievement of Substantial Completion on time;
 2. whether or not 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 the Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 3. whether or not 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:*
 1. All variations of the proposed substitute item from that specified and available engineering,
 2. sales, maintenance, repair, and replacement services;
 - 4) And 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, the Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by the Engineer. The Contractor shall submit sufficient information to allow the Engineer, in the 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 the 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 either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* The Engineer will record the Engineer's costs in evaluating a substitute proposed or submitted by the Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not the

Engineer approves a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer for evaluating each such proposed substitute. The Contractor shall also reimburse the Owner for the charges of the Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with the Owner) resulting from the acceptance of each proposed substitute.

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. The Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to the Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom the Owner may have reasonable objection. The 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 the 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 the Owner in advance for acceptance by the Owner by a specified date prior to the Effective Date of the Agreement, and if the Contractor has submitted a list thereof in accordance with the Supplementary Conditions, the 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. The 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 the 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 the Owner or Engineer to reject defective Work.
- C. The Contractor shall be fully responsible to the 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 the Contractor is responsible for the 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 the Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor
 2. Shall anything in the Contract Documents create any obligation on the part of the 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. The 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 the Contractor.
- E. The Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with the Engineer through the Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control the 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 the 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 the Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured 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 the Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, 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, the Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. The 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 the 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 the Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and Engineer, and the officers, directors, 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, the Contractor shall obtain and pay for all construction permits and licenses. The Owner shall assist the Contractor, when necessary, in obtaining such permits and licenses. The 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. The Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. The 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 the Owner nor the Engineer shall be responsible for monitoring the Contractor's compliance with any Laws or Regulations.
- B. If the Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, the 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 the Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve the Contractor of the 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 the Contract Price or the Contract Times. If the 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 therefore as provided in Paragraph 10.05.

6.10 *Taxes*

- A. The Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by the 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. The 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. The 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, the 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, the Contractor shall indemnify and hold harmless the Owner and the Engineer, and the officers, directors, 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 the 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 the 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, the Contractor shall clean the Site and the Work and make it ready for utilization by the Owner. At the completion of the Work the 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:* The Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. The 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 the Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings shall be delivered to the Engineer.

6.13 *Safety and Protection*

- A. The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The 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. The 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. The 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. 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 the 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 the Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of the 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 the Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- D. The 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 the Engineer has issued a notice to the 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. The 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. The Contractor shall be responsible for coordinating any exchange of Material Safety Data Sheets (MSDS) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with applicable 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, the Contractor is obligated to act to prevent threatened damage, injury, or loss. The Contractor shall give the Engineer prompt written notice if the 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 the Engineer determines that a change in the Contract Documents is required because of the action taken by the Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. The Contractor shall submit Shop Drawings and Samples to the Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as the 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 the Engineer the services, materials, and equipment that the Contractor proposes to provide and to enable the 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 it is intended and other data to enable the 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 the Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of the Contractor.

- C. *Submittal Procedures*

- 1. Before submitting each Shop Drawing or Sample, the Contractor shall have determined and verified:
 - a. All field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - b. The suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
 - c. All information relative to the Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and
 - d. Shall also have 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.
- 2. Each submittal shall bear a stamp or specific written certification that the Contractor has satisfied the Contractor's obligations under the Contract Documents with respect to the Contractor's review and approval of that submittal.

3. With each submittal, the Contractor shall give the Engineer specific written notice of any variation, 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 the Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. The Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to the Engineer. The 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. The Engineer's review and approval will not extend to the 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. The Engineer's review and approval shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has complied with the requirements of Paragraph 6.17.C.3 and the Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. The 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. The Contractor shall make corrections required by the Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Engineer on previous submittals.

6.18 *Continuing the Work*

- A. The Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with the Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as the Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. The Contractor warrants and guarantees to the Owner that all Work shall be in accordance with the Contract Documents and will not be defective. The Engineer and its Related Entities shall be entitled to rely on representation of the Contractor's warranty and guarantee.
- B. The 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 the Contractor is responsible; or
 2. Normal wear and tear under normal usage.

- C. The 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 the 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 the Engineer or any payment related thereto by the Owner;
 4. Use or occupancy of the Work or any part thereof by the Owner;
 5. Any review and approval of a Shop Drawing or Sample Submittal or the issuance of a Notice of Acceptability by the Engineer;
 6. Any inspection, test, or approval by others; or
 7. Any correction of defective Work by the Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Engineer, and the officers, directors, 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 there from but only to the extent caused by any negligent act or omission of the 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 the Owner or the Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of the 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 the 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 the Contractor under Paragraph 6.20.A shall not extend to the liability of the Engineer and the Engineer’s officers, directors, 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.

6.21 *Delegation of Professional Design Services*

- A. The 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 the Contractor’s responsibilities for the construction means, methods, techniques,

sequences and procedures. The 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 the Contractor by the Contract Documents, the Owner and the Engineer will specify all performance and design criteria that such services must satisfy. The 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 the Engineer.
- C. The Owner and the Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and the Engineer have specified to the Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, the 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. The 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. The 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. The Owner may perform other work related to the Project at the Site with the Owner's employees or via other direct contracts therefore, 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 the Contractor prior to starting any such other work; and
 - 2. If the 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 therefore as provided in Paragraph 10.05.
- B. The Contractor shall afford each other Contractor who is a party to such a direct contract, each utility owner and the Owner, if the Owner is performing other work with the Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall 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. The Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the Engineer and the others whose work will be affected. The duties and responsibilities of the 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 the Contractor in said direct contracts between the Owner and such utility owners and other Contractors.
- C. If the proper execution or results of any part of the Contractor's Work depends upon work performed by others under this Article 7, the Contractor shall inspect such other work and promptly report to the 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 the Contractor's Work. The Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with the Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If the 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 the 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, the 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 the Owner.
- B. Each other direct contract of the Owner under Paragraph 7.01.A shall provide that the other Contractor is liable to the Owner and the Contractor for the reasonable direct delay and disruption costs incurred by the Contractor as a result of the other contractor's inactions.
- C. The Contractor shall be liable to the Owner and any other Contractor for the reasonable direct delay and disruption costs incurred by such other Contractor as a result of the Contractor's actions or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to the Contractor*

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

8.02 *Replacement of the Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. The Owner shall make payments to the 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. The Owner’s duties with respect to providing land 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 the Owner’s identifying and making available to the Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by the Engineer in preparing the Contract Documents.

8.06 *Insurance*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on the Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, the Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with the Laws and Regulations applicable to the performance of the Work. The Owner will not be responsible for the Contractor’s failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. The Owner’s responsibility with respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. If and to the extent the Owner has agreed to furnish the Contractor reasonable evidence that financial arrangements have been made to satisfy the Owner’s obligations under the Contract Documents, the Owner’s responsibility with respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 – ENGINEER’S STATUS DURING CONSTRUCTION

9.01 *Owner’s Representative*

- A. The Engineer will be the Owner’s representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the Owner’s representative during construction are set forth in the Contract Documents and will not be changed without the written consent of the Owner and the Engineer.

9.02 *Visits to Site*

- A. The Engineer will make visits to the Site at intervals appropriate to the various stages of construction as the 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 the Contractor’s executed Work.

Based upon information obtained during such visits and observations, the Engineer, for the benefit of the Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. The Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. The Engineer's efforts will be directed toward providing for the 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, the Engineer will keep the Owner informed of the progress of the Work and will endeavor to guard the Owner against defective Work.

- B. The Engineer's visits and observations are subject to all the limitations on the Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of the Engineer's visits or observations of the Contractor's Work the 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 the Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. The Engineer shall furnish a Resident Project Representative to assist the Engineer in providing more extensive observation of the Work. The authority and responsibilities of the 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 the Owner designates another representative or agent to represent the Owner at the Site who is not the 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. The 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 Time 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 the Owner and also on the Contractor, who shall perform the Work involved promptly. If the Owner or the Contractor believes that a Field Order justifies an adjustment in the Contract Price or the Contract Time, 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 therefore as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. The Engineer will have authority to reject Work which the Engineer believes to be defective, or that the 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. The 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 the Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with the 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 the Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

- D. In connection with the Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. The Engineer will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Engineer will review with the Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). The Engineer's written decision thereon will be final and binding (except as modified by the Engineer to reflect changed factual conditions or more accurate data) upon the Owner and the Contractor, subject to the provisions of Paragraph 10.05.

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

- A. The Engineer will be the initial interpreter of the requirements of the Contract Documents and the judge of the acceptability of the Work there under. All matters in question and other matters between the Owner and the 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 the Engineer in writing within **thirty (30) days** of the event giving rise to the question.
- B. The Engineer will, with reasonable promptness, render a written decision on the issue referred. If the Owner or the Contractor believes that any such decision entitles them to an adjustment in the Contract Price or the Contract Times or both, a Claim may be made under Paragraph 10.05. The date of the 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. The Engineer's written decision on the issue referred will be final and binding on the Owner and the Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, the Engineer will not show partiality to the Owner or the 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 the Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by the 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 the Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by the Engineer to the Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. The Engineer will not supervise, direct, control, or have authority over or be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the performance of the Work. The Engineer will not be responsible for the Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. The Engineer will not be responsible for the acts or omissions of the Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. The 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 and assistants, if any.

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, the Owner may, subject to written approval by the Agency 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, the 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 the Owner and the 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 Time, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Paragraph 10.05.

10.02 Unauthorized Changes in the Work

- A. The Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time 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.B.

10.03 Execution of Change Orders

- A. The Owner and the Contractor shall execute appropriate Change Orders recommended by the 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 the 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 Time 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 Time which embody the substance of any written decision rendered by the 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, the 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 notice 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 Time) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be the 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 the Engineer shall be required as a condition precedent

to any exercise by the Owner or the Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations with respect to such Claims.

- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to the Engineer and the other party to the Contract promptly (but in no event later than **thirty (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 **sixty (60) days** after the start of such event (unless the Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in the Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in the Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by the 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 the Engineer and the claimant within **thirty (30) days** after receipt of the claimant's last submittal (unless the Engineer allows additional time).
- C. *Engineer's Action:* The Engineer will review each Claim and, within **thirty (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 the Engineer does not take action on a Claim within said **thirty (30) days**, the Claim shall be deemed denied.
- E. The Engineer's written action under the Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon the Owner and the Contractor, unless the Owner or the Contractor invoke the dispute resolution procedure set forth in Article 16 within **thirty (30) days** of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Time 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 the 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 the 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 the Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.
1. Payroll costs for employees in the direct employ of the Contractor in the performance of the Work under schedules of job classifications agreed upon by the Owner and the Contractor. Such employees shall

include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. 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 the Owner.

2. The 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 the Contractor unless the Owner deposits funds with the Contractor with which to make payments, in which case the cash discounts shall accrue to the Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to the Owner, and the Contractor shall make provisions so that they may be obtained.
3. Payments made by the Contractor to Subcontractors for Work performed by the Subcontractors. If required by the Owner, the Contractor shall obtain competitive bids from subcontractors acceptable to the Owner and the Contractor and shall deliver such bids to the Owner, who will then determine, with the advice of the 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 the 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 the Contractor's employees incurred in discharge of duties connected with the Work.
 - b. The 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 the Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from the Contractor or others in accordance with rental agreements approved by the 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 the Contractor is liable, imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of the 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 the 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 the 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 the Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining the 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, expressages, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that the 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 the 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 the Contractor, whether at the Site or in the 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 the Contractor's principal and branch offices other than the Contractor's office at the Site.
- 3. Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work and charges against the Contractor for delinquent payments.
- 4. Costs due to the negligence of the 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 and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, the 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, the 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, the Contractor shall establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to the 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 the Owner and the Engineer.

B. *Cash Allowances:*

- 1. The Contractor agrees that:

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- a. The cash allowances include the cost to the 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. The 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. The Contractor agrees that a contingency allowance, if any, is for the sole use of the Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by the Engineer to reflect actual amounts due the 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 the Comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by the 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 the Contractor to be adequate to cover the Contractor's overhead and profit for each separately identified item.
- D. The Owner or the Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 1. The Bid price of a particular item of Unit Price Work amounts to more than five percent (5%) of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by the Contractor differs by more than twenty-five percent (25%) 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. The Contractor believes that the Contractor is entitled to an increase in the Contract Price as a result of having incurred additional expense or the Owner believes that the Owner is entitled to a decrease in the 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 fifteen percent (15%);
 - b. For costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent (5%);
 - 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 Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of fifteen percent (15%) 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 (5%) 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 the Contractor to the 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 the Contractor's fee by an amount equal to five percent (5%) of such net decrease; and
 - f. When both additions and credits are involved in any one change, the adjustment in the 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 Time*

- A. The Contract Time may only be changed by a Change Order. Any Claim for an adjustment in the Contract Time 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 Time covered by a Change Order or any Claim for an adjustment in the Contract Time will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where the Contractor is prevented from completing any part of the Work within the Contract Time due to delay beyond the control of the Contractor, the Contract Time will be extended in an amount equal to the time lost due to such delay if a Claim is made therefore as provided in Paragraph 12.02.A. Delays beyond the control of the Contractor shall include, but not be limited to, acts or neglect by the 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 the Owner, Engineer, or other Contractors or utility owners performing other work for the Owner as contemplated by Article 7, or anyone for whom the Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then the Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Time, or both. The Contractor's entitlement to an adjustment of the Contract Time is conditioned on such adjustment being essential to the Contractor's ability to complete the Work within the Contract Time.
- C. If the 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 the Owner, or other causes not the fault of and beyond control of the Owner and the Contractor, then the Contractor shall be entitled to an equitable adjustment in the Contract Time, if such adjustment is essential to the Contractor's ability to complete the Work within the Contract Time. Such an adjustment shall be the Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.B.
- D. The Owner, the Engineer and the Related Entities of each of them shall not be liable to the 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 the Contractor on or in connection with any other project or anticipated project.
- E. The Contractor shall not be entitled to an adjustment in the Contract Price or Contract Time for delays within the control of the Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of the 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 the Owner or the Engineer has actual knowledge will be given to the Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. The Owner, the Engineer, their consultants and other representatives and personnel of the 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, inspecting, and testing. The Contractor shall provide them proper and safe conditions for such access and advise them of the Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. The Contractor shall give the 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. The 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 said 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, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish the Engineer the required certificates of inspection or approval.
- D. The Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for the Owner's and the 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 the Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to the Owner and the Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by the Contractor without written concurrence of the Engineer, it must, if requested by the Engineer, be uncovered for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at the Contractor's expense unless the Contractor has given the Engineer timely notice of the Contractor's intention to cover the same and the 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 the Engineer, it must, if requested by the Engineer, be uncovered for the Engineer's observation and replaced at the Contractor's expense.
- B. If the Engineer considers it necessary or advisable that covered Work be observed by the Engineer or inspected or tested by others, the Contractor, at the Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the 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, the 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 the Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, the Owner may make a Claim therefore 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, the Contractor may make a Claim therefore as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or the 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, the Owner may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the 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 notice, the Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by the Engineer, remove it from the Project and replace it with Work that is not defective. The 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, the Contractor shall take no action that would void or otherwise impair the Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within **one (1) 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 the Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, the Contractor shall promptly, without cost to the Owner and in accordance with the 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 the 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 there from.
- B. If the Contractor does not promptly comply with the terms of the Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, the 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 the 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 there from) 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 (1) year** after such correction or removal and replacement has been satisfactorily completed.
- E. The 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, the Owner (and, prior to the Engineer's recommendation of final payment, the Engineer) prefers to accept it, the Owner may do so. The 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 the Owner's evaluation of and determination to accept such defective Work (such costs to be approved by the Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by the Contractor pursuant to this sentence. If any such acceptance occurs prior to the 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 the 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, the Owner may make a Claim therefore as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by the Contractor to the Owner.

13.09 *Owner May Correct Defective Work*

- A. If the Contractor fails within a reasonable time after written notice from the Engineer to correct defective Work or to remove and replace rejected Work as required by the Engineer in accordance with Paragraph 13.06.A, or if the Contractor fails to perform the Work in accordance with the Contract Documents, or if the Contractor fails to comply with any other provision of the Contract Documents, the Owner may, after **seven (7) days** written notice to the Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, the Owner shall proceed expeditiously. In connection with such corrective or remedial action, the Owner may exclude the Contractor from all or part of the Site, take possession of all or part of the Work and suspend the Contractor's services related thereto, take possession of the 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 the Owner has paid the Contractor but which are stored elsewhere. The Contractor shall allow the Owner, the Owner's representatives, agents and employees; the Owner's other Contractors, and the Engineer and the Engineer's Consultants access to the Site to enable the 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 the Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against the Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the 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, the Owner may make a Claim therefore 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 the Contractor's defective Work.
- D. The Contractor shall not be allowed an extension of the Contract Time because of any delay in the performance of the Work attributable to the exercise by the Owner of the 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 the 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 **twenty (20) days** before the date established in the Agreement for each progress payment (but not more often than once a month), the Contractor shall submit to the Engineer for review an Application for Payment filled out and signed by the 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 the 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 the Owner's interest therein, all of which must be satisfactory to the Owner.
- 2. Beginning with the second Application for Payment, each Application shall include an affidavit of the Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge the 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. The Engineer will, within **ten (10) days** after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the Owner or return the Application to the Contractor indicating in writing the Engineer's reasons for refusing to recommend payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application.
- 2. The Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by the Engineer to the Owner, based on the Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on the Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of the 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, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and
 - c. The conditions precedent to the Contractor's being entitled to such payment appear to have been fulfilled in so far as it is the Engineer's responsibility to observe the Work.
- 3. By recommending any such payment the 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 the Engineer in the Contract Documents;
or
 - b. That there may not be other matters or issues between the parties that might entitle the Contractor to be paid additionally by the Owner or entitle the Owner to withhold payment to the Contractor.
4. Neither the Engineer’s review of the Contractor’s Work for the purposes of recommending payments nor the Engineer’s recommendation of any payment, including final payment, will impose responsibility on the 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 the Contractor’s failure to comply with Laws and Regulations applicable to the Contractor’s performance of the Work, or
 - d. To make any examination to ascertain how or for what purposes the 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 the Owner free and clear of any Liens.
5. The Engineer may refuse to recommend the whole or any part of any payment if, in the Engineer’s opinion, it would be incorrect to make the representations to the Owner stated in Paragraph 14.02.B.2. The 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 the Engineer’s opinion to protect the 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. The Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. The Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. **Ten (10) days** after presentation of the Application for Payment to the Owner with the 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 the Owner to the Contractor.

D. Reduction in Payment

1. The Owner may refuse to make payment of the full amount recommended by the Engineer because:
 - a. Claims have been made against the Owner on account of the Contractor’s performance or furnishing of the Work;

- b. Liens have been filed in connection with the Work, except where the Contractor has delivered a specific bond satisfactory to the Owner to secure the satisfaction and discharge of such Liens;
 - c. The Contractor's performance or furnishing of the Work is inconsistent with funding Agency requirements;
 - d. There are other items entitling the Owner to a set-off against the amount recommended; or
 - e. The 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 the Owner refuses to make payment of the full amount recommended by the Engineer, the Owner will give the Contractor immediate written notice (with a copy to the Engineer) stating the reasons for such action and promptly pay the Contractor any amount remaining after deduction of the amount so withheld. The Owner shall promptly pay the Contractor the amount so withheld, or any adjustment thereto agreed to by the Owner and the Contractor, when the Contractor corrects to the Owner's satisfaction the reasons for such action.
 3. If it is subsequently determined that the 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.

14.03 *Contractor's Warranty of Title*

- A. The 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 the Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When the Contractor considers the entire Work ready for its intended use the Contractor shall notify the Owner and the Engineer in writing that the entire Work is substantially complete (except for items specifically listed by the Contractor as incomplete) and request that the Engineer issue a certificate of Substantial Completion.
- B. Promptly after the Contractor's notification, the Owner, Agency, Contractor, and Engineer shall make a pre-final inspection of the Work to determine the status of completion. If the Engineer does not consider the Work substantially complete, the Engineer will notify the Contractor in writing giving the reasons therefore.
- C. If the Engineer considers the Work substantially complete, the Engineer will deliver to the 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. The Owner shall have **seven (7) days** after receipt of the Tentative Certificate during which to make written objection to the Engineer as to any provisions of the certificate or attached list. If, after considering such objections, the Engineer concludes that the Work is not substantially complete, the Engineer will within **fourteen (14) days** after submission of the Tentative Certificate to the Owner notify the Contractor in writing, stating the reasons therefore. If, after consideration of the Owner's objections, the Engineer considers the Work substantially complete, the Engineer will within said **fourteen (14) days** execute and deliver to the Owner and the 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 the Engineer believes justified after consideration of any objections from the Owner.

- D. At the time of delivery of the Tentative Certificate of Substantial Completion, the Engineer will deliver to the Owner and the Contractor a written recommendation as to division of responsibilities pending final payment between the Owner and the Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless the Owner and the Contractor agree otherwise in writing and so inform the Engineer in writing prior to the Engineer's issuing the Definitive Certificate of Substantial Completion, the Engineer's aforesaid recommendation will be binding upon the Owner and the Contractor until final payment.
- E. The Owner shall have the right to exclude the Contractor from the Site after the date of Substantial Completion subject to allowing the Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to the Substantial Completion of all the Work, the Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which the Owner, the Engineer, and the Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the Owner for its intended purpose without significant interference with the Contractor's performance of the remainder of the Work, subject to the following conditions.
 - 1. The Owner at any time may request the Contractor in writing to permit the Owner to use or occupy any such part of the Work which the Owner believes to be ready for its intended use and substantially complete. If and when the Contractor agrees that such part of the Work is substantially complete, the Contractor will certify to the Owner and the Engineer that such part of the Work is substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 2. The Contractor at any time may notify the Owner and the Engineer in writing that the Contractor considers any such part of the Work ready for its intended use and substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, the Owner, the Contractor, and the Engineer shall make an inspection of that part of the Work to determine its status of completion. If the Engineer does not consider that part of the Work to be substantially complete, the Engineer will notify the Owner and the Contractor in writing giving the reasons therefore. If the 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 the Contractor that the entire Work or an agreed portion thereof is complete, the Engineer will promptly make a final inspection with the Owner, the Agency, and the Contractor and will notify the Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. The 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 the Contractor has, in the opinion of the 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 of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, the 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.7;
 - b. Consent of the surety, if any, to final payment;
 - c. A list of all Claims against the Owner that the Contractor believes are unsettled; and
 - d. Complete and legally effective releases or waivers (satisfactory to the 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 the Owner, the Contractor may furnish receipts or releases in full and an affidavit of the 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 the Owner or the Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of the Engineer's observation of the Work during construction and final inspection, and the Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, the Engineer is satisfied that the Work has been completed and the Contractor's other obligations under the Contract Documents have been fulfilled, the Engineer will, within **ten (10) days** after receipt of the final Application for Payment, indicate in writing the Engineer's recommendation of payment and present the Application for Payment to the Owner for payment. At the same time the Engineer will also give written notice to the Owner and the Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, the Engineer will return the Application for Payment to the Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case the Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. **Thirty (30) days** after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum the Owner is entitled to set off against the Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by the Owner to the Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of the Contractor, final completion of the Work is significantly delayed, and if the Engineer so confirms, the Owner shall, upon receipt of the Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of the 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 the 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 the Contractor to the 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. The remaining balance of any sum included in the final Application for Payment but held by the Owner for Work not fully completed and accepted will become due when the Work is fully completed and accepted.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. A waiver of all Claims by the Owner against the 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 the Contractor's continuing obligations under the Contract Documents; and
 2. A waiver of all Claims by the Contractor against the Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by the 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, the Owner may suspend the Work or any portion thereof for a period of not more than **ninety (90) consecutive days** by notice in writing to the Contractor and the Engineer which will fix the date on which Work will be resumed. The Contractor shall resume the Work on the date so fixed. The Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Time, or both, directly attributable to any such suspension if the Contractor makes a Claim therefore 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. The 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. The Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. The Contractor's disregard of the authority of the Engineer; or
 4. The 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, the Owner may, after giving the Contractor (and surety) **seven (7) days** written notice of its intent to terminate the services of the Contractor:
1. Exclude the Contractor from the Site, and take possession of the Work and of all the Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by the Contractor (without liability to the Contractor for trespass or conversion),
 2. Incorporate in the Work all materials and equipment stored at the Site or for which the Owner has paid the Contractor but which are stored elsewhere, and

3. Complete the Work as the Owner may deem expedient.
- C. If the Owner proceeds as provided in Paragraph 15.02.B, the 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 the Owner arising out of or relating to completing the Work, such excess will be paid to the Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, the Contractor shall pay the difference to the Owner. Such claims, costs, losses, and damages incurred by the Owner will be reviewed by the Engineer as to their reasonableness and, when so approved by the Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph the Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, the Contractor's services will not be terminated if the Contractor begins within **seven (7) 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 **thirty (30) days** of receipt of said notice.
- E. Where the Contractor's services have been so terminated by the Owner, the termination will not affect any rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the Owner will not release the Contractor from liability.
- F. If and to the extent that the 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 (7) days** written notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy of the Owner, terminate the Contract. In such case, the 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. The 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 the Contractor, (i) the Work is suspended for more than **ninety (90) consecutive days** by the Owner or under an order of court or other public authority, or (ii) the Engineer fails to act on any Application for Payment within **thirty (30) days** after it is submitted, or (iii) the Owner fails for **thirty (30) days** to pay the Contractor any sum finally determined to be due, then the Contractor

may, upon **seven (7) days** written notice to the Owner and the Engineer, and provided the Owner or the Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from the 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 the Engineer has failed to act on an Application for Payment within **thirty (30) days** after it is submitted, or the Owner has failed for **thirty (30) days** to pay the Contractor any sum finally determined to be due, the Contractor may, **seven (7) days** after written notice to the Owner and the Engineer, stop the Work until payment is made of all such amounts due the Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude the Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Time or otherwise for expenses or damage directly attributable to the Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. The Owner and the Contractor may mutually request mediation of any Claim submitted to the 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. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. The Owner and the Contractor shall participate in the mediation process in good faith. The process shall be concluded within **sixty (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, the 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 **thirty (30) days** after termination of the mediation unless, within that time period, the Owner or the 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 their 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 the Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the State of California.

17.06 *Headings*

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

ARTICLE 18 – FEDERAL REQUIREMENTS

18.01 *Agency Not a Party*

- A. This Contract is expected to be funded in part with funds provided by the Agency. Neither the Agency, nor any of its departments, entities, or employees is a party to this Contract.

18.02 *Contract Approval*

- A. The Owner and the Contractor will furnish the Owner’s attorney such evidence as required so that the Owner’s attorney can complete and execute the following “Certificate of Owner’s Attorney” (Exhibit GC-A) before the Owner submits the executed Contract Documents to the Agency for approval.
- B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

18.03 *Conflict of Interest*

- A. The Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer.
- B. The Owner’s officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the

employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in the Contractor. The Owner’s officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from the Contractor or subcontractors.

18.04 *Gratuities*

- A. If the Owner finds after a notice and hearing that the Contractor, or any of the Contractor’s agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the Owner or the Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, the Owner may, by written notice to the Contractor, terminate this Contract. The Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which the Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- B. In the event this Contract is terminated as provided in paragraph 18.04.A, the Owner may pursue the same remedies against the Contractor as it could pursue in the event of a breach of this Contract by the Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, the Owner may pursue exemplary damages in an amount (as determined by the Owner) which shall not be less than three (3) nor more than ten (10) times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

18.05 *Audit and Access to Records*

- A. For all negotiated contracts and negotiated modifications (except those of \$10,000 or less), the Owner, the Agency, the Controller General, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor, which are pertinent to the Contract, for the purpose of making audits, examinations, excerpts and transcriptions. The Contractor shall maintain all required records for **three (3) years** after final payment is made and all other pending matters are closed.

18.06 *Small, Minority and Women’s Businesses*

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

18.07 *Anti-Kickback*

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

18.08 *Clean Air and Pollution Control Acts*

- A. If this Contract exceeds **\$100,000**, the Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 USC 7401 *et seq.*) and the Federal Water Pollution Control Act as amended (33 USC 1251 *et seq.*). The Contractor will report violations to the Agency and the Regional Office of the EPA.

18.09 *State Energy Policy*

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

18.10 *Equal Opportunity Requirements*

- A. If this Contract exceeds **\$10,000**, the Contractor shall comply with Executive Order 11246, “Equal Employment Opportunity,” as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and as supplemented by regulations at 41 CFR Part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”
- B. Contractor’s compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor’s goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
- C. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within **ten (10) working days** of award of any construction subcontract in excess of **\$10,000** at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

18.11 *Restrictions on Lobbying*

- A. The Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 349) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed **\$100,000** at any tier under a Federal loan that exceeds **\$150,000** or a Federal grant that exceeds **\$100,000**. If applicable, the Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 34 USC 1354. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by the Owner.

18.12 *Environmental Requirements*

- A. When constructing a project involving trenching and/or other related earth excavations, the Contractor shall comply with the following environmental constraints:
1. *Wetlands* – When disposing of excess spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert wetlands.
 2. *Floodplains* – When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert one-hundred (100) year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey Maps.
 3. *Historic Preservation* – Any excavation by the Contractor that uncovers an historical or archaeological artifact shall be immediately reported to the Owner and a representative of the Agency. Construction shall be temporarily halted pending the notification process and further directions issued by the Agency after consultation with the State Historic Preservation Officer (SHPO).
 4. *Endangered Species* – The Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and a representative of the Agency. Construction shall be temporarily halted pending the notification process and further directions issued by the Agency after consultation with the U.S. Fish and Wildlife Service.

22. SUPPLEMENTARY CONDITIONS

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These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition (No. C-710, 2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof. Every effort has been made to already have incorporated the following into the General Conditions.

SC-1.01.A.2 Add the following language to the end of Paragraph 1.01.A.2:

The Project is financed in whole or in part by California Department of Housing and Community Development (HCD) through its Community Development Block Grant (CDBG) Program. The HCD programs are administered through the CDBG offices; therefore, the Agency for these documents is CDBG.

SC-1.01.A.4 Add the following language to the end of Paragraph 1.01.A.4:

The Application for Payment form to be used on this Project is EJCDC No. C-620. The Agency must approve all Applications for Payment before payment is made.

SC-1.01.A.10 Add the following language to the end of Paragraph 1.01.A.10:

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

SC-1.01.A.20 Add the following language to the end of Paragraph 1.01.A.20:

The Engineer for this project is: **The Holt Group, Inc.** The Engineer's Consultants on this project are:

- 1) **Geotechnical Engineer** – N/A
- 2) **Structural Engineer** – N/A
- 3) **Electrical Engineer** – JOL Enterprises, Inc. James R. Adler, P.E.
- 4) **Operation Building** – N/A

SC-1.01.A.35 Add the following language to the end of Paragraph 1.01.A.35:

The Project Manual also includes Improvement Plans 1 through 6 dated April 10, 2018.

SC-2.03.A Delete Paragraph 2.03.A in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within **thirty (30) days** after the Effective Date of the Agreement.

SC-4.02 Add the following new paragraphs immediately after Paragraph 4.02.B:

- C. In the preparation of Drawings and Specifications, the Engineer relied upon the following reports of exploration and tests of subsurface conditions at the Site:

1. N/A

D. In the preparation of Drawings and Specifications, Engineer relied upon the following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the Site:

1. N/A

E. Copies of reports and drawings itemized in 4.02.C and 4.02.D that are not included with Bidding Documents may be examined at **The Holt Group, 1601 North Imperial Avenue, El Centro, CA 92243** office during regular business hours. These reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which the Contractor may rely as identified and established above are incorporated therein by reference. The Contractor is not entitled to rely upon other information and data utilized by the Engineer in the preparation of the Drawings and Specifications.

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

A. No reports or explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or the Engineer.

SC-4.06.D Amend the beginning of Paragraph 4.06.D to read as follows:

If the Contractor encounters a Hazardous Environmental Condition or material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law, or if the Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, the Contractor shall immediately:

SC-5.03 Add the following new paragraph immediately after Paragraph 5.03.B:

C. Failure of the Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of the Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.

SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:

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

1. Workers’ Compensation and related coverage under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

- a. State: Statutory
- b. Employer’s Liability: \$1,000,000

2. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverage and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

- a. General Aggregate: \$2,000,000
- b. Products – Completed Operations Aggregate: \$1,000,000
- c. Personal and Advertising Injury: \$1,000,000

Palo Verde County Water District Water Well Replacement Project – Phase II

- | | |
|---|-------------|
| d. Each Occurrence (Bodily Injury and Property Damage) | \$1,000,000 |
| e. Excess or Umbrella Liability | |
| 1) General Aggregate | \$2,000,000 |
| 2) Each Occurrence | \$2,000,000 |
| 3. Automobile Liability under paragraph 5.04.6 of the General Conditions: | |
| a. Combined Single Limit | \$1,000,000 |
| 4. Property Damage liability insurance will provide Explosion, Collapse and Underground (X,C,U) coverage where applicable. | |
| 5. Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall be provided as part of the General Liability coverage. | |
| 6. The Owner and the Engineer are to be included as additional insureds. | |

SC-6.05.C. Amend the paragraph by making two subparagraphs under the Title C.

Engineer's Evaluation. The paragraph text is re-titled, 6.05.C.2 After Effective Date of Agreement. A new paragraph is added before this paragraph to read as follows:

1. *During Bidding:* The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or "or-equal" materials and equipment as defined in Paragraph 6.05 of the General Conditions, or those substitute or materials and equipment approved by the Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of the required type, function, and quality to be met by any proposed substitute or "or-equal" item. A request for the Engineer's clarification of materials and equipment considered "or-equal" prior to the Effective Date of the Agreement must be received by the Engineer at least **five (5) days** prior to the date for receipt of Bids. No item of material or equipment will be considered by the Engineer as a substitute unless a written request for approval has been submitted by the Bidder and has been received by the Engineer at least **fifteen (15) days** prior to the date for receipt of Bids. Each request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon the Bidder. The Engineer's decision of approval or disapproval of a proposed item will be final. If the Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. The Bidders shall not rely upon approvals made in any other manner.
2. *After the Effective Date of the Agreement:* The 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. The Engineer may require the Contractor to furnish additional data about the proposed substitute item. The Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until the Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." The Engineer will advise the Contractor in writing of any negative determination.

SC-6.06. Add a new paragraph immediately after paragraph 6.06.G:

- H. The Contractor shall not award work valued at more than **ninety percent (90%)** of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC-6.13. Add the following language to the end of paragraph 6.13.B:

For all excavations in excess of five (5) feet, the Contractor shall, pursuant to Labor Code Section 6705, submit in advance of any excavation hereunder a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from caving ground. No such excavation shall be made until said detailed plan is submitted by the Contractor and accepted by the Engineer.

SC-6.20.Delete Paragraph 6.20.C.2 in its entirety:

SC-9.03. Add the following language at the end of paragraph 9.03:

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

SC-10.05. Add the following new paragraph immediately after paragraph 10.05.F:

G. If this is a “Public Works Contract” as defined in Section 22200 of the California Public Contract Code, claims shall be resolved pursuant to Sections 20104 et seq. of the California Public Contract Code. These sections are summarized as follows:

1. 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 this Contract, payment not otherwise expressly provided in the Contract, or (c) any separate demand by the Contractor, the amount of which is disputed by the Owner.
2. For claims less than \$50,000, the Owner shall respond in writing to all written claims within **forty-five (45) days** of receipt of the claim, or may request in writing, within **thirty (30) days** of receipt of the claim, any additional documentation supporting the claim or relating to any defenses the Owner may have against such claim. The Owner’s written response to the claim, as further documented, will be submitted to the Contractor within **fifteen (15) days** from receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional documentation, whichever is greater.
3. For claims over \$50,000 and less than or equal to \$375,000, the Owner shall respond in writing to all written claims within **sixty (60) days** of receipt of the claim, or may request in writing, within **thirty (30) days** of receipt of the claim, any additional documentation supporting the claim or relating to any defenses the Owner may have against such claim. The Owner’s written response to the claim, as further documented, will be submitted to the Contractor within **thirty (30) days** from receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional documentation, whichever is greater.
4. If the Contractor disputes the Owner’s written response, or the Owner fails to respond within the time specified, the Contractor may notify the Owner in writing within either **fifteen (15) days** of receipt of the Owner’s response, or within **fifteen (15) days** of the Owner’s failure to respond within the statutorily prescribed time, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand, the Owner shall schedule a meet and confer conference within **thirty (30) days** for settlement of the dispute.
5. Following the meet and confer conference, if the claim or any portion remains in dispute, the Contractor may file a claim pursuant to Government Code Sections 900, et seq. The period of time within which to file such a claim shall be defined in Public Contract Code Section 20104.2(e).

SC-14.02.A.3 Add the following language at the end of paragraph 14.02.A.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

SC-14.02.C.1. Delete Paragraph 14.02.C.1 in its entirety and insert the following in its place:

1. **Thirty (30) days** after presentation of the Application for Payment to the Owner with the 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 the Owner to the Contractor.

SC-14.07.C Delete Paragraph 14.07.C1 in its entirety and insert the following in its place:

1. **Thirty-five (35) days** after the filing of a Notice of Completion with the County Recorder and after presentation to the Owner of the Application for Payment and accompanying documentation, the amount recommended by the Engineer, less any sum the Owner is entitled to set off against the Engineer’s recommendation, including but not limited to liquidated damages, will become due and will be paid by the Owner to the Contractor.

SC-18.08 Delete paragraph 18.08.A in its entirety and insert the following in its place:

- A. If this Contract exceeds **\$100,000**, the Contractor shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC §1857(h)), Section 508 of the Clean Water Act (33 USC §1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).

SC-19 Add the following new paragraph:

ARTICLE 19 - PROJECT SIGN

19.01 The Contractor will place a temporary construction project sign at a location designated by the Engineer. This sign measuring 4' x 8', will be made of 3/4" exterior grade plywood and adhere to the format and details illustrated on the sheet included in Section 23., "Project Signs," of these Contract Documents. The sign will be prepared by a professional sign painter.

SC-20 Add the following new paragraphs:

ARTICLE 20 - ADDITIONAL STATE REQUIREMENTS

20.01 In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

20.02 Unless otherwise indicated in the Contract Documents, all utility lines, conduits, wires, or structures shall be maintained by the Contractor and shall not be disturbed, disconnected, or damaged by him during the progress of the Work, provided, that should the Contractor in the performance of the Work disturb, disconnect, or damage any of the above, all expenses arising from such disturbance or in the replacement or repair thereof shall be borne by the Contractor. However, in accordance with Section 4215 of the California Government Code, the Contractor shall be

Palo Verde County Water District Water Well Replacement Project – Phase II

compensated for all costs of locating and repairing damage to main or trunkline utility facilities located on the work site and for costs of operating equipment on the work site necessarily idled during such work where the Contractor has exercised reasonable care in removing or relocating utility facilities which are inaccurately indicated in the Contract Documents.

23. PROJECT SIGN

- Below is a typical project identity sign to include the project identity, credit to the State and/or Federal grant agencies and the awarding agency.
- Below is a typical contractor identity sign.

<p>THIS PROJECT IS ADMINISTERED BY THE COUNTY OF IMPERIAL, WITH FUNDING FROM THE CALIFORNIA DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT'S (HCD) COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG) PROGRAM</p> <p>IMPERIAL COUNTY WORKFORCE AND ECONOMIC DEVELOPMENT 2799 S 4TH Street El Centro, CA 92243 (442) 265-1100</p>  	<p>CONTRACTOR'S NAME BUSINESS ADDRESS BUSINESS PHONE # STATE CONTRACTOR'S LICENSE # EMERGENCY AFTER HOURS #</p>
---	---

- Project identity sign to be placed on white background with black lettering.
- Provide and install logos.
- Sign to measure at a minimum 48" wide and 36" high.
- Both signs may be incorporated into one sign 8' x 4'.
- Contractors Identity sign to be placed on white background with black lettering.
- Provide art work and logo.
- Sign to measure a minimum 36" wide and 36" high

24. CONTRACTOR’S APPLICATION FOR PAYMENT NO. _____

	Application Period:	Application Date:
To (Owner): County of Imperial	From (Contractor):	Via: Imperial County Workforce & Economic Development
Project: Palo Verde County Water District Water Well Replacement Project – Phase II	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: 821.028

**APPLICATION FOR PAYMENT
Change Order Summary**

Approved Change Orders	Number	Additions	Deductions		
				1. ORIGINAL CONTRACT PRICE.....	\$ _____
				2. Net change by Change Orders	\$ _____
				3. CURRENT CONTRACT PRICE (Line 1 ± 2).....	\$ _____
				4. TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)	\$ _____
				5. RETAINAGE:	
				a. % x \$ Work Completed.....	\$ _____
				b. % x \$ Stored Material.....	\$ _____
				c. Total Retainage (Line 5a + Line 5b)	\$ _____
				6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c).....	\$ _____
				7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)	\$ _____
				8. AMOUNT DUE THIS APPLICATION.....	\$ _____
				9. BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)	\$ _____
TOTALS					
NET CHANGE ORDERS					

CONTRACTOR’S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:
-----	-------

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____ Funding Agency (if applicable) _____ (Date)

PROGRESS ESTIMATE

CONTRACTOR'S APPLICATION

For (contract):					Application Number:							
Application Period:					Application Date:							
A				B	C	D	E	F		G		
Item				Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (<u>F</u>) B	Balance to Finish (B - F)
Bid Item No.	Description											
	TOTALS											

25. CHANGE ORDER FORM

No. _____

Date of Issuance: _____ Effective Date: _____

Project: Palo Verde County Water District Water Well Replacement Project – Phase II	Owner: County of Imperial	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.: 821.028

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

Description: _____

Attachments: (List documents supporting change): _____

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price: \$ _____	Original Contract <input type="checkbox"/> Working days <input type="checkbox"/> Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency (if applicable):	Date: _____	Date: _____

CHANGE ORDER INSTRUCTIONS

A. General Information

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Time. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Time.

Changes that affect Contract Price or Contract Time should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Time, a Field Order should be used.

B. Completing the Change Order Form

The Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by the Contractor, or requests from the Owner, or both.

Once the Engineer has completed and signed the form, all copies should be sent to the Owner or the Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. The Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to time, cross out the part of the tabulation that does not apply.

26. SPECIAL CONDITIONS

SECTION	DESCRIPTION	
1	Project Description	00840-2
2	Business License	00840-2
3	Inspection of Work	00840-4
4	Sequence of Construction	00840-2
5	Environmental Report Requirements	00840-6
6	Geotechnical Testing Requirements	00840-6
7	Water Treatment Plant Regulatory Agency Permit	00840-7
8	Specific Submittal List	00840-7
9	Well Demolition and Well Construction Permit	00840-9
10	Shade Structure Permit	00840-9
11	Programming and Integration of Filter Control Panel	00840-10

1. PROJECT DESCRIPTION

The Palo Verde County Water District's Water Treatment Plant is located two (2) miles south of the Palo Verde townsite, along State Highway 78. The Water Treatment Plant and Water Distribution System supplies services approximately 130 water customers. The average domestic demand (excluding fire flows) in the winter is 20,000 gallons per day, while the average demand (excluding fire flows) in the summer is 40,000 gallons per day. The estimated maximum demand is 70,000 gallons per day.

There are two (2) existing water wells at the Palo Verde Water Treatment Plant labeled North Well and South Well. The existing North Well as well as the existing South Well have a rated capacity of 250 Gallons Per Minute. Plan Sheet No. 2 illustrates the location of the existing and proposed water wells. The Wells are located approximately 30 feet from the Oxbow Lake Channel. The Oxbow Lake Channel is supplied with water from the Colorado River. The Existing North Well is 70 feet deep. The existing South Well is considered to be relatively new as it was constructed and placed into operation in 2020. The existing North Well was constructed in 1983 and has been out of operation since 2020, since the construction and operation of the new South Well. The existing North Well is aged and will be required to be repaired if used as a back up to the South Well. Therefore, it is critical that the North Well be replaced as soon as possible.

The purpose of this project is to replace the existing North Well with a new Well, which will also be referenced as the North Well. The installation of the new well and destruction of the existing well is to be accomplished in accordance with the State of California Department of Water Resources Bulletin 74-81 and 74-90, California Safe Drinking Water Act, requirements of the County of Imperial Public Health Department, and pertinent State of California Codes and Requirements such as Safe Drinking Water Act, California Code of Regulations, American Waterworks Association Standards, and other applicable Codes and Regulations.

Along with the replacement of the existing well, the contractor will be required to construct a concrete slab, shade structure, water piping, valves, water quality analyzing equipment, electrical and control equipment will be installed, as required for the new well.

It will be necessary to maintain the existing water treatment flow and operation through the Water Treatment Plant during the North Well replacement period. The sequence of construction for installation of the new well and destruction of the of the existing well shall be accomplished as per the specifications.

2. BUSINESS LICENSE

The Contractor and Subcontractors performing work on this project shall obtain a business license from the County of Imperial. The Contractor and Subcontractors shall contact the County Treasurer – Tax Collector’s office regarding the application process and fees. The Contractor and Subcontractor shall include the business license costs as part of mobilization.

3. INSPECTION OF WORK

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

The Contractor shall provide all inspection and testing services unless specified to be provided by the Owner’s Representative.

The Owner’s Representative shall provide at the Contractor’s expense the testing and inspection services required by the Contract Documents if the Contractor fails or refuses to provide the required testing and inspection services.

If the Contract documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested, or approved by someone other than the Owner’s Representative, the Contractor will give the Owner’s Representative timely notice of readiness. The Contractor will then furnish the Owner’s Representative the required certificates of inspection, testing or approval.

Inspections, tests, or approvals by the Owner’s Representative or others shall not relieve the Contractor from the obligations to perform the work in accordance with the requirements of the Contract Documents.

If any work is covered prior to inspection by the Owner’s Representative it must, if requested by the Owner’s Representative, be uncovered for the Owner’s Representative’s observation and replaced at the Contractor’s expense.

The Owner and the Owner’s Representative will at all times have access to the work. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access, observation of the work, and also for any inspection/testing thereof.

If the Owner's Representative considers it necessary or advisable that covered work be inspected or tested by others, the Contractor, at the Owner's Representative's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Owner's Representative may require, that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such work is not found to be defective, the Contractor will be allowed an increase in the contract price or any extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and construction and an appropriate change order shall be issued.

4. SEQUENCE OF CONSTRUCTION

It will be necessary to maintain a water supply to the Palo Verde Water Treatment Plant during the Water Well Replacement Project construction period. The Sequence of Events for the construction of the project shall be accomplished in the order specified below. Any deviations or construction items not specifically mentioned below are to be noted and submitted by the contractor prior to the commencement of the construction.

The sequence of events for the installation of the new wells and destruction of the existing wells shall be accomplished in the following order:

1. Construct the class 2 base well access roads per demolition keynote 9 and construction keynote 7 as illustrated on plan sheet 2 prior to starting the destruction of the existing north well and construction of the new well. Place steel plates over the PCC sidewalk areas along the access roads to prevent damage to the PCC sidewalks.
2. Construct the native earth berm south of the northerly well per demolition keynote 4 and construction keynote 1 as illustrated on plan sheet 2 prior to or during the destruction of the existing north well.
3. Complete the destruction of the north well. The destruction of the north well shall be accomplished in accordance with demolition keynotes 1 and 2 on plan sheet 2, the technical specifications and the prior referenced codes and standards.

7. WATER TREATMENT PLANT REGULATORY AGENCY PERMIT

The County of Imperial Public Health Department, Division of Environmental Health is the Local Primary Agency (LPA) that oversees and regulates the Palo Verde County Water District Water Treatment Plant. The Palo Verde County Water Treatment Plant operates under Water System ID number 1300616.

The improvements for the Water Treatment Plant are being conducted via a Domestic Water Supply Permit Amendment submitted to the LPA. The LPA will monitor the construction and start-up phases of the project. The LPA will review the water well reports, water well decommissioning reports, review an updated Operations Plan, and conduct field observations at the construction site. All disinfection testing and water quality testing shall ultimately be approved by the LPA. The water wells shall only be placed in service after approval by the LPA. The LPA contact information is as follows:

Imperial County Public Health Department
Division of Environmental Health – Local Primary Agency
797 Main Street, Suite B
El Centro, CA, 92243
Phone: (442) 265-1888

Contact: Jorge A. Perez, Environmental Health Services Manager
Daniel Gutierrez, Environmental Health Compliance Specialist III

8. SPECIFIC SUBMITTAL LIST

Submittal Information shall be forward to the Engineer in electronic copy and hard copy form. The Contractor shall be required to forward the following submittal information to the Engineer within ten (10) calendar days after the issuance of the Notice to Proceed:

1. Construction Schedule
2. Letter Designating Project Superintendent
3. State required Contractor's Employee Notices, Wage Guidelines Postings
4. Project Sign
5. Granular Sand Gradation
6. Class 2 Base Mix Design
7. P.C.C. Concrete
8. Resilient Seated Gate Valve

9. Ductile Iron Pipe
10. PVC Pipe
11. Ductile Iron Fittings
12. Flanged Coupling Adapters
13. Pipe Support
14. Hardware for above and below grade piping
15. Silent Check Valve
16. Well Service Air Release Valve, shut off valve and drain valve
17. Pipe Support
18. Magnetic flowmeter
19. Per Magnetic Flow Meter Technical Specification.
20. Turbidimeter Assembly
21. Water Wells

See the Water Well Drilling, Installation and Testing Technical Specification for the listing of submittals.

22. Electrical
 1. Electrical Conduit – Above grade and below grade
 2. Pump Disconnect Switch
 3. Above grade pump junction box
 4. Traffic Rated Electrical Pull Box
 5. Electrical Conductors
 6. New Pump Starter Buckets including new starters, feeder breakers, elapsed time meters, HOA switches, run pilot lights, etc.
 7. Labels for Electrical Panels.
 8. Backing for mounting flowmeter transmitter
 9. Electrical and Control programming
23. Shade Structure Shop Drawings and Structural Calculations
 1. Shop Drawings including Design Loads, Structural Steel and Coating requirements, Fabric requirements, Aircraft Cable requirements and Steel Materials List

2. Shade Structure Structural Calculations prepared by a California Licensed Civil or Structural Engineer
3. Color Samples for Structural Steel and Fabric to be forwarded during submittal review for color selection

9. WELL DEMOLITION AND WELL CONSTRUCTION PERMIT

The Contractor shall be responsible to secure a Destruction Permit for the demolition of the existing north well, as well as secure a Construction Permit for the construction of the new North well. The Well Permits shall be attained from the County of Imperial Environmental Health Services Department. The telephone number for the County of Imperial Environmental Health Services Department is (442) 265-1888.

Well Destruction and Well Construction Permit – The contractor shall include \$8,000.00 for the existing Well Destruction and new Well Construction permits in the mobilization item of the bid form. If the Well Destruction and Well Construction permits cost is greater than \$8,000.00, the contractor shall be compensated for the additional costs between the permit fee and the \$8,000.00 included in the mobilization item with a positive change order. If the permit fee is less than \$8,000.00 then the owner shall be compensated by the contractor for the difference between the \$8,000.00 included in the mobilization item and the permit fee with a negative change order.

10. SHADE STRUCTURE PERMIT

The Contractor shall be responsible to secure a building permit for the construction of the shade structure from the County of Imperial Planning and Development Services Department prior to commencing work. The telephone number of the County of Imperial Planning and Development Services Department is (442) 265-1736.

The plans illustrate the shade structure in a diagrammatic fashion and note the shade structure material requirements. The shade structure is to be constructed according to the approved Shop Drawings and Structural Calculations approved during the submittal review process and permit review by the County of Imperial Planning and Development Services Department. The Submittal and Shop Drawing preparation, Structural Calculation preparation and County of Imperial Planning and Development Services Department permit process costs are to be included in Mobilization of the Bid Form.

Shade Structure Permit – The contractor shall include \$3,000.00 for the shade structure permit for new well number 2 in the mobilization item of the bid form. If the shade structure

permit is greater than \$3,000.00, the contractor shall be compensated for the additional costs between the shade structure permit fee and the \$3,000.00 included in the mobilization item with a positive change order. If the shade structure permit fee is less than \$3,000.00 then the owner shall be compensated by the contractor for the difference between the \$3,000.00 included in the mobilization item and the shade structure permit fee with a negative change order.

11. PROGRAMMING AND INTEGRATION OF FILTER CONTROL PANEL

The Contractor shall attain the services of the RTU (Remote Terminal Unit) SCADA Service provider and Filter Control Panel Service Provider/Manufacturer to integrate and program the Well pump operation, flowmeter system, and the two (2) turbidity meter systems.

The RTU unit's service supplier is Mission Communications and can be reached at telephone number (800)-795-5231 and website www.southlandwater.com or telephone number 877-993-1911 and website www.123mc.com.

The Filter Control Panel Service Provider/Manufacturer's is Kurita America, Inc. and can be reached at telephone number 800-530-1887, or website www.kuritaamerica.com for service.

27. This section is intentionally blank

28. TECHNICAL SPECIFICATIONS

01070	ABBREVIATIONS
01090	REFERENCE STANDARDS
01300	CONTRACTOR SUBMITTALS
01312	PROJECT MEETINGS
01505	MOBILIZATION
01520	TEMPORARY FACILITIES
01550	SITE ACCESS AND STORAGE
01660	MECHANICAL EQUIPMENT - INSTALLATION AND START-UP
01722	SURVEY AND CONSTRUCTION STAKING
02050	DEMOLITION AND SALVAGE
02200	EARTHWORK
02221	TRENCHING, BACKFILLING AND COMPACTING
02630	DUCTILE IRON PIPE
02640	PVC PIPE
02650	PIPE FITTINGS, TRANSITION COUPLINGS, AND HARDWARE
02666	PRESSURE PIPELINE WATER TESTING
02670	DISINFECTION OF POTABLE WATER PIPELINES
02733	WATER WELL DRILLING, INSTALLATION AND TESTING
03300	CAST-IN-PLACE CONCRETE
05220	CONCRETE BOLTS
05650	PRE-ENGINEERED SHADE STRUCTURE
11660	FINISH WATER TURBIDIMETER EQUIPMENT
15615	VALVES
15830	MISCELLANEOUS VALVES
17137	MAGNETIC FLOWMETER

SECTION 01070 - ABBREVIATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Wherever in these Contract Documents the following abbreviations or acronyms are used, they shall have the meanings indicated as follows in this specification.

1.02 ABBREVIATIONS AND ACRONYMS

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of the State Highway and Transportation Officials
A2LA	American Association of Laboratory Accreditation
A.C.	Asphalt Concrete
ACI	American Concrete Institute
ADWR	California Division of Water Resources
AGC	Associated General Contractors
AGMA	American Gear Manufacturer's Association
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute, Inc.
AOS	Apparent Opening Size
APA	American Plywood Association
API	American Petroleum Institute
APN	Assessor's Parcel Number
APWA	American Public Works Association
ASA	Acoustical Society of America
ASAE	American Society of Agriculture Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Society for Preservers Association
AWPI	American Wood Preservers Institute

AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturer's Association
CBC	California Building Code
CBR	California Bearing Ratio
CDX	Apa Rated Plywood Sheathing Exposure
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
ETL	Electrical Test Laboratories
ETL	Extract, Transform Load
EPDM	Ethylene Propylene Diene M-Class
FHWA	Federal Highway Administration
GAI	Geosynthetic Accreditation Institute
GCP	Construction General Permit
GPM	Gallons per Minute
GRI	Geosynthetic Research Institute
HDPE	High Density Polyethylene
HPC	Heterotrophic Plate Count
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IID	Imperial Irrigation District
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
IPS	Iron Pipe Size
ISA	Instrument Society of America
LAP	Laboratory Accreditation Program
LLDPE	Linear Low Density Polyethylene
MARV	Minimum Average Roll Value
MD	Machine Direction
MGD	Million Gallons per Day
MPA	Mega Pascal
MBMA	Metal Building Manufacturer's Association
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NGLI	National Lubricating Grease Institute
No.	Number
NOI	Notice of Intent
NOT	Notice of Termination
NSF	National Sanitation Foundation

NTPEP	National Transportation Product Evaluation Program
OD	Outside Diameter
OEM	Original Equipment Manufacturer
OIT	Oxidative Induction Time
OS&Y	Outside Stem and York
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCC	Portland Concrete Cement
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
SBR	Styrene Butadiene Rubber
SCH	Schedule
SDR	Standard Dimension Ratio
SMA	Screen Manufacturer's Association
SMACCNNA	Sheet Metal and Air Conditioning Contractors National Association
SPDT	Single Pole-Double Throw
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
SWPPP	Storm Water Pollution Prevention Plan
TRS	Trihalomethane Removal System
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
USEPA	United States Environmental Protection Agency
UV	Ultra-Violet Disinfection
WCRSI	Western Concrete Reinforcing Steel Institute
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association
XMD	Cross Machine Direction

1.03 PLAN SHEET ABBREVIATIONS

%	Percent
AASHTO	American Association of State Highway and Transportation Officials
A.C.	Asphalt Concrete
A.C.P.	Asbestos Cement Pipe
AC-FT	Acer Feet
Agg.	Aggregate
AOS	Apparent Opening Size
APP	Approximate
ASTM	American Society for Testing and Materials
AVE	Average
AWWA	American Water Works Association
BC	Beginning of Curve
BLDG.	Building

BTM	Bottom
B.V.	Butterfly Valve
C2B	Class 2 Base
CC	Cubic Centimeter
C.I.	Cast Iron
CIRC	Circumferential
CL	Centerline
CLR	Clear
C.M.C.	Cement Mortar Coated
C.M.L.	Cement Mortar Lined
CPVC	Chlorinated Polyvinyl Chloride
D.I.	Ductile Iron
DIA	Diameter
DWG	Drawing
D/W	Driveway
Δ	Delta
EC	End of Curve
EF	Each Face
EL.	Elevation
E.P.	Edge of Pavement
EPDM	Ethylene Propylene Diene M-Class
EW	Each Way
FF	Finish Floor Elevation
FG	Finished Grade
FL	Flowline
FL.	Flanged
F.M.	Flow Meter
FM	Force Main
FS	Finish Surface
GALV	Galvanized
GPH	Gallons per Hour
GPM	Gallons per Minute
GW	Ground Water
H.B.	Hose Bib
HDPE	High Density Polyethylene
HP	Horsepower
HW	High Water
I.D.	Inside Diameter
INV. EL.	Invert Elevation
INV.	Invert
IPS	Iron Pipe Size
L.	Length
LBS	Pounds
MAX.	Maximum
MG	Million Gallon
MGD	Million Gallons per Day

M.H.	Manhole
MIN.	Minimum
MISC.	Miscellaneous
M.J.	Mechanical Joint
MPH	Miles per Hour
N. RIM	North Rim
N.S.	Native Surface
N.T.S.	Not To Scale
O.C.	On Center
O.D.	Outside Diameter
OHC	Overhead Cable
OHE	Overhead Electric Line
OHT	Overhead Telephone Line
OS&Y	Outside Stem & York
P.C.C.	Portland Concrete Cement
P.E.	Plain End
PL	Property Line
P.P.	Power Pole
PP#	Power Pole Number
PPM	Parts per Million
PSI	Pounds per Square Inch
PT	Pressure Transmitter
PVC	Polyvinyl Chloride
P/S	Prestressing
R.C.	Reinforced Concrete
ROW	Right-of-Way
S.	Slope
SCH	Schedule
SCHED	Schedule
SD	Storm Drain
SDFM	Storm Drain Force Main
SDR	Standard Dimension Ratio
SM	Static Mixer
SQ	Square
SS	Sanitary Sewer
SST	Stainless Steel
STA	Station
S/W	Sidewalk
SWPPP	Storm Water Pollution Prevention Plan
TBD	To Be Determined
TBM	Temporary Benchmark
T.C.	Top of Curb or Top of Concrete
TDH	Total Dynamic Head
TF	Top of Footing
TMH	Top of Manhole
TOE	Top of Slope

TOF	Top of Floor
TOW	Top of Wall
T.P.	Top of Pavement
TRS	Trihalomethane Removal System
TV	Television
TYP.	Typical
UE	Underground Electricity
UNO	Unless Noted Otherwise
UT	Underground Telephone
VERT	Vertical

END OF SECTION 01070

SECTION 01090 - REFERENCE STANDARDS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. All work and materials shall be in accordance with applicable codes, ordinances and regulations of the County of Imperial, the State of California, American Water Works Association, and all other public authorities having jurisdiction. Codes governing this work include, but are not limited to, the latest approved edition of the following: Standard Specifications for Public Works Construction (Greenbook) latest edition; Occupational Safety and Health Act (OSHA); and the County of Imperial ordinances and regulations.
- B. Whenever in these Specifications references are made to published specifications, codes, standards or other requirements, it shall be understood that when no date is specified, only the latest published specifications, standards or requirements of the respective issuing agencies, as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.

1.02 REFERENCE SPECIFICATIONS, CODE AND STANDARDS

- A. All work specified herein shall conform to or exceed the requirements of the referenced specifications, codes and standards to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications.
- B. References herein to "Building Code" or UBC shall mean the Uniform Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code, as of the date of award, as approved and adopted by the agency having jurisdiction, including all addenda, modifications, amendments or other lawful changes thereto, shall apply to the Work.
- C. References herein to American Water Works Association or AWWA shall comply with the latest edition of the code, as of the date of award.

- D. In case of conflict between codes, reference standards, drawings and other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the Engineer for clarification and directions prior to ordering or providing any materials or labor. The contractor shall bid the most stringent requirements.
- E. Applicable Standard Specifications: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards and specifications listed herein; except, that wherever references to “Standard Specifications” are made, the provisions therein for measurement and payment shall not apply.
- F. References herein to “OSHA Regulations for Construction” shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to “OSHA Standards” shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. All materials and equipment appurtenances that can contact potable water or water that will be treated to become potable shall be listed in NSF / ANSI Standard 61.
- I. References in the Contract Documents to “Standard Specifications” shall mean the Greenbook, formally known as the “Standard Specifications for Public Works Construction” as published by the American Public Works Association, including all current supplements, addenda and revisions thereof, latest edition.

END OF SECTION 01090

SECTION 01300 - CONTRACTOR SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. All submittals by the Contractor shall be submitted to the Engineer at the Site.
- B. Within ten (10) days after the date of Notice to Proceed, the Contractor shall submit the following items to the Engineer:
 - 1. A Construction Schedule providing the starting and completion dates of the various stages of the Work. The Contractor shall be prepared to discuss its construction schedule at the pre-construction conference.
 - 2. Schedule of Values or lump sum price breakdown for progress payment purposes.
- C. Equipment submittals shall comply with Section 01660 – Mechanical Equipment – Installation and Start-Up

1.02 SUBMITTAL REQUIREMENTS AND PROCESS

- A. Wherever called for in the Contract Documents or when requested by the Engineer the Contractor shall furnish to the Resident Project Representative for review, two (2) copies of each submittal.
- B. All submittals shall be accompanied by a submittal transmittal form. This form may be obtained from the Engineer. A separate transmittal form shall be used for each specific item for which a submittal is required. Each submittal should be referenced to the specification section requiring the submittal. All Contractor submittals shall be carefully reviewed by an authorized representative of the Contractor, prior to submission to the Engineer. Each submittal shall be dated, signed and certified by the Contractor as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed and certified. No consideration for review by the Engineer of any Contractor submittals will be made for any items which have not been so certified by the Contractor. All non-certified submittals will be returned to the Contractor without action taken by the Engineer and any delays caused thereby shall be the sole responsibility of the Contractor.

- C. Multiple-page submittals shall be collated into sets with each set stapled or bound.
- D. The Engineer will return copies of each submittal to the Contractor with review comments within fifteen (15) calendar days following their receipt by the Resident Project Representative. There will be three (3) copies of a submittal returned to the Contractor when marked either "NO EXCEPTIONS TAKEN" or "APPROVED AS NOTED", and no formal revision and re-submission of said submittal will be required. However, if one or more copies of the submittal are returned to the Contractor marked 'REVISE AND RESUBMIT" or 'REJECTED", the Contractor shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the Engineer.
- E. Fabrication of an item shall commence only after the Engineer has reviewed the submittal and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or "APPROVED AS NOTED". Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis of claims for extra work.
- F. The Engineer's review of Contractor's submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to any errors in the Contractor submittals. The Contractor shall be responsible for the dimensions and the design of adequate connections and details.

1.03 CONTRACTOR'S SCHEDULE SUBMITTAL

- A. The Contractor shall submit to the Resident Project Representative a construction schedule for the Work showing a general plan for orderly progression of the Work including mobilization of plant and equipment and timing of procurement of major materials and equipment.
- B. The Engineer may request that the Contractor provide a revised or updated Construction Schedule if, at any time, the Engineer considers the completion date to be in jeopardy because of any portion of the Work falling behind schedule or the sequence of operations becomes different from the previous schedule.

1.04 PROPOSED SUBSTITUTES OR "OR EQUAL" ITEM SUBMITTAL

- 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. Other items of material or equipment, or material or equipment of other Suppliers may be submitted to the Engineer for review under the circumstances described below subject to the *Instruction to Bidders* (Section 2, Article 11), *Standard General Conditions* (Article 6.05), and the following requirements:
1. The Contractor shall be responsible for resultant changes and all additional costs or credit to the Owner which the accepted substitution requires in the Contractor's work, the work of its subcontractors and of other contractors and shall effect such changes without cost to the Owner.
- B. The procedure for review by the Engineer will include the following:
1. If proposed substitute material or equipment has been judged to be unacceptable by the Engineer, the Contractor shall provide the material or equipment named in the Contract Documents.

1.05 SAMPLES SUBMITTAL

- A. The Contractor shall submit not less than two (2) samples, unless noted otherwise in a material or equipment specification, to the Engineer for acceptance at no additional cost to the Owner. Samples shall be submitted for acceptance a minimum of ten (10) days prior to ordering such material for delivery to the job site. If accepted by the Engineer, one (1) set of samples will be returned to the Contractor and one (1) set of samples shall remain at the job site until completion of the Work.

1.06 OPERATION, MAINTENANCE AND TECHNICAL MANUAL SUBMITTAL

- A. The Contractor shall furnish operation, maintenance and technical manuals. Operation, maintenance, and technical manuals shall be in accordance with Section 01730 – Operation and Maintenance Manuals, as applicable.

- B. All technical manuals shall be submitted to the Engineer not later than the seventy-five percent (75%) of construction completion date or fourteen (14) days prior to start-up of equipment if started before seventy-five percent (75%) completion of project. All discrepancies found in the technical manuals shall be corrected by the Contractor within thirty (30) days from the date of written notification by the Engineer.

1.07 AS-BUILT SUBMITTAL

- A. The Contractor shall maintain, during the progress of the Work, one (1) set of As-Built Drawings and shall neatly mark on them all project changes from the details shown on the original Contract Drawings. Special attention shall be given to recording on the drawings the horizontal and vertical location of all buried utilities that differ from the locations indicated or which were revealed during the construction.
- B. As-Built drawings shall be accessible to the Engineer at all times during the construction period and shall be delivered to the Engineer upon completion of the Work.
- C. Upon substantial completion of the Work and prior to final acceptance the Contractor shall deliver a complete set of As-Built drawings to the Engineer.

1.08 SUPERINTENDENT SUBMITTAL

- A. A letter designating the Project Superintendent shall be forwarded to the Engineer for his review. The letter shall also include emergency contact information for the Project Superintendent and other Contractor Representative.

1.09 MATERIAL AND EQUIPMENT SUBMITTAL LIST

- A. At a minimum, the following material and equipment list shall be submitted for review and approval.
 - 1. General Requirements
 - 1.1 Construction Schedule

- 1.2 Schedule of Values
- 1.3 Letter Designation Project Superintendent
- 1.4 Emergency Contact Number
- 1.5 Operation and Maintenance Manuals
- 1.6 Project Sign

- B. A listing of submittals may be included in the Special Conditions section of the specifications. The Contractor shall review the Special Conditions for a list of specific submittals.

END OF SECTION 01300

SECTION 01312 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Required to enable orderly review during pre-design phase and design phase and progress of the Work, and to provide for systematic discussion of installation problems and other construction problems arisen, the Owner and/or Representative will conduct project meetings throughout the construction period.

1.02 RELATED WORK SPECIFIED ELSEWHERE

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Division 1 – General Requirements.
2. The Contractor's relations with his Subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

1.03 SUBMITTALS

A. Conform to provisions of Section 01330 – Submittals/Shop Drawings.

B. Agenda Items:

1. To the maximum extent practicable, advise the Owner and/or Representative at least twenty-four (24) hours in advance of project meetings regarding items to be added to the agenda or requesting the cancellation of any Meeting.

C. Minutes:

1. The Owner and/or Representative will compile minutes of each project meeting and will furnish one copy to the Contractor, Resident Project Representative, and all other involved parties.

2. Recipients of copies may make and distribute such other copies as they wish.

1.04 QUALITY ASSURANCE

- A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

PART TWO - PRODUCTS (NOT APPLICABLE)

PART THREE - EXECUTION

3.01 MEETING SCHEDULE

- A. Except as noted below for Preconstruction Meeting, progress meetings are to be held every once every two weeks or as otherwise directed by the Owner and/or Representative.
- B. Coordinate as necessary to establish mutually acceptable schedule for additional meetings.

3.02 MEETING LOCATION

- A. The Owner and/or Representative will establish the meeting location. To the maximum extent practicable, meetings will be held in Contractor's office at the Site.

3.03 PRE- DESIGN AND CONSTRUCTION MEETING

- A. A Pre-Design and Construction Meeting will be scheduled to be held within twenty-one (21) working days after the Notice to Proceed has been issued.
 1. Provide attendance by authorized representatives of the Contractor and major Subcontractors.
 2. The Owner and/or Representative will advise other interested parties.
- B. Minimum Agenda: Data will be distributed and discussed on at least the following items.

1. Organizational arrangement of Contractor's forces and personnel, and those of the subcontractors, and materials suppliers.
2. Organizational arrangement of the Owner's forces and personnel and other authorized representatives.
3. Channels and procedures for communication.
4. Construction Schedule, including sequence of events and critical work.
5. Contract Documents, including distribution of required copies of original Documents and revisions.
6. Processing of Shop Drawings and other data submitted to the Owner and/or Representative for review.
7. Processing of bulletin, addenda, field decisions, Requests for Information and Change Orders.
8. Rules and regulations governing performance of the Work.
9. Procedures for site security, project quality control, housekeeping, and related matters.
10. It is the responsibility of the Contractor for Site Safety & First Aid; however, it shall be on the agenda.
11. Procedures for Contractor's request.
12. Emergency Information: The name, addresses, telephone and fax numbers of the Contractor, and Subcontractors, or their representatives, shall be filed with the Owner and/or Representative prior to start of the Work.

3.04 PROJECT MEETINGS

A. Attendance:

1. To the maximum extent practicable, the Project Superintendent and other representatives who have full knowledge of the project and full authority to act for the Contractor shall represent the Contractor at Project Meetings throughout the progress of the Work.

2. Subcontractors, materials suppliers, and others may be invited to attend these Project Meetings in which their aspect of the Work is involved.
3. The Contractor may not cancel or be absent from any meeting without advanced approval from the Owner and/or Representative. The Contractor must submit a written request with reason to the Owner and/or Representative twenty-four (24) hours before the scheduled meeting. If approved, the Contractor shall notify all parties of the cancellation.

B. Minimum Agenda:

1. Review progress of the Work since last meeting. Review actual starts and finish dates of activities. Review progress of design.
2. Review status (total complete and outstanding) of submittal for approval, Request for Information and Change Orders.
3. Identify old and new problems, which impede planned progress, identify responsible party for the follow-up actions. Mutually agree to a common solution and date of correction.
4. Develop corrective measures and procedures to regain lost time on the planned schedule.
5. Review Weekly Progress Reports including the forecasts.
6. Status of As-Builts.
7. Project site Walk-Through. Record all discussion and follow-up actions.
8. Any project site health and/or accident or safety issues.

3.05 SPECIFIC SITE MEETINGS

- A. Required when necessary to enable orderly review and discussion of site conditions and problems requiring solution during the progress of the contracted work. Notify the Owner and/or Representative of the need for additional site meetings as early as possible to resolve the problem without any impact to the Project Schedule.

- B. Provide necessary labor, tools, and equipment such as shoring, scaffolding, ladder, etc. to gain access to the specific sites.
- C. The Contractor and its authorized representative shall be present at all times.

All discussion and follow-up actions shall be recorded by the Owner and/or Representative, and the minutes shall be distributed at the next meeting or at earliest time

END OF SECTION 01312

SECTION 01505 - MOBILIZATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Mobilization shall include obtaining all of the contractor's administrative and construction management, including permits; moving plant equipment on-site; furnishing and erecting temporary buildings and other construction facilities; all as required for the proper performance and completion of the Work. Mobilization shall include, but not be limited to, the following principal items:
1. Moving on to the site, Contractor's and subcontractor's equipment and materials required for construction of the project. Removing equipment and materials from the project site.
 2. Install temporary construction power, wiring and lighting facilities.
 3. Providing potable water facilities as specified. This includes a means by which all on site Contractor, Subcontractor and supplier personnel can wash their hands with soap. It also includes providing potable drinking water to the construction personnel at the project site.
 4. Contractor to attain all Insurance and bonds required for project.
 5. Contractor's taxes and miscellaneous fees for the project.
 6. Providing on-site Contractor's restroom facilities.
 7. Have Contractor's superintendent dedicated to the construction project.
 8. Participation in construction meetings. Meetings to include the preconstruction conference, progress meetings, pre-final inspection, Final Inspection, and other miscellaneous meetings.
 9. Arranging and setting up the Contractor's work and storage yard.

10. Excavation and exposing (pothole) of underground and covered utilities.
11. All required project signs including but not limited to the project sign, contractor's identity sign, Contractor Employee Notice and Wage Guideline Signs.
12. Posting all OSHA required notices and establishment of safety programs. Implementing a Safety Program for the project construction.
13. Prepare and process all project submittal and shop drawing documents including the project construction schedule, contractor's price breakdown (Schedule of Values) and Submittal Schedule.
12. Comply with County of Imperial Departments, including the Air Pollution Control District, Environmental Health Department, Public Works Department, and Planning and Development Services (including Building Division) Department.
13. Preparation and submittal of the Operations and Maintenance Manuals.
14. Preparation and submittal of the As-Built Drawings.
15. Attain building and construction permits, as applicable.

1.02 PAYMENT FOR MOBILIZATION

- A. Payment for Mobilization, as noted in the Proposal Forms and approved Schedule of Values, shall not be released to the Contractor unless all items in Paragraph "A" above have been satisfied.

END OF SECTION 01505

SECTION 01520 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

The Owner shall bear no costs of temporary facilities, unless noted otherwise.

It shall be the Contractor's responsibility to provide equipment that is adequate for the performance of the Work under this Contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safely and efficiently performing the required Work and shall be subject to inspection and approval by the Owner's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction.

1.02 POWER AND LIGHTING

The Contractor shall provide temporary electric power as necessary for the execution of the Work, including that required by all Subcontractors. Contractor shall make the necessary arrangements with utility purveyor to include all permits, applications and fees, and shall bear all costs for these temporary services and shall furnish and install all necessary transformers, metering facilities and distribution centers from branch circuits as may be required.

The Contractor shall provide lighting and outlets in temporary structures throughout the Project as may be required for safety, proper performance and inspection of the Work. If operations are performed during hours of darkness, or if natural lighting is deemed insufficient by the Owner, the Contractor shall provide adequate floodlights, clusters and spot illumination. The use of permanently installed lighting fixtures, lamps and tubes for work shall not be permitted except by special permission of the Owner. The Contractor shall make arrangements with Subcontractors for electrical services and lighting as may be necessary in the performance of their work.

1.03 WATER SUPPLY

- A. General: The Contractor shall provide an adequate supply of water of a quality suitable for all domestic and construction purposes. Utility or plant effluent water may be used for hydraulic structures and pipeline testing as approved, in writing, by the Owner. Potable water shall be furnished by the Owner without charge.

- B. Drinking Water: All drinking water on the site during construction shall be furnished by the Contractor and shall be bottled water or water furnished in approved dispensers. Notices shall be posted conspicuously throughout the site warning the Contractor's personnel that piped water for construction purposes may be contaminated and is not for human consumption.
- C. Water Connections: The Contractor shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission, in writing, of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the water system. For each such connection made the Contractor shall first attach to the fire hydrant or pipeline a valve, backflow preventer and a meter, if required by the said authority, of a size and type acceptable to said authority and agency.
- D. Removal of Water Connections: Before final acceptance of the Work all temporary water connections and piping installed by the Contractor shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the Owner and to the agency owning the affected utility.
- E. Fire Protection: The Contractor shall provide fire extinguishers and other fire protection equipment to adequately protect new and existing facilities and temporary facilities against damage by fire. Hose connections and hose, water casks, chemical equipment or other sufficient means shall be provided for fighting fires in the new, existing and temporary structures and other portions of the Work and responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The Contractor's fire protection program shall conform to the requirements of the OSHA Standards for Construction. The Contractor shall employ every reasonable means to prevent the hazard of fire.

1.04 CONSTRUCTION OFFICE TRAILER

If called out in the Special Conditions, the Contractor shall install and maintain a Construction Office Trailer at the Project Site. The Trailer shall have a floor area of at least 500 square feet with a minimum of 150 square feet designated for the sole use of the Resident Project Representative. The Trailer shall be provided with lighting, hot/cold water dispenser, heating, air conditioning, two (2) file cabinets, three (3) desks, six (6) chairs and one (1) telephone line. The Contractor shall provide a power

service, wiring, conduit and electrical service pole in accordance with the standards of the power division of the Imperial Irrigation District. All costs related to the Construction Office Trailer shall be borne by the Contractor. The Construction Trailer shall be moved on the Site within **ten (10) days** of the Notice to Proceed. Drinking water shall be supplied by the Contractor.

1.05 SANITATION

- A. Toilet Facilities: Portable chemical toilet facilities shall be provided wherever needed for the use of employees. Toilets at Site(s) shall conform to the requirements of Subpart "D", Section 1926.51 of the OSHA Standards for Construction. The Owner's toilet facilities shall not be used by the Contractor or subcontractors. Two (2) toilet facilities shall be positioned at the project site. One (1) toilet facility shall be for men. The other toilet facility shall be for women. Toilet facilities shall be relocated as required and be maintained close to daily work activities. The toilet facilities shall be cleaned and serviced on a weekly basis.

- B. Sanitary and Other Organic Wastes: The Contractor shall establish adequate and regular collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of in a manner satisfactory to the Owner and in accordance with all laws and regulations pertaining thereto. Contractor may install temporary piping for toilet facilities to discharge into the incoming sewer.

1.06 COMMUNICATIONS

- A. Telephone Services: The Contractor shall provide and maintain a phone line.

1.07 FENCE AND BARRICADES

The Contractor shall provide such protective fences and barricades as deemed necessary for public safety and to protect storage areas and the Work in place. The location and appearance of all fences shall be subject to the approval of the Owner.

1.08 CONTRACTOR PARKING

The Contractor shall not park his equipment, nor allow his personnel to park, in any area except those specifically designated by the Owner.

1.09 TEMPORARY LIVING QUARTERS

Temporary living quarters shall not be allowed on the Site or on publicly owned properties. In addition, all local zoning codes for the area in question shall be strictly adhered to.

1.10 REMOVAL OF TEMPORARY CONSTRUCTION

The Contractor shall remove temporary office facilities, toilets, storage sheds and other temporary construction from the site as soon as, in Owner's opinion, the progress of Work permits. Contractor shall recondition and restore those portions of the site occupied by the same to a condition equal to or better than it was prior to construction.

END OF SECTION 01520

SECTION 01550 - SITE ACCESS AND STORAGE

PART 1 - GENERAL

1.01 HIGHWAY AND STREET LIMITATIONS TO PROJECT SITE

- A. The Contractor shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits and other limitations affecting transportation and ingress and egress to the Site. It shall be the Contractor's responsibility to construct and maintain any haul roads required for its construction operations or define any alternate routes to the Site due to roadway or bridge restrictions.
- B. Nothing herein shall be construed to entitle the Contractor to the exclusive use of any public street, utility right-of-way or the Site during the performance of the Work hereunder. The Contractor shall conduct its operations so as not to interfere unnecessarily with the authorized work of utility companies, other agencies, or the Owner's plant personnel. No street or access shall be closed without first obtaining permission of the Owner or proper governmental authority. Where excavation is being performed in primary streets or highways one (1) lane in each direction shall be kept open to traffic at all times unless otherwise provided or shown by the Contract Documents. Fire hydrants on or adjacent to the Work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to assure the use of sidewalks, access routes and the proper functioning of all gutters, sewer inlets and other drainage facilities.
- C. Traffic Control: For the protection of traffic in public streets and plant operating personnel at the Site, the Contractor shall provide, place and maintain all necessary barricades, traffic cones, warning signs, lights and other approved safety devices. All barricades, traffic cones, warning signs, lights and other approved safety devices shall be placed according to the agency requirements maintaining jurisdiction, as applicable. The Contractor shall take all necessary precautions for the protection of the Work and the safety of the Owner's personnel and the public. All barricades and obstructions shall be illuminated at night.

1.02 CONTRACTOR'S WORK AND STAGING AREA

- A. The Owner will designate and arrange, for the Contractor's use, a portion(s) of the property on or adjacent to the Site for its exclusive use during the term of the Contract. The area is designated for an

office, storage and shop area for construction operations relative to this Contract. Contractor shall be solely responsible for the security of its tools, supplies and equipment at the site. The staging area(s) for this project will be located within the Water Treatment Plant site.

- B. The Contractor will only be allowed to gain access and work at the Water Treatment Plant site on Monday through Friday during the hours of 7:00 AM to 3:00 PM.
- C. The Contractor shall coordinate with the Owner and Construction Manager to set up a locking system for gaining access into the Water Treatment Plant site's gate.

END OF SECTION 01550

**SECTION 01660 - MECHANICAL EQUIPMENT -
INSTALLATION AND START-UP**

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This section contains general information required for the installation of mechanical equipment as specified within the various individual specifications. The plans and/or performance specifications describe equipment and general layout based on certain commercially available equipment. It shall be the responsibility of the Contractor to ascertain the compatibility of all equipment and utilization of available space based on the Contractor's approved design and/or shop drawings and intent of these Contract Documents.

- B. Included shall be all supervision, labor, materials, tools, equipment and services as required for the furnishing, installation, testing and operation of equipment including the services of manufacturer service engineers, receiving, unloading, storage, protection, installation and complete erection of all mechanical equipment required in these Contract Documents.

- C. Installation shall include, but not be limited to placing, core drilling, shimming, anchoring, grouting, cleaning, painting, lubricating, assembling, testing and adjusting of all mechanical equipment. Installation shall also include providing all required miscellaneous parts and appurtenances.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 15380 – Motors

1.03 DESCRIPTION

A. General:

- 1. The Contractor shall be liable for all damage to the equipment which is to be furnished and installed under this Contract, as well as for any damage to the building structures, existing equipment or other property, real or personal, resulting from the movement of equipment or installation work. This liability shall continue until the installed equipment is accepted by the Owner.

2. The Contractor shall cause the equipment to be furnished under this division to be the product of firms regularly engaged in the design and manufacture of the type of item specified, possessing the required technical competence, skill, resources and ability to complete the work specified herein with the requisite degree of quality and in a timely and efficient manner. The Contractor shall be prepared to adequately document the qualification of the manufacturers nominated to provide equipment specified under this division. All documentation shall be submitted to the Owner or representative for review and acceptance prior to design, fabrication and shipment of any component specified herein. Nothing contained within these provisions shall be construed as relieving the Contractor of his responsibility for any portion of the work covered by this division.

B. Arrangement:

1. This arrangement of equipment as described by the specifications is based upon the best information available to the Owner at the time of the preparation of the concept drawings and specifications and is not intended to show exact dimensions peculiar to any specific manufacturer unless otherwise shown or specified. The Conceptual Drawings are, in part, diagrammatic, and, therefore, it is to be expected that the illustrated equipment, if any, be installed be per the Contractor's design and conform adequately to actual equipment installation requirements. The Owner or representative will review all equipment shape drawings, and installations to assure compliance with these requirements. It is to be anticipated that structural supports, equipment pads, foundations, connected piping and valves shown, in part or in whole, may have to be altered in order to accommodate the equipment furnished. Equipment pads shall be increased or reduced in size to properly suit the actual equipment. No additional payment will be made for such changes. All necessary calculations and drawings shall be submitted to the Owner or representative prior to beginning of the construction phase.

1.04 QUALITY ASSURANCE

- A. Equipment and appurtenances shall be designed in conformity with the conceptual documents and performance specifications.

Equipment shall be constructed of materials for the conditions of exposure and of such strength to withstand all stress which may occur during testing, installation, all conditions of operation, including start-up, shut-down and power failure.

- B. All equipment shall be installed true and level and to the locations shown on the Plans. All work shall be performed to the satisfaction of the Owner. Precision gauges and levels shall be used in setting all equipment.
- C. The Contractor shall be responsible for installation of the equipment in a manner consistent with the requirements of performance warranties and equipment workmanship of the manufacturer.
- D. Machinery parts shall conform exactly to the dimensions shown on the Shop Drawings. The corresponding parts of identical machines shall be made interchangeable. Clearance shall be provided for repairs, inspection and adjustment.
- E. Exposed surfaces shall be finished in appearance. All exposed welds shall be ground smooth at the corners for personnel protection.
- F. All machinery and equipment shall comply in all respects with the provisions of the Occupational Safety and Health Act of 1970, and other applicable Federal, State and local laws and regulations.
- G. Conformance to Design Criteria and Performance Guarantee.
 - 1. In submitting a bid, the Contractor shall formally acknowledge receipt of and understanding of the design criteria presented in the Conceptual Drawings and Performance Specifications and guarantees that the equipment to be supplied shall be designed and performs in compliance with the design criteria.
 - 2. Contractor shall guarantee all equipment provided under this Contract in accordance with the Contract Documents.

1.05 SUBMITTALS AND MISCELLANEOUS REQUIREMENTS

- A. General:

1. All mechanical equipment provided under this division shall be submitted for review by the Owner or Representative. The submittal package for each individual equipment or groups of related equipment shall be complete and in accordance with Section 01300 – Submittals/Shop Drawings.

PART 2 - PRODUCTS

2.01 ANCHORS AND SUPPORTS

- A. The Contractor shall furnish, install and protect all guides, bearing plates, anchor and attachment bolts, and all other appurtenances required for the installation of equipment. Anchors and supports shall be of ample size and strength for the purpose intended and shall be approved by the Owner or Representative.
- B. Anchor bolts shall be furnished and set in concrete foundations where required. All anchor bolts, studs and fasteners shall be Class 316 stainless steel.
- C. Anchor bolts, flange bolts, and other fasteners using nuts and threaded bolts shall have no more than 1 ½ to 2 threads extending beyond the nut when fully tightened.
- D. The Contractor shall obtain and use shop drawings and suitable templates when required for installation of equipment.

2.02 LUBRICATION

- A. The Contractor shall thoroughly lubricate all equipment in accordance with the equipment manufacturer's instructions. Lubricating oils and greases shall be of the type and viscosity recommended by the equipment manufacturer.
- B. All lubricants shall be furnished with flushing oils as recommended by the manufacturer. This includes, but is not limited to, all gearing and bearings, regardless of whether they have been shipped with or without oil soluble protective coatings.
- C. Following flushing, oil lubricating systems shall be filled with "run-in" oil as recommended by the equipment manufacturer. The equipment shall be "run-in" at the no load condition for a minimum of two (2) hours. Following "run-in" and inspection, the equipment

is to be drained and flushed again with flushing oil and refilled with lubricant as recommended by the manufacturer.

- D. The grease fittings on all mechanical equipment shall be such that they can be serviced with a single type of grease gun. Grease fittings shall be standard zirt type.
- E. Where locally mounted grease fittings would be difficult to service, the fitting shall be extended by adequately sized 316 stainless steel tubing to a point that shall provide accessibility for normal maintenance. Such points shall be located and installed as per the Owner or Representative's directive.

2.03 PROTECTIVE COATING AND PAINTING

- A. All equipment and materials shall be shop painted. Particular attention shall be directed to wetted surfaces and other areas exposed to corrosive, extreme temperature or other hazardous environments.
- B. Painting shall be in strict accordance with Section 09800 unless otherwise indicated in the detailed equipment specifications. If there is no Section 09800, coating shall be as follows:
 - 1. Ferrous Metals: Exterior Exposure (Non-submerged and non-buried)
 - a. Surface preparation: SSPC-SP 6.
 - b. Product: Devoe:
 - (1) Primer: Bar Rust 231 - 2 coats (3-5 mils DFT)
 - (2) Intermediate: Devran 224 HS (4-5 mils DFT)
 - (3) Finish: Devthane 378H - 1 coat (3-5 mils DFT) or approved equal.
 - c. Color to be selected by the Owner.
 - 2. All Piping and Valves that have a factory epoxy coating shall receive a final coating in the field with a product compatible with the existing coating.
 - a. Color to be selected by the Owner.

- C. All machined surfaces and shafting shall be cleaned and protected from corrosion by the proper type and amount of coating necessary to assure a minimum protection for two (2) years after shipment.
- D. Oil lubricated gearing, bearings, and other lubricated components shall be shipped with an oil soluble protective coating as recommended by the manufacturer. The coating shall be selected to provide protection for two (2) years.
- E. Motors, reducers and electric controls shall have the standard factory finish prior to delivery except where specific exception is noted in the individual equipment specifications.
- F. Provide two (2) gallons of paint compatible with the equipment finish coat for field touch-up and provide blend numbers for primer coat and finish coat paints.

2.04 COUPLINGS

- A. Unless otherwise specified, mechanical equipment with a driver greater than $\frac{1}{2}$ horsepower, and where the input shaft of a driven unit is directly connected to the output shaft of the drive, shall have its two shafts connected by a flexible coupling which can accommodate angular misalignment, parallel misalignment and end float, and which cushions shock loads and dampens torsional vibrations. The flexible member shall consist of a tire with synthetic tension members bonded together in rubber. The flexible member shall be attached to flanges by means of clamping rings and cap screws, and the flanges shall be attached to the sub shaft by means of taperlock bushings which shall give the equivalent of a shrunk-on fit. There shall be no metal-to-metal contact between the driver and the driven unit.
- B. Coupling sizes shall be as recommended by the manufacturer for the specific application, considering horsepower, speed of rotation, and type of service, and shall be installed as recommended by the manufacturer.

2.05 GUARDS

- A. All exposed moving parts shall be provided with guards in accordance with the requirements of CAL/OSHA. Guards shall be fabricated of 14 gage steel, $\frac{1}{2}$ -13-15 expanded metal screen to provide visual inspection of moving parts without removal of the guard. Guards shall be galvanized after fabrication and shall be

designed to be readily removable to facilitate maintenance of moving parts. Reinforced holes shall be provided.

2.06 NAMEPLATES

- A. A nameplate shall be provided on all items of equipment and shall contain approved equipment name or abbreviation and equipment number. Equipment nameplates shall be engraved or stamped on stainless steel and fastened to the equipment in an accessible location with No. 4 or larger oval head stainless steel screws or drive pins. Nameplates for motor-driven equipment shall include capacity, head, horsepower, bearing data, model number and serial number of pump, blower, compressor and motor. The main sewage pump nameplates shall also include the impeller diameter.

2.07 TOOLS AND ACCESSORIES

- A. The Contractor shall supply one (1) complete set of any special wrenches or other special tools necessary for the assembly, adjustment, and dismantling of the equipment. Special tools shall include any type of tool that has been specifically made for use on an item of equipment for assembly, disassembly, repair, and maintenance or is not available in current Snap-On Catalogue or Proto Professional Tools Full-Line Catalogue. When special tools are provided, they shall be marked or tagged, and a list of such tools shall be included with the maintenance and operation manuals describing the use of each marked tool. All wrenches and spanners shall be of best quality, hardened steel forgings with bright, finished heads and with work faces dressed to fit nuts. Each set of tools shall be neatly mounted in a toolbox of suitable design provided with a hinged cover.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall cause each item of equipment provided as a part of the Contract Documents to be installed, aligned and tested by skilled workmen to the tolerances recommended by the equipment manufacturer. In addition, the equipment shall be installed, aligned and tested under the direction of installation engineers who have been factory trained by the equipment manufacturer. Upon completion of the Work and as a condition precedent to final acceptance, the Contractor shall furnish written certification from each equipment manufacturer that each item has

been installed, aligned and tested correctly and that the installation meets all the manufacturer's requirements for efficient, trouble-free operation. This provision, however, shall not be construed as relieving the Contractor of his overall responsibility for the Work.

3.02 NOISE REQUIREMENTS

- A. All equipment specified shall be tested for noise generation after installation. When tested, equipment shall include the complete driver and driven equipment. Three (3) certified copies of the test shall be submitted to the Owner for approval prior to final acceptance.

3.03 SHOP INSPECTION AND SHOP TESTING

- A. The Owner shall be granted reasonable access to the production and shop test areas of the equipment manufacturer's facility during manufacturing and testing.
- B. The Contractor shall notify the Owner in writing, at least ten (10) working days prior to commencement of shop tests, of the time and place of all shop tests.
- C. Inspection by the Owner will not relieve the Contractor of his responsibility for workmanship, materials and Conceptual Drawings and Specification requirements.
- D. Manufacturer's standard test procedures shall be required and the manufacturer shall demonstrate that equipment meets all the requirements of these Conceptual Drawings and Specifications.

3.04 SHIPPING AND IDENTIFICATION

- A. All shipments shall be "tagged" by the Contractor with "wired-on" metal or plastic tag clearly stenciled or lettered with paint or waterproof ink. The information on the tags and cartons shall include Contractor's order number, purchase order number, manufacturer's number, and equipment number. Any expense incurred by the Owner due to the Contractor's failure to do so will be backcharged or deducted from his Contract.
- B. Each piece of equipment shall be provided with a substantial stainless steel nameplate, securely fastened in a conspicuous location and clearly inscribed with the manufacturer's name, year of manufacturer, serial number, principal rating data and equipment item number.

- C. The equipment covered in these Specifications shall be fabricated in the minimum number of sub-assemblies necessary for transportation. Small components or assemblies shall be adequately boxed or crated to prevent damage during shipment.
- D. Each assembly or package shall be identified with a durable shipping tag securely attached and plainly marked with the Contractor's order number, manufacturer's purchase order number and equipment number.
- E. All openings shall be covered with plywood, plastic or wood plugs or shields to prevent debris from entering the assemblies. Each assembly or sub-assembly shall have lifting lugs to facilitate erection and subsequent removal when necessary.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Operation and Maintenance manuals shall be furnished in accordance with Section 01730.

3.06 OPERATION AND MAINTENANCE INSTRUCTION

- A. The Contractor shall provide instruction time in accordance with the detailed equipment specifications, after the equipment has been accepted by the Owner. The time shall be used to instruct the Owner's personnel in the proper operation and maintenance of the equipment. The manufacturer shall provide technical personnel familiar with the operation and maintenance of the equipment in making this presentation.
- B. Training shall consist of on-site operation training, classroom training, operational, safety and emergency drills.

3.07 INSTALLATION OF EQUIPMENT

- A. The Contractor's work procedure shall conform to the manufacturer's installation instructions unless expressly directed otherwise by the Owner.
- B. Equipment shall be erected level and plumb on the existing foundations and supports at the locations and elevations shown on the Plans, unless otherwise directed, in writing, by the Owner and Resident Project Representative during installation. Any additional

pads, plates and other appurtenances necessary for the installation shall be provided by the Contractor.

- C. The equipment shall be brought to proper level with leveling nuts. After the machine has been leveled and aligned, the nuts on the anchor bolts shall be tightened to anchor the machine firmly into place against the leveling nuts.
- D. The grout shall be installed in accordance with the manufacturer's instructions.
- E. All equipment shall be installed in such a manner as to provide access for routine maintenance and lubrication as specified in Section 2.02 of this specification.
- F. Equipment of a portable nature which requires no installation shall be delivered to a location designated by the Owner.

3.08 MECHANICAL START-UP

- A. Once the equipment has been installed, complete with all auxiliary and support systems, and is ready for operation, the Contractor shall mechanically check out the equipment to verify that the equipment functions correctly under "non-process" conditions. The equipment shall be fine-tuned, adjusted, water tested, where applicable, and completely checked out before the equipment and support systems are considered ready for process start-up.
- B. The Contractor will be responsible for coordinating this effort and providing all support services and facilities necessary for this work effort.
- C. The equipment will not be considered ready for process start-up until the Owner is satisfied that the equipment has been satisfactorily checked out and successfully passed leakage and non-process test runs and appropriate training has been completed per the detailed equipment specifications.

3.09 FIELD SERVICE

It is understood that the Contractor and manufacturer share a joint responsibility in this Work. The Contractor shall provide the Manufacturer's qualified field representative and supporting personnel as required for the equipment furnished and installed under this Contract to perform the following:

- A. Assistance during equipment installation shall be provided to align the equipment or check the alignment of pre-aligned equipment prior to making connections to or anchoring of the equipment.
- B. Inspection during equipment installation work shall be provided to determine compliance with equipment erection methods and procedures recommended by the manufacturer.
- C. Conduct the process start-up necessary to operate, adjust, calibrate and tune the equipment and systems into operating service in accordance with the design criteria described in each detailed equipment specification.
- D. Conduct performance tests to demonstrate compliance with design criteria and performance guarantee set forth in the Specifications.

3.10 PROCESS START-UP

- A. Once the equipment has been considered ready for process start-up and the support system can deliver the process material, the Contractor shall start up the equipment under process conditions and conduct performance tests to verify compliance with the Specifications. The Contractor shall give the Owner forty-eight (48) hours written notice of his intent to start up equipment under process conditions and conduct performance testing.
- B. The Contractor shall provide the necessary supervision and technical personnel and services required to perform the work. The Owner shall coordinate this phase of the work with the Contractor and provide all necessary support services and facilities to assist the Contractor in performing the work.
- C. The equipment shall be considered ready for a performance test only after the Contractor has demonstrated to the Owner that the equipment can operate continuously, without mechanical interruption under the process flow conditions for up to three (3) days, or such time as may be mutually agreeable to the Owner and Contractor.
- D. After it has been determined that the equipment will operate satisfactorily under process conditions, the performance test shall be made by the Contractor to verify that the equipment can meet the requirements outlined in the Specifications. The performance test shall be based on maintaining the design requirements for a time period mutually agreeable to the Owner and the Contractor, or such period as is stipulated in the General Provisions.

3.11 OWNER FURNISHED EQUIPMENT

- A. The Contractor shall notify the Owner when Owner furnished equipment is completely installed in accordance with the Owner furnished manufacturer's instruction and requirements of the Contract Documents and ready for operation testing. The Owner or Representative will schedule the manufacturer's representative to visit the site of the Work and inspect, check adjust if necessary and approve the equipment installation. If the manufacturer's representative cannot complete the testing and startup services due to the Contractor's negligence in installing the equipment, the Contractor shall be responsible for the costs of the service representatives' revisit to the site of the Work.

3.12 PERFORMANCE TESTS

- A. Performance test procedures shall be prepared by the Contractor and approved (in writing) by the Owner a minimum of fourteen (14) days before performance tests are conducted.
- B. Costs of all inspections, field service, mechanical start-up, run-in work, process start-up and performance tests shall be borne by the Contractor and shall be included in the total price bid for the Work.
- C. The Contractor shall also agree to repay the Owner installation costs for any rejected equipment. The installation costs will be derived by the Owner based on actual costs charged for the installation of the equipment.

3.13 ACCEPTANCE OF EQUIPMENT BY THE OWNER

After all the conditions of the Performance Specifications have been satisfied, the Owner will designate in writing that the equipment is accepted, and at such time the Owner will be responsible for all further maintenance and operation of same. The warranty period for all equipment shall start on the date of final acceptance by the Owner.

END OF SECTION 01660

SECTION 01722 – SURVEYING AND CONSTRUCTION STAKING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Permanent Survey Marker:

1. The Contractor shall be responsible for the preservation of survey monuments and benchmarks except as noted herein. At least two (2) working days before the start of construction, the Contractor shall submit acceptable preconstruction survey tie notes to the Engineer's office. These tie notes shall be prepared by a California-licensed Land Surveyor or Registered Civil Engineer authorized to practice land surveying. These survey tie notes will be for all survey markers or benchmarks that may be lost or disturbed due to construction. Lost or disturbed monuments shall be replaced at the Contractor's expense by a California Licensed Land Surveyor or Registered Civil Engineer authorized to practice land surveying. Post-construction survey monument ties acceptable to the Engineer shall be submitted to the Engineer's office before the completion of the Work (see "Monuments", Section 8771, Land Surveyors Act, Division 3, Chapter 15 of the Business and Professions Code). The Engineer will re-establish the monuments and benchmarks where survey services are provided by the Engineer, providing the Contractor protects the preconstruction reference points. In this case, where the monuments are to be removed or damaged by the Contractor, the Contractor shall notify the Engineer in writing seven (7) calendar days before starting the Work.

B. Lot Stakes:

1. The Contractor shall preserve property line and corner survey markers, except where their destruction is unavoidable. The lot stakes shall be replaced per Specification Section 01722, 1.01, A, 1 (noted above). Markers that otherwise are lost or disturbed by its operations shall be replaced at the Contractor's expense by the Engineer.

C. Survey Services:

1. The Engineer will perform and be responsible for the survey work at the Site unless otherwise noted on the Plans or Specifications. The Contractor shall preserve construction survey stakes and marks for the duration of their usefulness. If any construction survey stakes are lost or disturbed and need to be replaced, such replacement shall be accomplished by the Engineer at the expense of the Contractor.
2. The Engineer shall establish horizontal and vertical control points for construction. The Contractor shall notify the Engineer in writing at least five (5) full working days before survey services are required in connection with the laying out of any portion of the work. The Contractor shall dig all holes necessary for line and grade stakes when requested by the Engineer.
3. The Contractor shall be responsible for their own layout based on the Engineer's survey stakes and cut sheets. The Contractor shall allow sufficient time for checking and issuance of cut sheets by the Engineer.
4. Unless otherwise specified, stakes will be set and stationed by the Engineer for curbs, ribbon gutters, headers, sewer pipelines, water pipelines, storm drains, structures, and rough grade. A corresponding cut or fill to finished grade (or flowline) will be indicated on the cut sheet.

D. Line and Grade:

1. The Engineer shall set alignment and grade stakes only for all on-site pipelines that are four-inches (4") in diameter or larger. The Contractor shall furnish all other lines and grades required for proper execution of the work.
2. After exterior walls have been located, the Contractor shall be responsible for the location of all interior construction including interior piping.
3. All work shall conform to the lines, elevations, and grades illustrated on the Plans.
4. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the Engineer in writing. In the absence of such written

notification, the Contractor shall be responsible for any error in the grade of the finished work.

5. Grades for underground pipelines will be established by the offset hubs at the surface of the ground. The Contractor shall be responsible for transferring the grades to the bottom of the trench and pipeline.

E. Benchmarks:

1. The Contractor shall use the benchmarks illustrated on the Plans to conduct grading work at the project site. The Contractor shall be allowed to establish temporary benchmarks; however, the Contractor shall establish the temporary benchmarks from the benchmarks illustrated on the Plans. The Contractor shall provide the Engineer with fully prepared Level Notes substantiating the correct elevation of the temporary benchmark.

- F. The Contractor shall provide grade checkers to verify subbase, subgrade and final grade elevations prior to those grades being checked, verified and approved by the Engineer. The Contractor shall provide grade checkers to place bluetop staking in parking lots, basins, roadways or other specified locations as required by Improvement Plans. Bluetop stakes are stakes set to grade. The Engineer will verify the grading work after the bluetop stakes have been placed by the grade checkers. The Contractor shall review Section 02200 - Earthwork; Section 02221 - Trenching, Backfilling and Compacting and Section 02510 - Asphalt Concrete and Paving, required for any required bluetop staking for this project.

- G. The Engineer shall provide three (3) sets of cut sheets to the Contractor within 24 hours after completing a staking activity.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02200 – Earthwork
- B. Section 02221 – Trenching, Backfilling and Compacting

PART 2 - EXECUTION

2.01 SURVEY REQUIREMENTS

The Engineer shall provide the Survey and Staking for the following listed items for this project.

A. Water Well:

1. Two (2) in-line offset stakes for the well point. The hubs shall be placed at a distance of 10-feet from the well.
2. Four (4) offset stakes for the structure shall be set at a diagonal from the corners of the slab for initial excavation purposes. The hubs shall be placed at a distance of 5-feet from the exterior edges of the slab unless a different horizontal distance is requested by the Contractor.

B. Pipelines:

1. Hubs shall be provided at 20 feet on center along the length of the pipelines at an offset determined by the Contractor. Hubs shall also be placed at vertical or horizontal angle points, valve locations, fittings, beginning points and termination points. Vertical cut distances as referenced from the offset hubs to the invert (flowline) elevations of the pipelines shall be provided.

C. Roadway Edges:

1. Offset hubs shall be placed along the exterior edges of roadways 20 feet on center at an offset determined by the Contractor. Offset hubs shall be placed at angle points, beginning of curb radius points, end of curb radius points, beginning and termination points. Cut and fill vertical distances to the top of the exterior roadway edge finish grade surface shall be provided.

END OF SECTION 01722

SECTION 02050 - DEMOLITION AND SALVAGE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall provide demolition and removal of existing structural materials, piping, fencing, electrical gear, equipment and structures in accordance with the requirements of the Contract Documents. The Contractor shall conduct demolition operations so that existing facilities to remain and new work to be completed will not be damaged or disturbed.
- B. It is vital that the existing treatment plant system remain in operation at all times. Any proposed shut-down of any one of the systems facilities shall be coordinated and approved by the Owner and the Owners Representative.
- C. If during demolition operations the Contractor becomes aware of any asbestos, hazardous waste or toxic material at the Site to which the Contractor or any subcontractor, supplier or Owner's personnel may be exposed, the Contractor follow procedures as noted in Articles 4 and 8 of the Standard General Conditions.
- D. The Contractor shall repair or replace, without cost to the Owner and to the satisfaction of the Owners Representative, existing facilities disturbed or damaged during demolition and removal operations.
- E. Immediately upon removal of demolition items, the Contractor shall legally dispose of demolished items not to be salvaged. Demolished items not to be salvaged shall be removed from the Site within ten (10) calendar days of the commencement of demolition activities. ***Unless noted in the Plans, the Owner reserves the right to salvage any of the existing material or equipment. The Contractor, upon being notified by the Owners Representative, shall salvage and relocate to an Owner-designated, on-site storage area any materials or equipment the Owner desires to keep. The cost of the removal and relocation of the items shall be included in the contract price.*** No demolished items shall be sold while on the Owner's property.
- F. The Contractor shall patch and seal abandoned openings and holes left as a result of removal and demolition to match the existing surrounding structure. Openings in concrete shall be

patched with a non-shrink grout and if necessary grouted openings in floors shall be supported in a manner approved by the Owners Representative. Large openings shall be supported by $\frac{3}{4}$ -inch minimum treated plywood bolted to the structure underneath the opening prior to the placement of the non-shrink grout.

- G. Existing concrete structures exhibiting spalls or holes not related to previously installed mechanical equipment shall be patched with a non-shrink grout.

END OF SECTION 02050

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this Section includes all earthwork required for construction of the Work. Earthwork shall include, but not be limited to the loosening, removing, loading, transporting, depositing and compacting in its final location of all materials wet and dry, as required for the purposes of completing the work specified in the Contract Documents which shall include, but not be limited to: P.C.C. concrete and underlying material to a subbase design grade, the installation of subbase material to a subbase grade beneath concrete infrastructure, the excavation of pipeline trenches, the installation of backfill material within pipeline trenches, excavations for above-grade and below-grade structures, backfill requirements for material to be placed beneath above-grade and below-grade structures, backfill requirements for the areas surrounding above-grade and below-grade structures, backfilling of depressed areas resultant from demolition, the disposal of excess excavated materials, borrow of materials to make up deficiencies for fills; and all other incidental earthwork, all in accordance with the requirements of the Contract Documents.

Principal work items included in this Section are:

1. Structural excavation and backfills.
2. Trench excavation and backfills.
3. Disposal of surplus and/or unsuitable materials.
4. Clean-up.

1.02 REFERENCE STANDARDS

ASTM C 131	Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D 75	Practice for Sampling Aggregates
ASTM D 422	Method for Particle-Size Analysis of Soils

ASTM D 698	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-in (304.8-mm) Drop
ASTM D 1556	Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	Test Method for Moisture-Density Relations of Soils Using Rammer and Drop
ASTM D 2419	Test method for Sand Equivalent Values of Soil and Fine Aggregate
ASTM D 2487	Classification of Soils for Engineering Purposes
ASTM D 2922	Test Method for Density of Soil in Places by Nuclear Methods (Shallow Depth)
ASTM D 3017	Test method for Water Content of Soil and Rock in Place by Nuclear Methods
ASTM D 4253	Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Plate
ASTM D 4254	Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
CAL-OSHA	Title 8 General Industry Safety Orders

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02150 - Sheeting, Shoring and Bracing
- B. Section 02221 - Trenching, Backfilling and Compacting
- C. Section 02630 - Ductile Iron Pipe
- D. Section 02640 - PVC Pipe

1.04 DEFINITIONS

- A. Site: The property owned by the Palo Verde County Water District. The site includes the Water Treatment Plant site.
- B. Controlled Fill: Compacted suitable fill material in all areas of the site requiring filling to grade as shown on the Plans.

- C. Structural Fill: Compacted suitable fill material which will support a structure or some part of a structure. This includes support material for P.C.C. structures and pads
- D. Structural Backfill: Compacted suitable material placed between the wall of a structure and construction excavation slope up to finished grade.
- E. Suitable Material: As specified herein shall be any material imported or excavated from the cut areas that is, in the opinion of the Owner's Representative, suitable for use in constructing fills.
- F. Waste Excavation: Also Surplus Material. Material from project excavations which is not suitable for use in backfill or compacted fills or is in excess of that required to be used for backfill or to construct fills.
- G. Pipe Zone Backfill: Material suitable for placement below or surrounding the pipe to a given vertical distance above the pipe as required by the pipe section.
- H. Pipe Trench Backfill: Material suitable for placement from the pipe zone to finish grade or to pavement subbase material.

1.05 SITE INVESTIGATION

- A. Soil Investigation Report: If required, a Geotechnical Report shall be prepared by a Geotechnical Engineer and be acquired by the Contractor. Soil requirements provided by the Geotechnical Report, shall be adhered to.
- B. Contractor's Responsibility: The Contractor shall carefully examine the site and make all inspections necessary in order to determine the full extent of the work required to make the completed Work conform to the Drawings and Specifications. The Contractor shall satisfy himself/herself as to the nature and location of the Work, conditions, the conditions of the existing ground surface, and the character of equipment and facilities needed prior to and during prosecution of the Work. The Contractor shall satisfy himself/herself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered. Any inaccuracies or discrepancies between the actual field conditions and the Plans, or between the Plans and Specifications must be brought to the Owner's Representative's attention in order to clarify the exact nature of the Work to be performed.

- C. Existing Elevations: All existing elevations illustrated on the Plans are approximate. The Contractor shall recognize and acknowledge the condition that the bid lump sum price shall include all earthwork activities irrespective of the possible localized difference in contour elevations and actual ground; and that there will be no additional compensation from the Owner for earthwork changes, engineering, or field staking in this regard.

1.06 SAFETY

The Contractor shall familiarize himself/herself with, and shall at all times conform to, the regulations of the “OSHA General Industry Occupational Safety and Health Standards”, and “OSHA Safety and Health Regulations for Construction Safety Orders” and “Trench Construction Safety Orders” of the State of California, Department of Industrial Relations, Division of Occupational Health and Safety. A copy of these documents shall be kept on the job site.

1.07 ENVIRONMENTAL SAFEGUARDS AND REGULATIONS

The Contractor shall comply with regulations in force at all times to prevent pollution of air and water. The Contractor shall be responsible for the construction of Project Environmental Control facilities in accordance with Section 01560 of the Technical Specifications, as applicable.

1.08 GEOTECHNICAL TESTING

The Contractor shall provide the services of a qualified Geotechnical Consultant to perform the required earthwork geotechnical testing specified within the contents of the Plans and Specifications. The cost for the Geotechnical Testing shall be borne by the Contractor. A copy of all tests shall be forwarded to the Owner’s Representative within two (2) days after the testing is complete. Geotechnical Earthwork Testing shall include in-situ native soil compaction testing, moisture-density soils testing, compaction testing, gradation testing, sand equivalent testing and similar testing. The Contractor shall bear the cost of retest and re-inspection of re-worked material due to faulty work.

1.09 STANDARDS FOR SOIL CLASSIFICATION, PROPERTIES AND TESTS

A. Backfill for Trench:

1. Classification - ASTM D 2487.
2. Compaction - Modified Proctor ASTM D 1557-91.

3. Field Density Test - ASTM 1556-82; D 2937-83, D 2922-81 (as approved by Geotechnical Engineer).
- B. Structural Fill and Backfill:
1. Classification - ASTM D 2487.
 2. Attenberg Limits - PlastiOwner Index and Liquid Limit ASTM D 4318.
 3. Compaction - Modified Proctor ASTM D 1557-91.
 4. Physical Properties - ASTM D 854, D 2216.
 5. Field Density Test - ASTM D 1556-82, D 2937-83, D 2922-81 (as approved by Geotechnical Engineer).
- C. Controlled Fills:
1. Classification - ASTM D 2487.
 2. Physical Properties - ASTM D 854, D 2216.
 3. Compaction - Modified Proctor ASTM D 1557-91.
 4. CBR - ASTM D 1883 (R-Value - ASTM 2844).
 5. Field Density Test - ASTM D 1556-82, D 2937-83, D 2922-81 (as approved by Geotechnical Engineer).
- D. Borrow:
1. Classification - ASTM D 2487.
 2. Other properties - as determined by requirements at point of use.
- E. Pipe Trenches:
1. Classification - ASTM D 2487.
 2. Physical Properties - ASTM D 854, D 2216.
 3. Compaction - Modified Proctor ASTM D 1557-91.
 4. CBR - ASTM D 1883.

5. Field Density Test - ASTM D 1556-82, D 2937-83, D 2922-81 (as approved by Geotechnical Engineer).

1.10 COMPACTION

The maximum dry density, optimum moisture content and field density of each soil type used in the controlled compacted fill shall be determined as stated in Section 1.09 above.

1.11 INSPECTION

Observation and compaction tests shall be obtained by the Geotechnical Consultant engaged by the Contractor during the filling and compacting operations.

The Geotechnical Consultant shall be required to be present at the site on a full-time basis for several work activities and conduct intermittent testing for other work activities. The following chart indicates the earthwork items which will require full time or intermittent geotechnical testing.

<u>NO.</u>	<u>ITEM</u>	<u>GEOTECHNICAL TESTING</u>
1.	Installation of Class 2 Base and Granular Sand Fill material beneath Pipe Support foundations.	Intermittent Testing
2.	Installation of Class 2 Base and Granular Sand Fill material beneath the Shade Structure footings.	Intermittent Testing
3.	Installation of Class 2 Base beneath the any Concrete Pads.	Intermittent Testing
4.	Backfill for Water Pipe Trenches. The Specification requires that the backfill be compacted in lifts. Additional lifts shall not be allowed to be placed until previous lifts have been satisfactorily tested for compaction.	Intermittent Testing
5.	Backfill for Electrical Conduit Trenches, if applicable. The specification requires that the backfill be compacted in lifts. Additional lifts shall not be allowed to be placed until	Intermittent Testing

previous lifts have been satisfactorily tested for compaction. This requirement shall be strictly enforced and the Contractor shall be required to remove all backfill from the electrical conduit trench if this specification is violation.

5. Installation of Granular Sand for Water Pipelines.

Intermittent
Testing

1.12 GUARANTEE

Work required by this Section shall be subject to the guarantee requirements stated in the Conditions of the Contract and included in the Performance/Maintenance Bond.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Structural Fill Material: Materials shall consist of crushed rocks, Class 2 Base, granular sand, decomposed granite (crusher fines) or fine gravel either imported or manufactured from excavated onsite rocky material.

The crushed aggregate, granular sand, decomposed granite (crusher fines) or fine gravel shall be uniformly graded. The following gradations shall apply:

1. Granular Sand:

Clean granular sand free of clay, shale and deleterious material. Sand shall be compacted to 95 percent of maximum density at optimum water content per ASTM D 1557 unless otherwise noted on the Plans.

The material shall conform to a sand equivalent of 30 or greater.

The maximum amount of material passing the Number 200 sieve shall be 5 percent.

The sand shall conform to the following gradation percentages:

<u>SIEVE SIZE</u>	<u>GRANULAR SAND</u> <u>% PASSING</u>
3/8"	100
No. 4	98-90
No. 8	90-75
No. 10	75-60
No. 16	60-50
No. 30	50-38
No. 40	38-29
No. 50	29-19
No. 100	19-7
No. 200	5-0

The Contractor shall supply a 5-gallon sample of sand material to the material testing laboratory within five (5) days after the Notice to Proceed is issued. The gradation, sand equivalent and maximum density of the sand material shall be determined. The test results shall be forwarded to the Owner's Representative. The cost of testing shall be incurred by the Contractor. The gradation of the granular sand shall be determined and the test results forwarded to the Owner's Representative prior to the delivery of the granular sand material to the Site. Prior to the placement of sand the native subbase grade shall be checked and approved by the Owner's Representative.

Crusher fines shall be allowed to be utilized in lieu of sand if approved by the Owner's Representative.

2. Crusher Fines:

Crusher fines shall consist of decomposed granite indigenous to the Imperial Valley. Crusher fines utilized for this project shall conform to the following gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT PASSING</u>
5/8"	100
No. 4	80-100
No. 8	50-85
No. 30	30-50
No. 200	4-15

The sand equivalent shall be 20 or greater.

The Contractor shall supply a five-gallon sample of crusher fines material to the material testing laboratory within five (5) days after the Notice to Proceed is issued. The Gradation and Maximum Density of the crusher fines material shall be determined. The test results shall be forwarded to the Owner's Representative for approval prior to the delivery of the material to the Site. The cost of the testing shall be incurred by the Contractor.

3. Fine Gravel:

Clean fine gravel free of clay, shale and deleterious material. Fine gravel shall be compacted with a plate compactor with one pass in maximum 1 foot lifts. Additional lifts shall not be added until previous lifts shall have been passed over by the plate compactor.

The maximum amount of material passing the 1/4" Sieve shall be 2 percent.

The fine gravel shall conform to the following gradation percentages:

<u>SIEVE SIZE</u>	<u>PERCENT PASSING</u>
3/8"	100
1/4"	0-2

The Contractor shall supply a five-gallon sample of fine gravel material to the material testing laboratory within five (5) days after the Notice to Proceed is issued. The Gradation and Maximum Density of the fine gravel material shall be determined. The test results shall be forwarded to the Owner's Representative for approval prior to the delivery of the material to the Site. The cost of the testing shall be incurred by the Contractor.

4. Class 2 Base:

The Class 2 Base material shall conform to Caltrans Section 26, Latest Edition, for 25mm maximum base material.

The gradation requirements are as follows:

<u>SIEVE SIZE</u>	<u>CLASS 2 BASE % PASSING</u>
1"	100
3/4"	87-100
No. 4	30-65
No. 30	5-35
No. 200	0-12

The sand equivalent shall be 25 or greater. An angular aggregate is to be used. Class 2 Base material shall be compacted to 95 percent of maximum density according to ASTM D 1557, unless otherwise noted on the Plans or Details. The tolerance for the Class 2 Base between design subgrade elevation and actual subgrade elevation as constructed in the field shall be plus or minus 0.02 feet as referenced from the design subgrade. Prior to the placement of Class 2 Base, the native subbase grade shall be checked and approved by the Owner's Representative. The native subbase grade shall be within plus or minus 0.05 feet of native subbase design grade prior to the placement of Class 2 Base.

The Contractor shall supply a 5-gallon sample of the Class 2 Base to the material testing laboratory within four (4) days of the Notice to Proceed. The material shall be delivered to the testing laboratory to determine the maximum density, gradation, R-value, sand equivalent and durability index of the Class 2 Base. A copy of the test results shall be forwarded to the Owner's Representative by the Geotechnical Consultant for review. The gradation of the Class 2 Base shall be determined and the test results forwarded to the Owner's Representative for approval prior to the delivery of the Class 2 Base material to the Site. *Class 2 Base utilizing recycled materials shall not be allowed.*

- C. Structural Backfill Material: Structural Backfill Material shall consist of the same material listed with the Structural Fill Material item above.
- D. Special Crushed Rock Bedding and Structure Foundation: When groundwater is encountered in the excavation and/or where indicated on the Plans, the material in the bottom of the trench or excavation shall be removed to a depth directed by the Geotechnical Engineer and replaced with 3/4-inch maximum

crushed rock bedding or 1" round rock bedding. The rock beddings shall be installed and compacted per these Specifications. The 3/4-inch maximum crushed rock and 1" round rock materials shall be approved by the Geotechnical Engineer before use.

The bottom and sidewalls of the trench shall be covered with a geotextile. The geotextile fabric shall extend to the top of the pipe zone material on both sides of the trench excavation, and cover the top of the crushed rock and or 1-inch round rock.

1. 3/4-Inch Maximum Crushed Rock

Crushed rock shall be the product of crushing rock or gravel. Fifty percent (50%) of the particles by weight retained on a 3/8-inch sieve shall have their entire surface area composed of faces resulting from fracture due to mechanical crushing. Not over 5% shall be particles that show no faces resulting from crushing.

Less than 10% of the particles that pass the 3/8-inch sieve and are retained on the No. 4 sieve shall be waterworn particles. Gravel shall not be added to the crushed rock.

Crushed rock (3/4") shall have the following gradation:

<u>SIEVE SIZES</u>	<u>3/4-INCH MAX. CRUSHED ROCK % PASSING</u>
1"	100
3/4"	90-100
1/2"	30-60
3/8"	0-20
No. 4	0-5
No. 8	-

The 3/4-inch maximum crushed rock shall be compacted with a plate compactor in one pass in maximum 1 foot lifts. Additional lifts shall not be added until previous lifts shall have been passed over by the plate compactor.

The Contractor shall supply a five-gallon sample of the 3/4-inch maximum crushed rock material to the material testing laboratory within four (4) days of the Notice to Proceed. The Gradation and Sand Equivalent of the

crushed rock shall be determined. The tests results shall be forwarded to the Owner's Representative for approval prior to the delivery of the material to the Site. The cost of the testing shall be incurred by the Contractor.

2. 1" Round Rock

The 1-inch round rock material shall conform to the following gradation requirements:

<u>SIEVE SIZES</u>	<u>1-INCH ROUND ROCK % PASSING</u>
1-1/2"	100
1"	96
3/4"	79
1/2"	25
3/8"	1

The 1-inch round rock shall be compacted with a plate compactor in one pass in maximum 1 foot lifts. Additional lifts shall not be added until previous lifts shall have been passed over by the plate compactor.

The Contractor shall supply a five-gallon sample of the 1-inch round rock material to the material testing laboratory within four (4) days of the Notice to Proceed. The Gradation of the round rock shall be determined. The tests results shall be forwarded to the Owner's Representative for approval prior to the delivery of the material to the Site. The cost of the testing shall be incurred by the Contractor.

PART 3 - EXECUTION

3.01 GENERAL

The Work performed under this Specification shall be constructed to the lines, grades, elevations, slopes and cross-sections indicated on the Plans, specified herein, and/or directed by the Owner. Slopes, graded surfaces, and drainage features shall present a neat uniform appearance upon completion of the Work.

It shall be the Contractor's responsibility (1) to maintain adequate safety measures and working conditions; and (2) to take all measures necessary during the performance of the Work to protect the entire project area and

adjacent properties which would be affected by this Work from storm damage, flood hazard, caving of trenches and embankments, and sloughing of material, until final acceptance by the Owner. It shall be the Contractor's responsibility to maintain completed areas until the entire project area is in satisfactory compliance with the job specification.

Utility lines and structures indicated on the Plans which are to remain in service shall be protected by the Contractor from any damage as a result of his/her operation. Where utility lines or structures not shown on the Plans are encountered, the Contractor shall report them to the Owner before proceeding with the Work. The Contractor shall bear the cost of repair or replacement of any utility lines or structures which are broken or damaged by his/her operations.

3.02 REMOVALS, CLEARING AND GRUBBING

- A. Clearing: Clearing consists of the complete removal of objectionable materials and obstructions above and below the ground surface including tree stumps, brush, grass, vegetative matter and other objectionable materials within the project limits. All brush and organic material shall be removed before placing any earth fills. It shall be the Contractor's responsibility to save and protect all trees that lie outside the construction area.
- B. Grubbing: Grubbing consists of the complete removal of stumps, including tap roots or lateral roots 1-1/2 inches or more in diameter, and the removal of brush, grass or weeds to depths below the natural ground as specified herein. Stumps shall be grubbed to a depth of 3 feet and grass or weeds shall be grubbed to a depth of 6 inches below the natural ground surface, or to the depths as determined in the field by the Owner's Representative at the time of construction.
- C. Protection: Existing items not designated to be demolished or removed shall be protected from damage. Any such item damaged by the Contractor shall be restored or replaced immediately at the Contractor's expense.
- D. Debris and Waste Material: All debris and waste material resulting from demolition, clearing and grubbing shall be removed from the site and disposed of by the Contractor.

3.03 DUST CONTROL

The Contractor shall take all steps possible to prevent and reduce dust arising from the construction activity. Section 01560 Project Environmental Controls elaborates on dust control requirements.

3.04 CARE OF DRAINAGE WATER

Contractor shall take care of drainage water from the construction operations, and of stormwater and/or wastewater reaching the construction area from any source, so that damage is not incurred to the excavation, pipe or structures. The Contractor shall be responsible for any damages to persons or property on or off the Site due to such drainage water or to the interruption or diversion of such stormwater or wastewater on account of his/her operation.

Such grading shall be accomplished as may be necessary to prevent surface water from flowing into excavations, and any water accumulating therein shall be removed by pumping or by other reviewed methods.

Protection of the site during construction shall be the responsibility of the Contractor. Completion of a portion of the project shall not preclude that portion or adjacent areas from the requirements for site protection until such time as the entire project is complete.

3.05 EXCAVATION

- A. General: The Contractor shall perform all excavation necessary or required as illustrated on the Plans. The excavation shall include the removal and disposal of all earth materials of whatever nature encountered, which shall include both rock excavation and common excavation when both are present, and shall include the furnishing, placing and maintaining of shoring and bracing necessary to safely support the sides of the excavations. The Work shall also include all pumping, ditching and other required methods for the removal or exclusion of water. See Technical Specifications Section 02150 - Sheeting, Shoring and Bracing, respectively.
- B. Excavation for Structures: Structure excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the Work. The removal of such materials shall conform to the lines and grades shown on the Plans and/or herein specified. Temporary structure excavations shall at all times conform to the Requirements of the State of California, Division of Occupational Health and Safety, and pertinent requirements contained in referenced Geotechnical Investigation

Report and Specification Section 02150 - Sheeting, Shoring and Bracing.

Continuous wall and isolated footings shall be underlain by a minimum compacted controlled fill thickness to a minimum 1.5 times the footing width or greater if indicated in the referenced Geotechnical Investigation Report or as required by the Plans. This zone of over-excavation, scarification and recompaction shall extend a minimum of five feet (5') beyond the footing lines unless otherwise illustrated on the Plans. Exposed native surface shall be scarified and brought to optimum moisture content and compacted to a minimum of 90 percent relative compaction if required by the Geotechnical Investigation Report or the Plans.

All surfaces to receive concrete slabs-on-grade shall be underlain by a minimum compacted controlled fill thickness of 18 inches or greater if indicated in the referenced Geotechnical Investigation Report or as required by the Plans. This shall be accomplished by combination of over-excavation and compaction of native material to 90% of relative compaction or as required by the Geotechnical Investigation Report or as required by the Plans.

Contingent upon locations, all surfaces to receive compacted fill shall be scarified, brought to near optimum moisture content and compacted to required percentage of relative compaction as specified herein unless otherwise indicated on the Plans.

Rough grade excavations for structures and footings will be inspected by the Geotechnical Engineer to verify that the excavations extend into satisfactory soils and are free of loose and disturbed materials.

Foundation for tanks, pump vaults or subsurface chambers shall have structural fill material extending 12 inches, minimum, below the structural base slab to native material, which has been scarified and compacted to 90% relative compaction unless otherwise indicated on the Plans.

3.06 STRUCTURE FILL AND STRUCTURE BACKFILL MATERIAL

- A. Placement of Structure Backfill: Before beginning backfilling, all foreign material, including water, shall be removed from the space to be backfilled and the area to be backfilled shall be inspected and approved by the Geotechnical Engineer. Sloping sides of the excavated space shall be stepped to prevent wedging action of the backfill against the structure. No backfill shall be placed around or

upon any structure until it is proven that the concrete has attained satisfactory strength in accordance with the Division 3 of Technical Specifications and that the structure as a whole is adequate to receive backfill. The compressive strength shall be determined by tests on representative cylinders cured under conditions similar to those prevailing at the site.

- B. General: Structure fill and structure backfill shall consist of granular sand, Class 2 Base, crusher fines or other material as indicated on the Plans. The subbase grade shall be excavated to within plus or minus 0.05 feet of design grade prior to the placement of structure fill and structure backfill. The design subbase grade shall be field verified and approved by the Owner's Representative prior to the placement of the structure fill or structure backfill material. The Owner's Representative shall determine the number and location of points to check for the subbase grade elevation compliance. Prior to the Owner's Representative's inspection of the subbase grade the Contractor shall establish bluetop stakes on a 20-foot by 20-foot grid across the area which structure backfill is to be placed.

Granular sand, Class 2 Base and crusher fine structure fill and structure backfill material shall be placed in maximum 8-inch lifts and compacted to 95 percent of maximum density at optimum water content per ASTM D 1557. Additional granular sand, Class 2 Base or crusher fine lifts shall not be placed until previous lifts have attained the specified compaction requirement and are approved by both the on-site geotechnical representative and the Owner's Representative.

- C. Placing, Spreading and Compacting Fill Material: The structural fill and structural backfill material shall be placed by the Contractor in thin layers that when compacted shall not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to obtain uniformity of material in each layer.

When the moisture content of the fill material is below that required by the Geotechnical Engineer, water shall be added by the Contractor until the moisture content is as required for the specified compaction.

When the moisture content of the fill material is above that required by the Geotechnical Engineer, the fill material shall be aerated by the Contractor by blading, mixing, or other satisfactory methods until the moisture content is as required for the specified compaction.

After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted by the Contractor to the specified density. Compaction shall be accomplished by sheepsfoot rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers or other types of acceptable compacting equipment. Equipment shall be of such design that it shall be able to compact the fill to the specified density. Compaction shall be continuous over the entire area and the equipment shall make sufficient passes over the material to ensure that the desired density has been obtained.

Compacted fill slopes shall be overbuilt and cut back to grade, exposing the firm, compacted inner core. The slopes shall be overbuilt a minimum of five feet (5'). If the desired compaction is not achieved, the existing slope shall be overexcavated and reconstructed. The amount of overbuilding shall be increased until the desired compaction is achieved on the slope. The Contractor shall provide thorough mechanical compaction to the outer edge of the overbuilt slope surface. There shall be no excessive loose soil on the slopes.

The Contractor shall provide and maintain adequate erosion control facilities during the construction of the fill areas. The erosion control facilities shall be maintained in optimum condition until the permanent drainage system and vegetation is complete. The facilities shall be inspected following significant rainfall, repairs made, and excess sediment removed. It shall be the Contractor's responsibility to prevent the discharge of sediment off-site or to adjacent watercourses.

3.07 SUITABLE MATERIAL AND WASTE EXCAVATION

- A. General: Suitable material or waste excavation consists of native material. The subbase grade shall be excavated to within plus or minus 0.05 feet of design grade prior to the placement of suitable material or waste excavation material. The design subbase grade shall be field verified and approved by the Owner's Representative prior to the placement of the suitable material or waste excavation material. The Owner's Representative shall determine the number and location of points to check for the subbase grade elevation compliance. Prior to the Owner's Representative's inspection of the subbase grade the Contractor shall establish bluetop stakes on a 20-foot by 20-foot grid across the area suitable material or waste excavation material is to be placed.

The suitable material or waste excavation material shall be placed in maximum 1-foot lifts and compacted to 90 percent of maximum density at optimum water content per ASTM D 1557. Additional suitable material or waste excavation material lifts shall not be placed until previous lifts have attained the specified compaction requirement and are approved by both the on-site geotechnical representative and the Owner's Representative.

- B. Placing, Spreading and Compacting Suitable Material and Waste Excavation Material: The suitable material and waste excavation material shall be placed by the Contractor in 1-foot lifts. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to obtain uniformity of material in each layer.

When the moisture content of the fill material is below that required by the Geotechnical Engineer, water shall be added by the Contractor until the moisture content is as required for the specified compaction.

When the moisture content of the fill material is above that required by the Geotechnical Engineer, the fill material shall be aerated by the Contractor by blading, mixing, or other satisfactory methods until the moisture content is as required for the specified compaction.

After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted by the Contractor to the specified density. Compaction shall be accomplished by sheepsfoot rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers or other types of acceptable compacting equipment. Equipment shall be of such design that it shall be able to compact the fill to the specified density. Compaction shall be continuous over the entire area and the equipment shall make sufficient passes over the material to ensure that the desired density has been obtained.

Compacted fill slopes shall be overbuilt and cut back to grade, exposing the firm, compacted inner core. The slopes shall be overbuilt a minimum of five feet (5'). If the desired compaction is not achieved, the existing slope shall be overexcavated and reconstructed. The amount of overbuilding shall be increased until the desired compaction is achieved on the slope. The Contractor shall provide thorough mechanical compaction to the outer edge of the overbuilt slope surface. There shall be no excessive loose soil on the slopes.

The Contractor shall provide and maintain adequate erosion control facilities during the construction of the fill areas. The erosion control facilities shall be maintained in optimum condition until the permanent drainage system and vegetation is complete. The facilities shall be inspected following significant rainfall, repairs made and excess sediment removed. It shall be the Contractor's responsibility to prevent the discharge of sediment off-site or to adjacent watercourses.

3.08 ESTABLISHMENT OF SUBBASE GRADE, SUBGRADE OR FINISH GRADE

Finish Grade is defined as the finish surface grade. For instance, the top of an A.C. or P.C.C. paved surface is referred to as finish grade.

Subgrade is defined as the grade of the material beneath the finish surface. For instance, the top of Class 2 Base grade beneath an A.C. or P.C.C. paved surface is referred to as subgrade.

Subbase is defined as the grade of the material beneath the base material. For instance, the top of native material beneath the Class 2 Base subgrade material of an A.C. or P.C.C. paved roadway is the subbase grade.

Finish grade surfaces are to be graded to within plus or minus 0.02 feet from design grade as illustrated on the Grading Plans. The Contractor shall place bluetop stakes on a 20-foot x 20-foot grid across the top of the finish grade surface during final grading. A bluetop stake is defined as a stake placed at the finish grade elevation within the tolerance of plus or minus 0.02 feet of finish grade. The Owner's Representative shall obtain elevations across finish grade surfaces at locations determined by the Owner's Representative prior to accepting and approving the finish grade surfaces. The Contractor shall rework areas not conforming to the finish surface grade tolerance as required. Work items to occur after the establishment of finish grade shall not occur until the Owner's Representative has approved the finish grade.

Subgrade surfaces are to be graded to within plus or minus 0.02 feet from design grade as illustrated on the Grading Plans. Bluetop stakes shall be placed on a 20-foot x 20-foot grid pattern across rectangular or square facilities such as parking lots and access roads. The Owner's Representative shall obtain elevations across the subgrade surfaces at locations determined by the Owner's Representative prior to accepting and approving the subgrade surfaces. The Contractor shall rework areas

not conforming to the subgrade tolerance as required. Work items to occur after the establishment of subgrade shall not occur until the Owner's Representative has approved the finish subgrade.

Subbase surfaces are to be graded to within plus or minus 0.05 feet of subbase design grade as illustrated on the Grading Plans. Bluetop stakes shall be placed on a 20-foot x 20-foot grid pattern across rectangular or square facilities such as parking lots, access roads, sludge beds, structures, building pads, etc. The Owner's Representative shall obtain elevations across the subbase surfaces at locations determined by the Owner's Representative prior to accepting and approving the subbase surfaces. The Contractor shall rework areas not conforming to the subbase design grade tolerance as required. Work items to occur after the establishment of subbase grade shall not occur until the Owner's Representative has approved the subbase grade.

3.09. CLEAN-UP

Upon completion of Work in this Section, all rubbish and debris shall be removed from the site. All construction equipment and implements of service shall be removed and the entire area involved shall be left in a clean, neat and acceptable condition.

END OF SECTION 02200

SECTION 02221 - TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 DESCRIPTION

Requirements specified in the Technical and Special Conditions form a part of this Section. The Work of this Section includes all labor, machinery, construction equipment and appliances to perform in a professional manner all trench excavation and backfill work illustrated on the Plans and herein specified.

A. Principal items included:

1. Trench excavation, backfill and compaction.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02150 – Sheeting, Shoring and Bracing

B. Section 02200 – Earthwork

C. Piping & Conduit Work specified in other Sections

1.03 SAFETY

The Contractor shall be familiarized with, and shall at all times conform to all applicable regulations of “Excavations, Trenching, and Shoring” of OSHA Safety and Health Regulations for Construction, “General Construction Safety Orders” and “Trench Construction Safety Orders” of the State of California, Department of Industrial Relations, Division of Occupational Health and Safety.

1.04 INSPECTION AND CONTROL

The Contractor shall provide inspection and testing by a Geotechnical Engineer. The Geotechnical Engineer shall be engaged by the Contractor, to perform inspection of the removal and replacement of unsuitable materials, all excavations, and the placement and compaction of all fills and backfills within the limits of earthwork on this Project. Costs for all such inspections and tests will be paid by the Contractor, and Contractor shall bear the cost of retest and re-inspection of reworked fills and backfills due to compaction test failure.

1.05 REQUIREMENTS

A. General:

1. The Work performed under this Specification shall be constructed to the lines, grades, elevations, slopes and cross-sections indicated on the Plans, specified herein, and/or directed by the Owner's Representative in writing. Slopes, graded surfaces, and drainage features shall present a neat, uniform appearance upon completion of the Work.
2. It shall be the Contractor's responsibility (1) to maintain adequate safety measures and working conditions; and (2) to take all measures necessary during the performance of the Work to protect the entire project area and adjacent properties which would be affected by this Work from storm damage, flood hazard, caving of trenches, cavings of excavations, and embankments, and sloughing of material, until final acceptance by the Owner. It shall be the Contractor's responsibility to maintain completed areas in good condition until the entire project area is in satisfactory compliance with the Project Specifications.
3. Contractor shall be responsible for the excavation and disposition of unsuitable or surplus material by approved means of conveyance away from the working area.

B. Protection of Existing Utilities:

1. Utilities: Unless otherwise illustrated on the Plans or stated in the Specifications, all utilities, either underground or overhead, shall be maintained in continuous service throughout the entire contract period. The Contractor shall be responsible and liable for any damages to or interruption of service caused by the construction.

If the Contractor desires to simplify his operation by temporarily or permanently relocating or shutting down any utility or appurtenance, he shall make the necessary arrangements, agreements and approvals with the utility purveyor, Owner and the Owner's Representative and shall be completely responsible for all costs concerned with the relocation or shutdown and reconstruction. All property shall

be reconstructed in its original or new location as soon as possible and to a condition at least as good as its previous condition. This cycle of relocation or shutdown and reconstruction shall be subject to inspection and approval by the Owner's Representative, Owner and the utility purveyor.

The Contractor shall be entirely responsible for safeguarding and maintaining all conflicting utilities that are illustrated on the Plans. This includes overhead wires and cables and their supporting poles whether they are inside or outside of the open trench. If, in the course of work, a conflicting utility line that was not illustrated on the Plans is discovered, it shall be brought to the immediate attention of the Owner's Representative for a determination regarding alternatives to the conflict.

2. Building, Foundations and Structures: Where trenches are located adjacent to buildings, foundations and structures, the Contractor shall take all necessary precaution against damage to them. The Contractor shall be liable for any damage caused by the construction except where authorized in the Special Conditions or in writing by the Owner's Representative. Water settling of backfill material in trenches adjacent to structures will not be permitted.
3. Electronic, Telephonic, Telegraphic, Electrical, Oil and Gas Lines: These underground facilities shall be adequately supported by the Contractor. Support for plastic pipe shall be continuous along the bottom of the pipe. Support for metal pipe and electrical conduit may be continuous or nylon webbing may be used for suspension at no greater than ten foot (10') intervals. The Contractor shall avoid damaging the plastic pipe, pipe ways or conduits during trench backfilling and during foundation and bedding placement.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Granular Sand Material: Granular sand material shall consist of imported granular sand complying with Section 02200, of the specifications.

- B. Crusher Fines: Crusher fines material shall consist of imported decomposed granite complying with Section 02200, of the specifications.
- C. Class 2 Base Material: Class 2 Base material shall consist of imported virgin (not recycled) Class 2 Base complying with Section 02200, of the Specifications.
- D. Crushed Rock Bedding: Crushed rock bedding shall consist of imported rock complying with Section 02200, of the Specifications.
- E. 1-inch Round Rock: 1-inch Round Rock material shall consist of import rock material complying with Section 02200, of the Specifications.
- F. Concrete: 5,000 PSI compressive strength, minimum, as specified in Division 3, Concrete, of the Specifications.
- G. Pipelines: Use materials shown on the Plans and as specified in other pertinent Sections of the Specifications.

PART 3 - EXECUTION

3.01 TRENCH EXCAVATION

- A. Excavation for Trenches: Shall include the removal of all material of any nature for the installation of the pipe or facility and shall include the construction of trench shoring and stabilization measures, timbering and all necessary installations for dewatering.
- B. Minimum Width of Trench: The minimum width of pipe trenches, measured at the crown of the pipe, shall not be less than 12 inches greater than the exterior diameter of the pipe, exclusive of bells and the minimum base width of such trench shall be not less than 12 inches greater than the exterior diameter of the pipe, exclusive of special structures or connections, and such minimum width shall be exclusive of all trench supports.
- C. Maximum Width of Trench: The maximum allowable width of trench for all pipelines measured at the top of the pipe shall be the outside diameter of the pipe (exclusive of bells or collars) plus 16 inches, and such maximum shall be inclusive of all timbers. A trench wider than the outside diameter plus 16 inches may be used without special bedding if the Contractor, at his expense, furnishes pipe of the required strength to carry the additional trench load.

Such modifications shall be submitted for the Owner's Representative's review. Whenever such maximum allowable width of trench is exceeded for any reason, except as provided for on the Plans or in the Specifications, or by the written direction of the Owner's Representative, the Owner's Representative may, at its discretion, require that the Contractor, at his own expense for all labor and materials, cradle the pipe in 5,000 PSI compressive strength concrete, or other approved pipe bedding.

- D. Maximum Length of Open Trench: Except by special permission by the Owner's Representative only that amount of open trench shall be permitted, which shall allow for that amount of pipeline construction, including excavation, construction of pipeline, and backfill in any one location, which can be completed in one day; however, maximum length of open trench shall never exceed 500 feet. This length includes open excavation, pipe laying and appurtenant construction and backfill which has not been temporarily resurfaced.
- E. Trench Side Slopes:
1. Temporary trench excavations shall at all times conform to the safety requirements hereinbefore specified in Section entitled "Safety".
 2. Loose cobbles or boulders shall be removed from the sides of the trenches before allowing workmen into the excavation, or the trench slopes must be protected with screening or other methods. Trench side slopes shall be kept moist during construction to prevent local sloughing and raveling. Surcharge loads due to construction equipment shall not be permitted within 10 feet of the top of any excavated slope.
 3. If the Contractor elects to shore or otherwise stabilize the trench sides, he shall file with the Owner's Representative copies of drawings for same prepared, signed and stamped by a Civil Engineer duly registered in the State of California before commencing excavation.
- F. Excess Trench Excavation: If any trench, through the neglect of the Contractor, is excavated below the bottom grade required, it shall be refilled to the bottom grade, at the Contractor's expense for all labor and material, with granular sand material compacted to a firm stable foundation.

3.02 BRACING TRENCHES

The sides of the trenches shall be supported with plank sheeting and bracing in such a manner as to prevent caving of the sides of the trench. Space left by withdrawal of sheeting or shoring shall be filled completely with dry granular material blown or rammed in place. Trench shoring shall be completed per the recommendations of the Geotechnical Report and OSHA Standards.

3.03 PIPING BEDDING

The Contractor shall excavate to four inches (4") below the bells or couplings for the full width of the trench and shall place four inches (4") of granular material upon which the pipe is to be laid, unless indicated otherwise on the Plans. Construct pipe bedding as indicated on the Plans.

At pipe subgrade, if foundation soil in trench is soft, wet, spongy, and unstable or does not afford solid foundation for pipe, the Contractor shall excavate as directed by the Owner's Representative and provide stable base by excavating any unsuitable material 18" minimum below the subgrade base or as the Owner's Representative determines is necessary for placement of pipe bedding. A filter fabric shall be placed in the trench bottom and along the trench sidewalls in the pipe zone to the top of the pipe zone material. A crushed rock material shall be placed at the bottom of the trench and sidewalls of the pipe to a point 1 foot above the pipe. The crushed rock material shall be hand tamped in 16-inch lifts along the sidewalls. The crushed rock shall be compacted with a plate compactor in minimum 6 inch lifts beneath the pipe and over the top of the pipe.

Where rock is encountered in the trench, the Contractor shall excavate to a minimum 18 inch depth below subgrade or as the Owner's Representative determines is necessary, and shall construct a base by placing crushed rock bedding upon which a subgrade can be prepared.

Before any pipe is lowered in place, the trench bottom shall be prepared so that each pipe shall be supported for the full length of the barrel with full bearing on the bottom segment of the pipe equal to a minimum of one-half (1/2) of the pipe OD, and a width equal to the trench width. All adjustments in line and grade shall be made by scraping away or filling and tamping in under the barrel of the pipe. Wedging or blocking is not permitted.

The pipe bedding shall be compacted to a minimum of 90 or 95 percent relative compaction as hereinafter specified or as required by the Plans.

3.04 BACKFILLING PIPE TRENCHES

- A. Backfilling Pipe Zone: Backfill material for the pipe zone shall consist of imported granular material or two sack cement/sand slurry as required by the Plans. Place material in the trench simultaneously on each side of the pipe for the full width of the trench and the depth of the pipe zone in layers 6 inches in depth. Each layer shall be thoroughly compacted by tamping. In all cases, backfilling of the pipe zone must be accomplished by hand. Particular attention shall be given to underside of the pipe and fittings to provide a firm support along the full length of the pipe. The pipe zone shall be considered to extend 12 inches above the top of the pipe unless otherwise illustrated on the Plans, and shall be compacted in the trench to a relative compaction of not less than 90 or 95 percent of maximum density per ASTM D 1557 as illustrated on the Plans. Care shall be taken not to damage pipe and fittings or special coatings on the pipe and fittings.
1. Use of material other than those specified shall be reviewed by the Owner's Representative prior to use. The Contractor shall bear all cost of removal of rejected material, it's hauling to an authorized disposal site, and cost of providing required material to complete the bedding and backfilling.
- B. Backfilling Pipe Trench: After the pipe has been laid in the trench and has been inspected and approved, and backfilling in the pipe zone is complete and compacted, the remainder of the trench may be backfilled. The backfill material shall be granular sand or Class 2 Base as specified in Paragraph 2.01 and illustrated on the Plans. Care shall be taken to ensure that no voids remain under, around or near the pipe.
1. The Contractor shall incur the expense to remove and dispose of the excess trench excavation material displaced by the trench import material and include the costs in the bid.
- C. Compaction: The maximum dry density and optimum moisture content of each soil type used in the controlled compacted fill shall be determined by ASTM D 1557-91. Field density tests shall be determined in accordance with ASTM D 1556-82, ASTM D 2937-83 and ASTM D 2922-81.
- D. Placement and Compaction of Trench Backfill: The placement and compaction of all trench backfill shall be as follows:

1. Mechanically Compacted Backfill: With approval of the Owner's Representative, backfill shall be mechanically compacted by means of tamping rollers, sheepfoot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers to 90 or 95 percent relative compaction as illustrated by the Plans. Impact-type pavement breakers (stompers or hydro-hammers) shall not be permitted over any pipe. Permission to use specific compaction equipment shall not be construed as guaranteeing or implying that the use of such equipment will not result in damage to adjacent ground, existing improvements or improvements installed under the Contract. The Contractor shall make his own determination in this regard. Backfill shall be placed in horizontal layers not exceeding eight inches (8"). Each layer shall be evenly spread, the moisture content brought to near optimum condition and then tamped or rolled until the specific relative compaction has been attained. Additional backfill lifts shall not be placed until previous lifts have been satisfactorily compacted and tested and approved by the Owner's Representative.

3.05 CENTRAL PIPELINE INSTALLATION REQUIREMENTS

- A. Depth of Pipe: Unless otherwise illustrated on the Plans, all pipelines shall have coverage of at least 36 inches between the top of the pipe and the finished surface. All gravity line invert elevations and locations illustrated on the Plans are intended to be exact and any change in alignment and grade shall be reviewed in accordance with the Contract Documents to the satisfaction of the geotechnical testing representative and the Owner's Representative. All force and gravity mains shall have 1-foot vertical clearance between themselves and all other utilities. At all water main, sewer and stormwater crossings, both gravity and force mains shall have 20 linear feet of concrete encasement centered at the crossing as required by the State of California Department of Health.
- B. Changes in Line and Grade: In the event obstructions not shown on the Plans, are encountered during the progress of the Work, which will require alterations to the Plans, the Owner's Representative shall issue the necessary revisions to the Plans and order the necessary deviation from the line or grade. The Contractor shall not make any deviation from the specified line and grade without prior review and approval by the Owner's Representative. Should any deviations in line and grade be permitted by the Owner's Representative in order to reduce the

amount of rock excavation or for other similar convenience to the Contractor, any additional costs for thrust blocks, valves, air and vacuum valve assemblies, blow-off assemblies, extra pipe footage, concrete, sewer structures, or other additional costs shall be borne by the Contractor.

1. Contractor shall include in his Bid provisions to cover any deviation from the invert grade shown on the Plans to facilitate the extra depth required to avoid possible conflicts between existing gravity pipelines and other utilities with new water, stormwater or sewer forcemains.

C. Pipe Installation:

All pipe and fittings, and accessories furnished by the Contractor shall be new material free from rust or corrosion. All piping and fittings shall be cleaned on the inside when installed and the Contractor shall take all necessary precautions to insure that the lines are kept free of any foreign matter and dirt until the work is completed. All pipes shall be carefully placed and supported at the proper lines and grades as shown on the Plans. Piping runs shown on the Plans shall be followed as closely as possible, except for minor adjustments as approved by the Owner's Representative to avoid other piping or structural features. Bedding material shall first be placed so that the pipe is supported for the full length of the barrel with full bearing on the bottom segment of the pipe. Hunching of the pipe shall not be allowed. Pipe will be carefully inspected in the field before and after laying. If any cause for rejection is discovered in a pipe after it has been laid, it shall be subject to rejection by the Owner's Representative. Any corrective work shall be approved by the Owner's Representative. Pipe shall be laid true to line and grade with uniform bearing under the full length of the barrel of the pipe. Suitable excavation shall be made to receive the bell or collar which shall not bear upon the subgrade or bedding. Any pipe which is not in true alignment or shows any undue settlement after laying shall be taken up and relaid at the Contractor's expense. Pipe shall be laid upgrade with the socket ends of the pipe upgrade unless otherwise authorized by the Owner's Representative. Pipe sections shall be laid and joined in such a manner that the offset of the inside of the pipe at any joint will be held to a minimum at the invert. The maximum horizontal offset at the invert of the pipe shall be 1% of the inside diameter of the pipe or 0.02 feet, whichever is smaller. The vertical grade shall be ± 0.02 feet of the design invert. In joining socket pipe, the spigot

of each pipe shall be so seated in the socket of the adjacent pipe as to give a uniform annular space all around the pipe in the socket.

The following pipe installation items shall be required:

1. No pipe shall be laid which is damaged, cracked, checked or spalled or has any other defect deemed by the Owner's Representative to make it unacceptable, and all such sections shall be permanently removed from the Work.
2. At all times when the Work of installing pipe is not in progress, all openings into the ends of the pipelines shall be kept tightly closed with suitable plywood or sheet metal bulkheads to prevent the entrance of animals and foreign materials and to prevent water from entering the pipe.
3. Keep the pipe trench free from water at all times and take all necessary precautions to prevent the pipe from floating due to water entering the trench from any sources. Any damage is the Contractor's full responsibility. Restore and replace the pipe to its specified conditions and grade if it is displaced due to floating.
4. All pipelines adjoining concrete structures (including manholes) shall have a flexible joint, such as sleeve transition couplings, within 36 inches from the face of such concrete structures. Flexible joints shall be installed on all pipe 4" and larger whether or not a flexible joint is illustrated on the Plans. Where the flexible joint is illustrated on the Plans, install the joint at the location indicated.

3.06 COMPACTION OF PIPE BEDDING AND BACKFILL

Unless specified in the Plans or Earthwork Specification (Section 02200), the following compaction test for piping shall be required.

- A. One (1) compaction test for the granular sand fill pipe bedding along each 100 lineal foot of water, sewer or stormwater pipe placed for each 1 foot lift of material installed.
- B. One (1) compaction test shall be obtained for each 1 foot lift of Class 2 Base material along each 100 foot section of water, sewer or stormwater pipeline installed.

- C. One (1) compaction test shall be required for each 1 foot of vertical sand fill material placed along each 100 feet of water, sewer or stormwater pipeline installed.
- D. One (1) compaction test shall be obtained for each 1 foot lift of native material along each 100 foot section of water, sewer or stormwater pipeline installed.

3.07 CLEAN-UP

Immediately upon completion of Work for this Section, all rubbish and debris shall be removed from the Site. All pipe trench areas shall be finish graded with a "blade" or "motor patrol". All construction equipment and implements of service shall be removed and the entire area involved shall be left in a neat, clean and acceptable condition.

END OF SECTION 02221

SECTION 02630 - DUCTILE IRON PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish and install all ductile iron pipe, fittings, transitions, connections and appurtenant work, complete and in accordance with the requirements of the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02200 - Earthwork
- B. Section 02221 - Trenching, Backfilling and Compacting
- C. Section 02650 – Pipe Fittings
- D. Section 02666 – Pressure Pipeline Water Testing
- E. Section 02670 – Disinfection of Potable Water Pipelines
- F. Section 09800 – Protective Coatings

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards:

ANSI/AWWA C 104/A 21.4	Cement-mortar lining for Ductile Iron and Gray Iron Pipe and Fittings for Water.
ANSI/AWWA C 105/A 21.5	Polyethylene Encasement for Gray and Ductile Cast Iron Piping for Water and Other Liquids.
ANSI/AWWA C 110/A 21.10	Fittings, 3-inch through 48-inch for Water and Other Liquids, Gray Iron and Ductile Iron.
ANSI/AWWA C 111/A 21.11	Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings
ANSI/AWWA C 115/A 21.15	Flanged Ductile Iron and Gray Iron Pipe with Threaded Flanges.

ANSI/AWWA C 150/A 21.50	Thickness Design of Ductile Iron Pipe.
ANSI/AWWA C 151/A 21.51	Ductile Iron Pipe, Centrifugally Cast, in Metal Molds or Sand-Lined Molds for Water and Other Liquids.
ANSI/AWWA C 209	Cold Applied Coatings for the Exterior of Special Sections, Connections and Fittings for Steel Water Pipelines.
ANSI/AWWA C 214	Tape Coating Systems for the Exterior of Steel Water Pipelines.
ANSI/AWWA C 600	Water Mains and Appurtenances, Installation of Ductile Iron.
ANSI/ASTM D 1248	Polyethylene Lining Material for Ductile Iron Pipe and Fittings.
ASTM C 150	Specification for Portland Cement.
ASTM A 746	Installation of Ductile Iron Pipe for Gravity Sewers.

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section of the Specifications and as specified in the referenced standards. Certification shall include physical and chemical properties of pipe materials and hydrostatic test reports.
- B. All expenses incurred in sampling and testing for certifications shall be borne by the Contractor.

1.05 QUALITY ASSURANCE

- A. Ductile iron pipe shall be manufactured with the material, have the dimensions, be within the tolerances and meet the testing requirements set forth in ASTM A 746 and ANSI A 21.51. Ductile

iron pipe shall be manufactured in nominal 18 foot or 20 foot laying lengths and shall have the lining called for in the Contract Documents.

- B. All pipe shall be subject to inspection at the place of manufacture in accordance with the provisions of the referenced standards, as supplemented by the requirements herein.
- C. In addition to those tests specifically required, the Owner's Representative may request additional samples of any material including lining and coating samples for testing by the Owner. The additional samples shall be furnished at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Mortar lined and polyethylene encased ductile iron pipe shall conform to ANSI/AWWA C 151, C 104, C 105, C 214 and D 1248, subject to the following supplemental requirements. The pipe shall be of the diameter and class shown, shall be furnished complete with rubber gaskets as indicated in the Contract Documents and all specials and fittings shall be provided as required under the Contract Documents. Any ductile iron pipes used as air lines and connected after the blowers shall have EPDM gaskets.
- B. The pipe shall be handled by use of wide slings, padded cradles or other devices acceptable to the Owner's Representative, designed and constructed to prevent damage to the pipe lining and/or coating. The use of chains, hooks or other equipment which might injure the pipe lining and coating will not be permitted. Stockpiled pipe shall be safely and properly supported to prevent accidental rolling. The Contractor shall be fully liable for the cost of replacement or repair of pipe which is damaged.
- C. Maximum pipe laying lengths shall be 20 foot with shorter lengths provided as required by the Design.
- D. The pipe shall have a smooth dense interior surface and shall be free from fractures, defects and roughness.

2.02 MATERIALS

- A. Ductile iron pipe materials shall conform to the requirements of ANSI/AWWA C 151/A 21.51.
- B. Fittings for ductile iron pipe shall conform to the requirements of ANSI/AWWA C 110/A 21.10 for diameters 3 inch through 48 inch. Ductile iron fittings larger than 48 inch shall conform to the above-referenced standard with the necessary modifications for the larger size.
- C. Cement for mortar lining shall conform to the requirements of ANSI/AWWA C 104/A 21.4; provided, that cement for mortar lining shall be Type V. A fly ash or pozzolan shall not be used as a cement replacement.
- D. Material for the polyethylene encasement shall conform to the requirements of ANSI/AWWA C 105/A 21.5.
- E. All elastomer gaskets used for ductile iron pipe shall be of neoprene material.
- F. All buried bolts and nuts used in the assembly of ductile iron pipe and fittings shall be 316 stainless steel bolts.

2.03 DESIGN OF PIPE

- A. Ductile iron pipe shall be designed in accordance with the requirements of ANSI/AWWA C 150/A 21.50, as applicable and as modified in this Section. The pipe furnished shall be cement-mortar lined. Buried ductile iron pipe shall be polyethylene encased.
- B. The pipe shall be designed, manufactured, tested, inspected and marked according to applicable requirements previously stated and except as hereinafter modified, shall conform to ANSI/AWWA C 151.
- C. The pipe and fittings shall be of the diameter shown and shall be of pressure Class 350 for pipe sizes twelve inches and below and pressure Class 250 for pipe fourteen inches to twenty inches and pressure Class 200 for twenty-four inch pipe and pressure Class 150 for thirty inch and above, except that where mechanical couplings are used and the pipe is grooved, the ductile iron pipe shall be of special thickness Class 53.
- D. Ductile iron pipe and fittings shall be furnished with mechanical joints, push-on joints, flanged joints and restrained joints as required.

1. Mechanical and push-on joints shall conform to ANSI/AWWA C 111/A 21.11.
 2. Flanged joints shall conform to ANSI/AWWA C 115/A 21.15.
 3. Restrained joints shall be “Lok-Ring” Restrained Joint by American Ductile Iron Pipe, “TR FLEX” Restrained Joint by U.S. Pipe, “Mechanical/Lock Joint” by Pacific States Cast Iron Pipe Company, or equal.
- E. For bell-and-spigot ends with rubber gaskets, the clearance between the bells and spigots shall be such that when combined with the gasket groove configuration and the gasket itself will provide watertight joints under all operating conditions when properly installed. The Contractor shall require the pipe manufacturer to submit details complete with significant dimensions and tolerances and also to submit performance data indicating that the proposed joint has performed satisfactorily under similar conditions. In the absence of a history of field performance, the results of a test program shall be submitted.

2.04 CEMENT-MORTAR LINING

- A. Except as otherwise provided herein, interior surfaces of ductile iron pipe, fittings and specials to be furnished with cement-mortar lining shall be cleaned and lined in the shop with cement-mortar lining applied centrifugally in conformity with ANSI/AWWA C 104. If lining is damaged or found faulty at delivery site, the damaged or unsatisfactory portions shall be replaced with lining conforming to these Specifications.
- B. The minimum lining thickness shall be as follows:

Nominal Pipe Diameter (inches)	Minimum Lining Thickness (inches)
3-12	1/8
14-24	3/16
30-54	1/4

- C. For all pipe and fittings with plant-applied cement-mortar linings, the Contractor shall provide a polyethylene or other suitable bulkhead on the ends of the pipe and on all special openings. All bulkheads shall be substantial enough to remain intact during shipping and storage until the pipe is installed.

2.06 EXTERIOR COATING OF PIPE

- A. The exterior surfaces of ductile iron pipe which will be exposed to the atmosphere inside structures or above ground shall be thoroughly cleaned and then given a shop coat of rust-inhibitive primer conforming to the requirements of Division 9. This exposed piping shall not be coated with the bituminous coating by the manufacturer prior to delivery.
- B. Buried ductile iron pipe shall be polyethylene encased in accordance with the requirements of ANSI/AWWA C 105/A 21.5.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPE

- A. All pipe, fittings, etc. shall be carefully handled and protected against damage, impact shocks and free fall. All pipe handling equipment shall be acceptable to the Owner's Representative. Pipe shall not be placed directly on rough ground, but shall be supported in a manner which will protect the pipe against damage whenever stored at the trench site in accordance with Paragraph 2.01, herein. All pipe damaged prior to Substantial Completion shall be repaired or replaced by the Contractor.
- B. The Contractor shall inspect each pipe and fitting prior to installation to ensure that there are no damaged portions of the pipe. No pipe shall be installed where the lining or coating exhibit defects that may be harmful as determined by the Owner's Representative. Such damaged lining or coating shall be repaired, or a new undamaged pipe shall be furnished and installed.
- C. The pipe shall be installed in accordance with ANSI/AWWA C 600. Before placement of the pipe in the trench, each pipe or fitting shall be thoroughly cleaned of any foreign substance which may have collected thereon and shall be kept clean at all times thereafter. For this purpose, the openings of all pipes and fittings in the trench shall be closed during any interruption to the Work. As pipe laying progresses, the Contractor shall keep the pipe interior free of all debris. The Contractor shall completely clean the interior of the pipe of all sand, dirt, rocks and any other debris following completion of pipe laying prior to testing and disinfecting the completed pipeline.

- D. Pipe shall be laid directly on the imported bedding material. No blocking will be permitted and the bedding shall be such that it forms a continuous, solid bearing for the full length of the pipe. Excavations shall be made as needed to facilitate removal of handling devices after the pipe is laid. Bell holes shall be formed at the ends of the pipe to prevent joint loading at the bells or couplings. Excavation shall be made as needed outside the normal trench section at field joints to permit adequate access to the joints for field connection operations and for application of coating on field joints.
- E. Where necessary to raise or lower the pipe due to unforeseen obstructions or other cause, the Owner's Representative may change the alignment and/or the grades. Such change shall be made by the deflection of joints, by the use of bevel adapters or by the use of additional fittings. However, in no case shall the deflection in the joint exceed the maximum deflection recommended by the pipe manufacturer.
- F. No pipe shall be installed upon a foundation into which frost has penetrated or at any time that there is a danger of the formation of ice or penetration of frost at the bottom of the excavation. No pipe shall be laid unless it can be established that the trench will be backfilled before the formation of ice and frost occurs.
- G. The openings of all pipe and specials where the pipe and specials have been cement-mortar lined in the shop shall be protected with suitable bulkheads to prevent unauthorized access by persons, animals, water or any undesirable substance. At all times, means shall be provided to prevent the pipe from floating.
- H. Immediately before jointing pipe, the bell end of the pipe shall be thoroughly cleaned and a clean rubber gasket lubricated with an approved vegetable-based lubricant shall be placed in the bell groove. The spigot end of the pipe shall be carefully cleaned and lubricated with a vegetable-based lubricant. The spigot end of the pipe section shall then be inserted into the bell of previously laid joint and telescoped into its proper position. Tilting of the pipe to insert the spigot into the bell will not be permitted.

END OF SECTION 02630

SECTION 02640 - PVC PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish and install all Polyvinyl Chloride (PVC) plastic pipe, fittings, transitions, connections and appurtenant work, complete and in accordance with the requirements of the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02200 - Earthwork
- B. Section 02221 - Trenching, Backfilling and Compacting
- C. Section 02666 – Pressure Pipeline Water Testing
- D. Section 02670 – Disinfect Potable Water Pipelines

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards:

ASTM D 1784 and ASTM D 1785	Specifications for Polyvinyl Chloride (PVC) Plastic Pressure Pipe
ASTM D 3034	Specifications for Polyvinyl Chloride (PVC) Plastic Gravity Sewer Pipe
AWWA C 900	Specifications for Polyvinyl Chloride (PVC) Plastic Water Pressure Pipe
ASTM D 2321	Standard Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe

1.04 CONTRACTOR SUBMITTALS

- A. Contractor shall submit copies of the manufacturer's product specifications according to the requirements of Section 01330 - Contractor Submittals.

PART 2 - PRODUCTS

2.01 PVC (POLYVINYL CHLORIDE) PRESSURE PIPE, 4 INCHES AND SMALLER SOLVENT-WELDED

A. All PVC pressure pipe 4 inches and smaller shall be made from all new rigid unplasticized polyvinyl chloride and shall be Normal Impact Class 12454-B, Schedule 80, to conform to ASTM D 1785, unless otherwise shown. Elbows and tees shall be of the same material and schedule as the pipe. Unless otherwise shown, joint design shall be for solvent-welded construction.

2.02 AWWA C 900 AND AWWA C 905 WATER PIPELINE WITH BELL AND SPIGOT JOINTS

This Specification designates general requirements for unplasticized polyvinyl chloride (PVC) plastic class water pipe with integral bell and spigot joints for the conveyance of water. Pipe shall meet the requirements of AWWA C 900 or AWWA C 905 "Polyvinyl Chloride (PVC) Water Distribution".

All pipe shall be suitable for use as pressure conduit, provisions must be made for expansion and contraction at each joint with an elastomeric ring. The bell shall consist of an integral wall section with a factory installed, solid cross-section elastomeric ring which meets the requirements of ASTM F 477. The bell section shall be designed to be at least as hydrostatically strong as the pipe wall and meet the requirements of AWWA C 900. Sizes and dimensions shall be as shown in this Specification. Joint design shall meet qualification requirements of ASTM F 3139. Each pipe shall be tested to four times the pressure class of the pipe for a maximum of 5 seconds. The integral bell shall be tested with the pipe. Standard laying lengths shall be 20 feet (± 1 ") for all sizes.

The pipe stiffness using $F/\Delta Y$ for PVC class water pipe is contained in the table below:

<u>CLASS</u>	<u>DR</u>	<u>FΔy (PSI)</u>
100	25	129
150	18	364
200	14	815

Pipe shall withstand, without failure at 73°F, an impact of a falling missile, TUP C, at the following levels (per ASTM D 2444):

<u>Pipe Size (IN.)</u>	<u>Impact (FT./LBS.)</u>
4	100
6	100
8	100
10	120
12	120

There shall be no visible evidence of shattering or splitting when the energy is imposed.

Randomly selected samples tested in accordance with ASTM D 1599 shall withstand, without failure, pressures listed below when applied in 60-70 seconds.

<u>Class</u>	<u>Minimum Burst Pressure At 73°F (PSI)</u>
100	535
150	755
200	985

Pipe for this Project shall conform with the specifications for AWWA C 900, DR 18 PVC pipe material for diameter sizes 4-inches through 12 inches and AWWA C 905, DR 25 PVC pipe material for diameter sizes 14 inches through 36-inches unless otherwise indicated on the Plans.

2.03 PVC (POLYVINYL CHLORIDE) GRAVITY PIPE

- A. Pipe shall conform to the requirements of ASTM D 3034 for SDR 35 gravity pipe, unless otherwise indicated on the Plans.
- B. All pipe joints shall be of the bell and spigot type with electrometric seals and conform to the requirements of ASTM D 3212. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Gasket material shall conform to the requirements of ASTM F 477.
- C. All fittings shall be fabricated from pipe meeting the requirements of these standards. Fabricated miter joints shall be reinforced by fusion heat welding. All fittings shall be approved for use by the pipe manufacturer and shall be capable of accepting bell and spigot connections.

1. There shall be no sign of flaking or disintegration when immersed in anhydrous acetone for 20 minutes as described in ASTM D 2152.
- D. All pipe shall be from quality PVC resin, compounded to provide physical and mechanical properties that equal or exceed cell class 12454 as defined in ASTM 1784.
- E. Minimum pipe stiffness at 5 percent deflection shall be 46 PSI for all sizes when tested in accordance with ASTM D 2412, External Loading Properties of Plastic Pipe by Parallel-Plate Loading”.
- F. Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation F 1803, the pipe stiffness designation “PS-46” and manufacturer’s date code.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPE

- A. All pipe, fittings, etc., shall be carefully handling and protected against damage, impact shocks and free fall. All pipe handling equipment shall be acceptable to the Owner’s Representative. Pipe shall not be placed directly on rough ground, but shall be supported in a manner which will protect the pipe against injury whenever stored at the Site. All pipe damaged prior to Substantial Completion shall be repaired or replaced by the Contractor.
- B. The Contractor shall inspect each pipe and fitting prior to installation to ensure that there are no damaged portions of the pipe. Damaged pipe shall be replaced with new undamaged sections of pipe.
- C. Before placement of the pipe in the trench, each pipe or fitting shall be thoroughly cleaned of any foreign substance which may have collected thereon and shall be kept clean at all times thereafter. For this purpose, the openings of all pipes and fittings in the trench shall be closed during any interruption to the Work. As pipe laying progresses, the Contractor shall keep the pipe interior free of all debris. The Contractor shall completely clean the interior of the pipe of all sand, dirt, rocks and any other debris following completion of pipe laying prior to testing, disinfecting and placing the completed pipeline in service.

- D. Pipe shall be laid directly on the imported bedding material. No blocking will be permitted and the bedding shall be such that it forms a continuous, solid bearing for the full length of the pipe. Bell holes shall be formed at the ends of the pipe to prevent joint loading at the bells or couplings.
- E. Where necessary to raise or lower the pipe grade due to unforeseen obstructions or other causes, the Owner's Representative may change the alignment and/or the grades. Such change shall be made by the deflection of joints or by the use of additional fittings. However, in no case shall the deflection in the joint exceed the maximum deflection recommended by the pipe manufacturer.
- F. No pipe shall be installed upon a foundation into which frost has penetrated or any time that there is a danger of the formation of ice or penetration of frost at the bottom of the excavation. No pipe shall be laid unless it can be established that the trench will be backfilled before the formation of ice and frost occurs.
- G. Immediately before jointing bell and spigot pipe, both the bell and spigot end of the pipe shall be thoroughly cleaned and lubricated with an approved vegetable-based lubricant. The spigot end of the pipe section shall then be inserted into the bell of the previously laid joint and telescoped into its proper alignment. Tilting of the pipe to insert the spigot into the bell will not be permitted.
- H. Solvent-welded and heat-fused joints shall be carefully and thoroughly cleaned immediately before jointing the pipe. Particular care shall be taken in making solvent-welded joints to ensure a uniform, homogeneous and complete bond.
- I. Pipe installation shall conform with Technical Specification Section 02221 - Trenching, Backfilling and Compacting. If this installation of pipe section and Section 02221 conflict, the most stringent specification shall apply.

END OF SECTION 02640

**SECTION 02650 –
PIPE FITTINGS, TRANSITION COUPLINGS, AND HARDWARE**

PART 1 - GENERAL

1.01 DESCRIPTION

The Contractor shall provide and install pipe fittings, transition couplings, and hardware for the connection of PVC, ductile iron and other pipeline material. Other connecting items may also be required. This section includes the specifications and requirements for the prior listed pipe connection items. The hardware for this specification section shall include the hardware for pipe or any other fittings or items located along a pipeline. Material shall be new and free from defects.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02630 - Ductile Iron Pipe
- B. Section 02640 - PVC Pipe

1.03 REFERENCE DOCUMENTS

Unless otherwise indicated, the current editions of the following reference standards and specifications apply to the Work described herein, and are considered part of this Specification.

- | | |
|------------------|--|
| C 104/A 21.4-03 | American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water |
| C 105/A 21.5-99 | American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems |
| C 110/A 21.10-03 | American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-In. through 48-In. (76 mm through 1,219 mm), for Water |
| C 111/A 21.11-00 | American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings |
| C 115/A 21.15-99 | American National Standard for Flanged Ductile Iron Pipe with Ductile-Iron or Gray- |

Iron Threaded Flanges

C 116/A 21.16-03	American National Standard for Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service
C 153/A 21.53-00	American National Standard for Ductile-Iron Compact Fittings, 3-In. (76 mm) through 64-In. (1,600 mm), for Water Service
ASTM A 536	American Standards for Testing and Materials - High Strength Ductile Iron for Sleeve and Flanges of Transition Coupling and Flanged Coupling Adapter
ASTM A 536-80, Grade 65-45-12	American Standard Testing and Material - Ductile Iron Mechanical Joint Restraint Fitting
UNI-B-13-92	As listed Underwriters Laboratories - Restraining Glands for Mechanical Restrained Joint Fittings
ASTM B 117	American Standard Testing Materials - Salt Spray Testing for Bolts

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section of the Specifications and as specified in the referenced standards. Certification shall include physical and chemical properties of pipe materials and hydrostatic test reports.
- B. All expenses incurred in sampling and testing for certifications shall be borne by the Contractor.

1.05 QUALITY ASSURANCE

- A. Ductile iron fittings shall be manufactured with the material, have the dimensions, be within the tolerances and meet the testing requirements set forth in ANSI A 21.53-00 and ANSI A 21.10-03.

- B. All fittings shall be subject to inspection at the place of manufacture in accordance with the provisions of the referenced standards, as supplemented by the requirements herein.
- C. In addition to those tests specifically required, the Owner's Representative may request additional samples of any material including lining and coating samples for testing by the Owner. The additional samples shall be furnished at no additional cost to the Owner.

PART 2 - PRODUCTS

The Technical Requirements for Ductile Iron Fittings, Transition Couplings, and Hardware follow:

2.01 DUCTILE IRON FITTINGS

Fittings and reducers for the water mains shall be composed of ductile iron. The ductile iron fittings shall conform to ASTM A 536. Mechanical joint fittings shall conform with AWWA C 153 C 350 PSI. Flanged fittings shall conform with AWWA C 110 C 250 PSI. Flange fittings shall have standard wall thickness not compact thickness. The fittings shall be cement-mortar lined in accordance with ANSI/AWWA C 104/A 21.4, Standard for Cement-Mortar Lining for Ductile Iron and Gray Iron Pipe Fittings for Water, latest revision. Asphaltic seal coating shall be applied to the interior and exterior of the below-grade fittings in accordance with ANSI/AWWA C 104/A 21.4, asphaltic seal coating shall be applied to the interior of the above-grade fittings. The exterior surfaces of above-grade ductile iron fittings shall be thoroughly cleaned and then given a shop coat of rust inhibitive primer conforming to the requirements of Division 9. This exposed piping shall not be coated with the bituminous coating by the manufacturer prior to delivery.

2.02 TRANSITION COUPLING

The transition couplings shall be installed as required. The center rings shall be constructed of ductile iron conforming to ASTM A 536-80, Grade 65-45-12. the end rings shall be constructed of ductile iron conforming to ASTM A 536, Grade 65-45-12. Gaskets shall be composed of virgin styrene butadiene rubber (SBR) compounded for water and sewer service in accordance with ASTM D 2000 MBA 810. The coating for the ductile iron transition coupling shall be fusion bonded epoxy. The transition coupling shall be capable of sustaining a working pressure of 250 PSI.

2.03 RESTRAINED JOINT FITTINGS

Mechanical joint restraint shall be incorporated into the design for the follower gland. The gripping or restraining mechanism shall transmit uniform restraining pressure around the circumference of the pipe, thus avoiding point loading or pipe distortion. This restraining process shall be kept separate from the mechanical joint sealing process and **not** a part of the sealing function. All components shall be manufactured of ductile iron conforming to ASTM A 536-80, Grade 65-45-12.

The restrained twist-off nut bolt system shall have a torque limiting feature designed to break off at 75 to 90 FT-LBS of torque to insure proper actuating of restraining devices. Both the twist-off nut and the removal nut shall be the same size as tee-bolt nut. Hardware shall be composed of 316 stainless steel.

The gland shall be such that it can replace the standardized mechanical joint gland and can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C 111/A 21.11, C 110/A 21.10 and C 153/A 21.53 of the latest revision.

The device shall restrain all classes of ductile iron, C 900 PVC, C 905 PVC and high-density polyethylene (HDPE) with the use of a standard mechanical joint gasket. The same device without any field modification shall additionally restrain IPS PVC, IPS steel and IPS HDPE with the use of a transition gasket.

The restraining glands shall have a pressure rating equal to twice (2:1) that of the pipe on which it is used. The restraining glands shall have been tested to UNI-B-13-92, be listed by Underwriters Laboratories and be approved by factory mutual. The mechanical joint restraint device shall be UNI-Bell, EBBA Series 2000, Sigma One-Lock or equal.

Restrained joint fittings shall be placed at all termination points, tees, bends, and angle points. Restrained joint fittings shall be placed for connection points of existing to new pipelines, unless noted in the plans. New pipeline-to-pipeline connections shall not be required to have restrained harness assemblies unless noted in the Plans.

2.04 HARDWARE

Hardware for ductile iron fittings shall conform with ANSI/AWWA C 111/A 21.11-07, Appendix "C", Section C.1 entitled "Bolts and Nuts". The size, length and number of bolts are illustrated in Tables 2 and 3 of ANSI/AWWA C 115/A 21.15.

Hardware for transition couplings and mechanical restrained joint fittings shall comply with the manufacturer's recommendation for steel or ductile iron bolts and nuts.

For above ground and underground, all steel or ductile iron nuts and bolts shall be coated with a fluoropolymer using Xylan/014 as a primary coating. The coating shall be electrostatically applied to the hardware after all surfaces are chemically cleaned, abrasive blasted and primed with a nickel phosphate primer. Multiple coats of the Xylan/014 shall be applied to the steel or ductile iron hardware and baked at 425°F for one (1) hour. Hardware protected with this coating system shall exhibit no signs of corrosion after salt spray testing up to 3,000 hours. The coating system shall be a Tripac 2000 Blue or an approved equal.

316 stainless steel hardware shall be used if specified for a given pipe, valve, fitting or other component on the Plans or within the contents of this document.

2.05 POLYETHYLENE ENCASEMENT

All ductile iron or gray iron fittings, transition couplings and coupling adapters shall be polyethylene encased at the time of installation. Polyethylene encasement and installation shall be in accordance with ANSI/AWWA C 105.

PART 3 - EXECUTION

3.01 INSTALLATION OF FITTINGS, TRANSITION COUPLINGS, AND HARDWARE

- A. All fittings, etc. shall be carefully handled and protected against damage, impact shocks and free fall. All fittings, etc. handling equipment shall be acceptable to the Owner's Representative. Fittings, etc. shall not be placed directly on rough ground, but shall be supported in a manner which will protect the fittings, etc. against damage whenever stored at the trench site. All fittings, etc. damaged prior to Substantial Completion shall be repaired or replaced by the Contractor.
- B. If during the course of fastening and securing the hardware (nuts and bolts) for the fittings, etc., the fluoropolymer coated is scratched, chipped or otherwise removed from the hardware surface, then a coating system supplied by the manufacturer shall be applied to the damaged hardware surface. The repair coating

system shall be applied prior to the backfilling or covering of the fittings, etc. hardware.

END OF SECTION 02650

SECTION 02666 – PRESSURE PIPELINE WATER TESTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall perform flushing and testing of all pipelines and appurtenant piping complete, including conveyance of test water from Engineer-designated source to point of use and disposal thereof after testing, in accordance with the requirements of the Contract Documents. The disposal method of the water shall be reviewed and approved by the Owner's Representative prior to the commencement of the test.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02221 - Trenching, Backfilling and Compaction
- B. Section 02630 - Ductile Iron Pipeline
- C. Section 02640 - PVC Pipe

PART 2 – PRODUCTS

2.01 MATERIAL REQUIREMENTS

- A. All test equipment, fuel, electrical connections, temporary valves, bulkheads, compressors, water pumps, water gauges and other water control equipment support systems and required materials for hydrostatic or pneumatic air testing shall be furnished by the Contractor subject to the Owner's Representative's review.

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall notify the Owner's Representative at least four (4) days in advance of any planned testing and shall review the testing procedures with the Owner's Representative. The source of testing water and disposal of the testing water shall be reviewed.
- B. Unless otherwise provided herein, water for testing pipelines shall be furnished by the Owner; however, the Contractor shall make all necessary provisions for conveying the water from the Owner-

designated source to the points of use. The Contractor shall provide inlet hoses, fittings, pressure gauges pumping equipment, meters, backflow preventers and other required items.

- C. The Contractor shall provide a double bronze service saddle, brass corporation stop, inlet pipeline and outlet pipeline at the beginning and end of the pipeline section to be tested to allow water to be directed into the pipeline and air to be purged from the pipeline while the pipeline is filling with water. The fittings and pipe shall be used during the chlorination and disinfection of the pipeline. After the hydrostatic pipe testing and disinfection of the pipeline are satisfactorily completed remove the corporation stop from the brass service saddle. Place a brass plug in the service saddle inlet.
- D. All pipelines shall be tested. All testing operations shall be performed in the presence of the Owner's Representative.
- E. The disposal or release of test water from pipelines, after testing, shall be acceptable to the Owner's Representative. The conveyance items to dispose of the testing water shall be provided by the Contractor.

3.02 HYDROSTATIC TESTING OF PIPELINES

- A. Prior to hydrostatic testing, all pipelines shall be thoroughly flushed of all sand, dirt and material to the satisfaction of the Owner's Representative. The Contractor shall test all pipelines either in sections or as a unit. The Contractor shall be responsible to ensure all test bulkheads are suitably restrained to resist the thrust of the test pressure without damage to, or movement of, adjacent pipe or structures. Care shall be exercised to ensure that all air vents are open during filling.
- B. The pipeline shall be filled at a rate which will not result in surges or exceed the rate at which the air can be released through the air valves at a reasonable velocity and all the air within the pipeline shall be properly purged. After the pipeline or section thereof has been filled it shall be allowed to stand under a slight pressure for at least 24 hours to allow the concrete or mortar lining, if applicable, to absorb water and allow the escape of air from the pipeline. During this period, bulkheads, valves and connections shall be examined for leaks. If leaks are found, corrective measures shall be initiated and completed to the satisfaction of the Owner's Representative.

- C. The hydrostatic test shall consist of holding the test pressure within the pipeline for a period of 4 hours. The test pressure for pipelines shall be 150 PSI or 1.5 times the rated pipe pressure class which ever is greater. All leaks shall be repaired. The hydrostatic pressure shall be relieved from the pipeline prior to initiating leak repair.
- D. Pipe leaks, as evidenced by water loss from the basin from which water is pumped into the pipeline, shall not be allowed after the test begins. Test pressures shall be held for at least two (2) hours after the test commences without additional pumping and observed for not less than four (4) hours. Approved gauges shall be provided by the Contractor. Gauge range shall not exceed 50 PSI above test pressure. In the event leaks occur after the hydrostatic test commences, the Contractor shall determine the cause of the leakage and take corrective measures necessary to repair the leaks. After the leaks are satisfactorily repaired the pipeline shall be re-tested.

3.03 AIR TESTING OF WATER PIPELINE

In lieu of hydrostatic testing of water pipeline sections within the water treatment plant area, air testing shall be allowed.

- A. The Contractor shall leak test 100% of the pipeline installed. The leak testing shall be accomplished after any required deflection testing of the pipeline is completed.
- B. Pipelines shall be subject to acceptance testing after backfilling has been completed but prior to the placement of the finish surface material (i.e. Class 2 Base, A.C. pavement and P.C.C. concrete).
- C. The cost of repairs or corrections necessary to conform to the testing requirements will be borne by the Contractor at no cost to the Owner.
- D. Air testing will be accomplished by the means of "Low Pressure Air Testing". Tests may be conducted by the Contractor or an independent testing firm. However, acceptance tests shall be made only in the presence of the Owner's Representative.
- E. Test Procedure:
 - 1. Before testing, the pipe shall be thoroughly cleaned.

2. The Contractor shall seal off the section of pipe to be tested at each pipe beginning and termination point. Test plugs must be securely braced at the beginning and termination points of the pipeline.
3. A minimum of two (2) connection hoses to link the air inlet test plug with an aboveground test-monitoring panel must be provided.
 - a) One (1) hose is to induce air through the test plug and into the test chamber.
 - b) The second hose is for the purpose of monitoring the test pressure from within the enclosed pipe.
4. Under no circumstances are workers to be allowed in the area of the braced pipeline beginning and termination points while pressure testing is being conducted.
5. Add air slowly into the test section. After an internal pressure of 4.0 PSI is obtained, allow internal air temperature to stabilize for a minimum of 2 minutes.
6. After the stabilization period, adjust the internal air pressure to 3.5 PSI, disconnect the air supply and begin timing the test.
7. Refer to the following pipeline air test table to determine the length of time (minutes) the pipeline section being tested must sustain air pressure while not losing in excess of 1 PSI as monitored by the test gauge. If the section of pipeline to be tested includes more than one pipe size, calculate the test time for each size and add the test times to arrive at the total test time for the section.
8. Sections so determined to have lost 1 PSI or less during the test period will have passed the leakage test. Those sections losing in excess of 1 PSI during the test period will have failed the leakage test.
9. Appropriate repairs must then be completed and the line re-tested for acceptance.

PIPELINE AIR TEST TABLE

Minimum Test Time for Various Pipe Sizes*

Nominal Pipe Size, In.	T (Time), Min/100 FT.	Nominal Pipe Size, In.	T (Time), Min/100 FT.
3	0.2	21	3.0
4	0.3	24	3.6
6	0.7	27	4.2
8	1.2	30	4.8
10	1.5	33	5.4
12	1.8	36	6.0
15	2.1	39	6.6
18	2.4	42	7.3

*The time has been established using the formulas contained in
ASTM C 828, Appendix.

END OF SECTION 02666

SECTION 02670 - DISINFECTION OF POTABLE WATER PIPELINES

PART 1 - GENERAL

1.01 DESCRIPTION

Potable pipelines within the water distribution system, Water Treatment Plant, and other areas are to be disinfected prior to being connected to other existing active pipelines and placed in service. The new pipelines are to be isolated from the existing active pipelines (usually by means of a closed valve) until the pipeline has been satisfactorily hydrostatically tested, leak tested (if required) and disinfected. The pipelines shall be hydrostatically and leak tested as a separate procedure from the pipeline disinfection.

1.02 PURPOSE

The purpose of this standard is to define the minimum requirements for the disinfection of water mains, including the preparation of water mains, application of chlorine, and sampling and testing for the presence of coliform bacteria.

1.03 REFERENCE SECTIONS

Reference sections pertaining to the disinfection testing are as follows:

Section 02630	Ductile Iron Pipe
Section 02640	PVC Pipe
Section 02666	Pressure Pipeline Water Testing
ANSI/AWWA C 651-05	American National Standards Institute/ American Water Works Association
ANSI/AWWA B 300	Hypochlorites
ANSI/AWWA B 301	Liquid Chlorine
AWWA Manual M 12	<i>Simplified Procedures for Water Examination,</i> AWWA: Denver, Colorado

SECTION 2 - PRODUCTS

2.01 GENERAL

A. Construction of Pipeline, Associated Fittings, Valves and Components:

The Contractor shall train pipe crews to be aware of the need to maintain clean pipes, fittings, etc and avoid contamination. While bacteriological testing is used to verify the absence of coliform organisms and is generally accepted as verification that disinfection of the pipeline has been accomplished, following sanitary practices for handling and installation of pipe, valves, fittings, and accessories, coupled with adequate flushing of the line before disinfection, is necessary to ensure that the disinfected pipeline will be ready for connection to the water system. Failure to pass the bacteriological test shall require that the flushing or disinfection process be repeated. The final water quality test is not the primary means for certifying the sanitary condition of a main. The sanitary handling of materials, the practices during construction, and the continual inspection of the work are the primary means for ensuring the sanitary condition of the water main.

B. Methods of Disinfecting Newly Constructed Water Pipelines and the Acceptable Method of Disinfecting Pipelines:

The three methods of disinfecting newly constructed water mains are the tablet method, the continuous-feed method and the slug method. Factors considered when selecting a method include the length and diameter of the main, type of joints present, availability of materials, equipment required for disinfection, training of the personnel who will perform the disinfection, and safety concerns. This Project shall allow chlorination of pipelines by the continuous feed method. The tablet method and slug method shall not be allowed.

The tablet method shall not be used unless the main can be kept clean and dry. It shall not be used in large-diameter mains if it is necessary for a worker to enter the main to grout joints or perform inspection, because the tablets may release toxic fumes after exposure to moist air. When using the tablet method, the chlorine concentration is not uniform throughout the main, because the hypochlorite solution is dense and tends to concentrate at the bottom of the pipe. The use of the tablet method precludes preliminary flushing. The tablet method is convenient to use in mains having diameters up to 24 inches, and it requires no special equipment.

The continuous-feed method is suitable for general application. Preliminary flushing removes light particulates from the main but not from the pipe-joint spaces. The chlorine concentration is uniform throughout the main.

The slug method is suitable for use in large-diameter mains where the volume of water makes the continuous-feed method impractical and difficult to achieve for short attachments. The slug method results in appreciable savings of chemicals used to disinfect long, large-diameter mains. Also, this method reduces the volume of heavily chlorinated water to be flushed to waste.

C. Forms of Chlorine for Disinfection:

The forms of chlorine that may be used in the disinfection operations are liquid chlorine, sodium hypochlorite solution, and calcium hypochlorite granules or tablets. For this Project, liquid chlorine shall be used unless otherwise approved by the Owner's Representative.

1. **LIQUID CHLORINE:** Liquid chlorine conforming to ANSI/AWWA B301 contains 100 percent available chlorine and is packaged in steel containers usually of 100-lb., 150-lb., or 1-ton net chlorine weight. Liquid chlorine shall be used only (1) in combination with appropriate gas-flow chlorinators and ejectors to provide a controlled high-concentration solution feed to the water to be chlorinated; (2) under the direct supervision of personnel familiar with the biological, chemical and physical properties of liquid chlorine and who are trained and equipped to handle any emergency that may arise; and (3) when appropriate safety practices are observed to protect working personnel and the public.
2. **SODIUM HYPOCHLORITE:** Sodium hypochlorite conforming to ANSI/AWWA B300 is available in liquid form in glass, rubber-lined, or plastic containers typically ranging in size from 1 quart to 5 gallons. Containers of 30 gallons or larger may be available in some areas. Sodium hypochlorite contains approximately 5 percent to 15 percent available chlorine, and the storage conditions and time must be controlled to minimize its deterioration. (Available chlorine is expressed as a percent of weight when the concentration is 5 percent or less, and usually as a percent of volume for higher concentrations. Percent x 10 = grams of available chlorine per liter of hypochlorite.)

3. **CALCIUM HYPOCHLORITE:** Calcium hypochlorite conforming to ANSI/AWWA B300 is available in granular form or in 5-g tablets, and must contain approximately 65 percent available chlorine by weight. The material should be stored in a cool, dry, and dark environment to minimize its deterioration.

CAUTION: Tablets dissolve in approximately 7 hours and must be given adequate contact time. Do not use calcium hypochlorite intended for swimming pool disinfection, as this material has been sequestered and is extremely difficult to eliminate from the pipe after the desired contact time has been achieved.

D. **Preventative and Corrective Measures to be Implemented during the Construction of Pipelines:**

Heavy particulates (dirt, soil, rocks, etc.) generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing organisms. Therefore, the procedures of this Section shall be stringently implemented by the Contractor and enforced by the Owner's Representative to ensure that water pipelines, fittings, etc., have been thoroughly cleaned before flushing the pipeline for the final disinfection by chlorination. Also, any connection of a new water main to the active distribution system prior to the receipt of satisfactory bacteriological samples constitute a cross-connection in violation of the California Health Department requirements. The new main shall be isolated until bacteriological tests described later in this Section are satisfactorily completed. The Contractor shall complete the following tasks or observe the following precautionary measures during the installation of the water pipeline:

1. The interiors of pipes, fittings and valves shall be protected from contamination by dirt, debris, rocks, concrete residue, water and similar items.
2. Openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods. Rodent-proof plugs may be used when watertight plugs are not practicable and when thorough cleaning will be performed by flushing or other means.
3. Delay in placement of delivered pipe invites contamination. Pipe delivered to the site shall be covered with tarps. The

tarps shall be placed over the pipes and end of the pipes to minimize the entrance of dirt, dust and construction debris.

4. Sealing Materials: No contaminated material or any material capable of supporting growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water and shall not contribute odors. It shall be delivered to the job in closed containers and shall be kept clean and applied with dedicated, clean applicator brushes.
5. If dirt or other contaminants enter a pipeline, fitting, transition coupling, valve or any other pipeline, it shall be swept from the interior of the pipeline, fitting, etc. The contaminated area shall be wiped clean with an ammonia solution disinfectant. After each pipe section is installed the end of the pipe shall be inspected for the entrance of dirt and other contaminants. If dirt or contaminants are identified the dirt and contaminants shall be removed prior to the installation of the next pipe length. Correspondingly, the pipe end to be “stabbed” into the previously installed pipe segment shall be checked for dirt contamination and cleaned and disinfected accordingly.
6. Flooding by Storm or Accident during Construction: If the pipeline is flooded during construction, it shall be cleared of the floodwater by draining and flushing with potable water until the main is clean. The section exposed to the floodwater shall then be filled with a chlorinated potable water that, at the end of a 24 hour holding period, shall have a free chlorine residual of not less than 25 mg/L. The chlorinated water shall then be drained or flushed from the main. After construction is completed, the main shall be disinfected for a second time using the continuous-feed method.

PART 3 - EXECUTION

3.01 GENERAL

The water pipeline shall be thoroughly flushed with potable water prior to the chlorination of the pipeline. Prior to the flushing of the water pipeline it may be necessary to construct temporary flushing and testing connections

at the upstream and downstream ends of the pipelines to be tested. If new pipelines are to be connected to existing in-service pipelines with new valves installed at the connection fittings between the new and existing pipelines which reliably isolate the new pipeline from the existing in-service pipeline, then blowoffs and properly positioned fire hydrants allow for the adequate flushing of the pipeline and allow for the dispersion of chlorine by the continuous-feed method. This method is particularly applicable to new commercial or residential developments which occur within an existing pipe distribution system.

If new pipelines are to be connected to existing in-service pipelines, concrete structures and reservoirs with no reliable valve at the connection point of the new pipeline to isolate the new pipeline from the existing in-service pipelines, concrete structures and reservoirs, then temporary caps or plugs (blind flanges), supply hoses, control valves, backflow devices, discharge/flushing lines and sampling faucets shall be constructed. This pipeline condition often occurs within water treatment plants. The pipelines within water treatment plants in the condition described within this paragraph shall be flushed, chlorinated and tested while physically separated from existing in-service pipelines, reservoirs and concrete structures. The physically separated pipeline section shall be hydrostatically tested prior to the flushing, chlorination and testing of the pipeline section. Potable water from an outside source shall be required to be conveyed to the new pipeline for flushing and disinfecting via a temporary connection supplied and installed by the Contractor. The temporary connection shall be disconnected (physically separated) from the new pipeline during the hydrostatic pressure test. The temporary connection shall include a reducer fitting from the fire hydrant, 4 inch control valve, 4 inch backflow preventer based upon a reduced pressure principal, 4 inch supply hose or pipeline, temporary testing block, blind flange with 4 inch threaded outlet, 4 inch discharge piping, 4 inch discharge control valve and smooth, unthreaded sampling faucet. It shall be necessary for the Contractor to provide all other necessary fittings, adapters, hardware and other components. The discharge pipeline shall extend to a discharge point acceptable to the Owner's Representative. If the discharge pipeline extends through on-site roadways or into the public right of way then the Contractor shall place the temporary discharge pipeline below grade. The Contractor shall perform all cutting, demolition and replacement of P.C.C. infrastructure as required by Division 1 of the Technical Specifications. The Contractor shall core the side of manholes, install the discharge pipeline to the interior wall face of the manhole and grout the annular space between the exterior circular core and the exterior of the pipeline for the full thickness of the manhole shaft with a non-shrink grout. At the conclusion of the pipeline disinfection all upstream and downstream pipelines, supply hoses, valves, check valves, fittings, blind flanges and components shall be removed from the Project Site. The

interior of any discharge pipeline extending into manholes shall be plugged for the full width of the manhole shaft wall width with a non-shrink grout.

A schematic of the temporary flushing/testing connection and schematic of the discharge blowoff/sampling tap pipeline follows. The schematic drawings are intended to illustrate the concept and major components required for the disinfection of the pipeline. The schematics do not illustrate each fitting, adapter and component required for the flushing/testing connection pipeline or the discharge blowoff/sampling tap pipeline nor do the schematics illustrate the lengths of pipelines required, number of fittings, number of valves, etc. The schematics do not illustrate where the source of water is to be obtained or the discharge point the blowoff pipeline is to extend to. It is the responsibility of the Contractor to determine the source of the potable water, length of the connection pipeline, exact number and type of fittings, valves and adapters, length of the blowoff pipeline, exact number and type of fittings, valves and adapters, paving and concrete demolition and replacement requirements and similar logistical placement, pipe mechanic and civil infrastructure issues. Following are the Temporary Flushing/Testing Connection Schematic and Blowoff Sampling Point Discharge Pipeline Schematic Drawings:

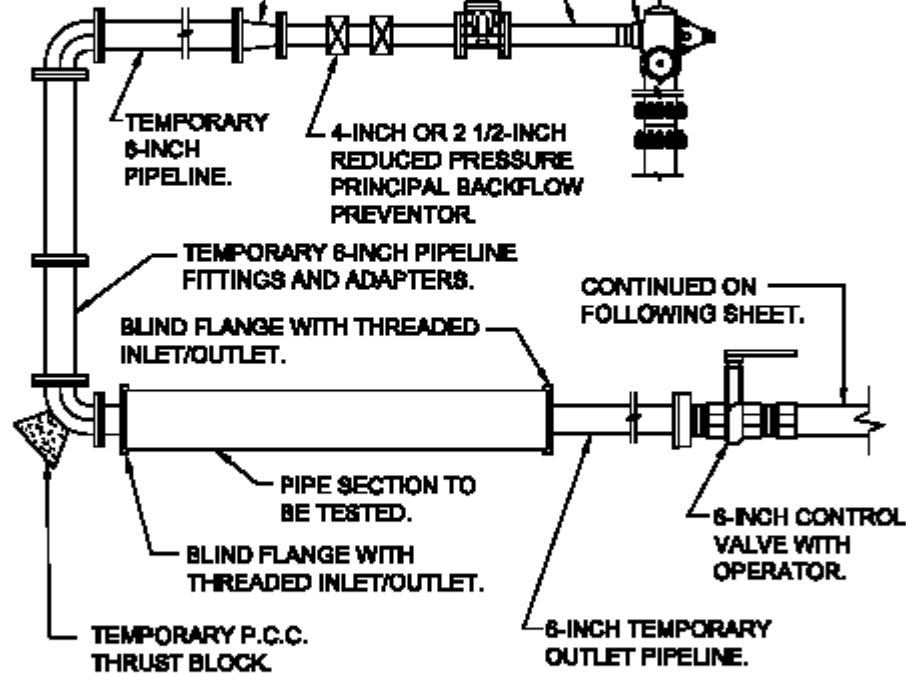
2 1/2-INCH OR 4-INCH OUTLET. 4-INCH OUTLET SHALL BE USED IF AVAILABLE AT FIRE HYDRANT LOCATION.

2 1/2-INCH OR 4-INCH FLANGED BY THREADED PIPELINE.

2 1/2-INCH OR 4-INCH RESILIENT WEDGE GATE VALVE WITH HAND WHEEL OPERATOR.

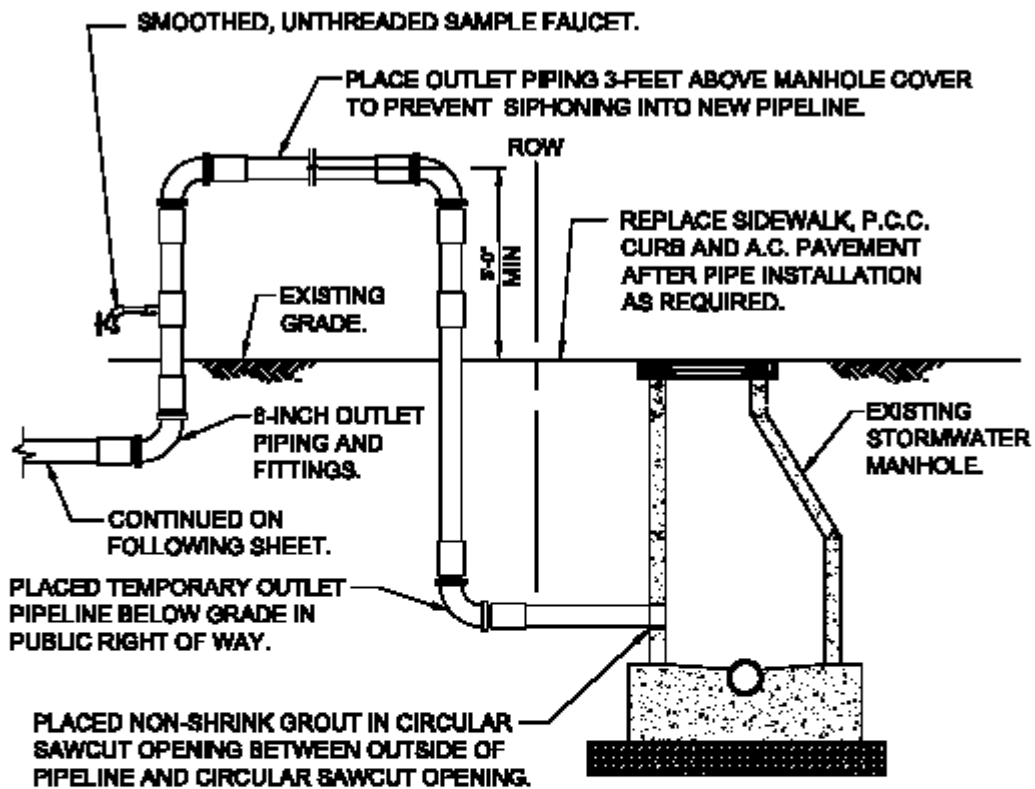
EXISTING FIRE HYDRANT. POSSIBLE POTABLE WATER CONNECTION.

4-INCH X 6-INCH REDUCER OR 2 1/2-INCH X 6-INCH REDUCER.



**TEMPORARY FLUSHING/ TESTING AND BLOWOFF/
SAMPLING FITTINGS AND PIPING SCHEMATIC**

SHEET 1 OF 2



**TEMPORARY FLUSHING/ TESTING AND BLOWOFF/
SAMPLING FITTINGS AND PIPING SCHEMATIC**

SHEET 2 OF 2

3.02 CHLORINATION PROCEDURE

- A. Pipeline shall be thoroughly flushed prior to the commencement of the introduction of chlorine disinfectant.

Pipelines within a distribution system or a network of pipelines shall be flushed at each hydrant, blowoff, or service pipeline. It shall be necessary to install sampling/blowoff assemblies at the termination ends of pipe segments to allow the extremities of the pipeline to be flushed and for chlorinated water to be dispersed throughout the new water pipeline section in the event blowoffs or fire hydrants are not placed at the extremities of the pipeline to be tested. At least one (1) blowoff/sampling point assembly shall be placed at the extremities of the pipe section to be tested for sampling purposes. Sampling shall not be allowed through fire hydrants or water fittings with threaded ends. The Contractor shall install at least one (1) blowoff/sampling assembly at the end of each pipeline section to be tested; even if the blowoff/sampling assembly is not illustrated on the Plans. The Contractor shall be required to install the blowoff/sampling assembly as a requirement of this pipeline disinfection specification section. The Contractor shall not be compensated for the costs of the blowoff/sampling assembly. The cost of the installation of the blowoff/sampling assembly shall be incidental to the costs of disinfecting the pipeline.

Pipelines physically separated from existing in-service pipelines, reservoirs and concrete structures (as is often the case at Water Treatment Plants), shall be flushed with temporary pipeline connections upstream and downstream of the pipeline section to be disinfected as described in Section 3.01 of this specification.

Flushing of pipelines within a distribution system shall occur through fire hydrants, blowoffs, water services and blowoff/sampling points for a minimum of 10 minutes with the potable water source placed at maximum flow and maximum pressure. Flushing shall continue until no evidence of dirt is evident from the discharge water. Flushing shall be accomplished through fire hydrants or blowoffs if possible. Flushing of the water pipeline shall occur through a blowoff/sampling point assembly as a last resort. The pipeline contractor shall take necessary precautions to avoid damage to existing structures and utilities.

Flushing of physically separated pipelines shall be accomplished for a minimum of 10 minutes with the potable water source placed at maximum flow and maximum pressure. Flushing of the pipeline shall continue until no evidence of dirt is visible from the discharge

water entering the downstream deposition point. The pipeline contractor shall take necessary precautions to avoid damage to existing structures and utilities.

- B. After flushing of the water pipelines is satisfactorily accomplished and approved by the Owner's Representative, chlorinated water shall be introduced to the pipeline. The pipelines shall be chlorinated in accordance with AWWA C 651.

The continuous-feed method of chlorine application shall be employed. The use of chlorine tablets or granules shall not be allowed.

Direct-feed chlorinators, which operate solely from gas pressure in the chlorine cylinder, shall not be used for the application of liquid chlorine. (The danger of using direct-feed chlorinators is that water pressure in the main can exceed gas pressure in the chlorine cylinder. This allows a backflow of water into the cylinder, resulting in severe cylinder corrosion and the escape of chlorine gas.) The preferred equipment for applying liquid chlorine is a solution-feed, vacuum-operated chlorinator and a booster pump. The vacuum-operated chlorinator mixes the chlorine gas in solution water; the booster pump injects the chlorine-gas solution into the main to be disinfected. Hypochlorite solutions may be applied to the water main with a fuel or electrically powered chemical-feed pump designed for feeding chlorine solutions. Feed lines shall be made of material capable of withstanding the corrosion caused by the concentrated chlorine solutions and the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the solution is applied to the pipeline.

Chlorine shall be dispersed through the pipeline at 100 ppm. Chlorine shall be flushed through all fire hydrants, blowoffs, water services and blowoff/sampling assemblies. Chlorine shall continue to be flushed through the above listed items until the chlorine concentration is measured at 100 ppm or greater.

The chlorinated water shall remain in the pipeline for a minimum 24-hour period and not longer than 48 hours. The chlorine residual shall be a minimum of 50 ppm after the 24 hour period; or prior to flushing the heavily chlorinated water from the pipeline. The heavily chlorinated water shall not remain in the pipeline over 48 hours as prolonged exposure to the heavily chlorinated water may damage (corrode) pipelines, fittings, valves and other piping components. The heavily chlorinated water shall be flushed from the pipeline, pipeline fittings, water services, fire hydrants, blowoffs,

blowoff/sampling assemblies and all other pipe connections. The heavily chlorinated water shall be flushed until chlorine samples of the flushed water confirm that the chlorine concentration is no higher than the water in the in-service distribution system or the water source used for the disinfection process.

The environment to which the heavily chlorinated water is to be discharged shall be inspected. In the opinion of the Owner's Representative, if there is a possibility that the chlorinated water will result in damage to the environment, then the Owner's Representative shall require a neutralizing chemical be applied to the water to be wasted (prior to discharge) by means of a neutralizing chemical. Neutralizing chemicals may be sulfur dioxide, sodium bisulfite, sodium sulfite, sodium thiosulfate or ascorbic acid. Appendix "C" of ANSI/AWWA C 651-05 lists the neutralizing chemicals and the suggested neutralizing chemical concentrations per 100,000 gallons of water.

The Contractor shall be responsible for the discharging of the heavily chlorinated water. The Contractor shall provide all piping, fittings, etc. to convey the heavily chlorinated water from the disinfected pipeline per Item 3.01 of this Specification.

- C. After final flushing and before the disinfected water pipeline is connected to the distribution system or in-service pipeline system, two (2) consecutive sets of acceptable samples, obtained a minimum of 24 hours apart, shall be collected from the disinfected pipeline.

One (1) set of samples shall be collected from every 1,200 feet of new water pipeline and one (1) set shall be obtained from the end point(s) of the disinfected water pipeline(s). If disinfected water pipelines terminate (dead-end) at cul-de-sacs, a sample shall be obtained from the termination point of the pipelines. As was noted by the previous sections, The Contractor shall install blowoff/sampling point assemblies at pipeline termination points as required.

Samples shall be tested for bacteriological (chemical and physical) quality in accordance with *Standard Methods for the Examination of Water and Wastewater* and shall show the absence of coliform organisms; and chlorine residual. Turbidity, pH, and a standard heterotrophic plate count (HPC) test shall be required. New pipeline does not typically contain coliforms but does typically contain HPC bacteria.

Samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate, as required by *Standard Methods for the Examination of Water and Wastewater*. No hose, fire hydrant or threaded fitting outlet shall be used in the collection of samples. There should be no water in the trench up to the connection for sampling. The sampling pipe must be dedicated and clean and disinfected and flushed prior to sampling.

If sample results from the lab indicate a measured HPC greater than 500 colony-forming units (cfu) per ml, flushing should be resumed and another coliform and HPC set of samples shall be obtained until no coliforms are present and the HPC is less than 500 cfu/ml.

The record of disinfection compliance shall be the bacteriological test results certifying that the water sampled from the disinfected water main is free of coliform bacteria contamination and is equal to or better than the bacteriologic water quality in the distribution system.

If the initial disinfection fails to produce satisfactory bacteriological results or if other water quality is affected, the disinfected pipeline may be reflushed and shall be resampled. If succeeding samples also fail to produce acceptable results, the disinfected pipeline shall be rechlorinated by the continuous-feed method until satisfactory results are obtained, satisfactory results being derived from two (2) consecutive sets of acceptable samples taken 24 hours apart.

The Contractor shall be responsible for all expenses relative to the chlorination and disinfection of the pipelines. The costs of re-testing shall also be borne by the Contractor. The City or District Water Department within which the disinfected pipeline is located shall coordinate obtaining the tests and select the testing laboratory to perform the tests. The Contractor shall be responsible for all expenses relative to the laboratory testing.

The disinfected pipeline shall not be placed in service until evidence that the bacteriological tests have proved negative and successfully met the testing requirements and are presented to the Owner's Representative. The Owner's Representative shall allow the disinfected pipeline(s) to be connected to the in-service pipeline after the evidence is presented to him/her by the Contractor. The evidence shall consist of the original laboratory report document certifying the laboratory test results comply with the disinfection requirements of this document.

3.03 FINAL CONNECTION PIPE SEGMENT DISINFECTION REQUIREMENTS

If approved by the Owner's Representative, final connection pipe segments (measuring 18.5 feet or less) located between the existing in-service pipeline and the valve or temporary termination point of a successfully disinfected pipe section may be spray disinfected or swabbed with a minimum 1-5 percent solution of chlorine prior to final installation. The installation of the final connection pipe segment shall be witnessed by the Owner's Representative. If dirt, debris or any contaminating substances enter the pipe section between the disinfection process and installation process the pipe section shall be removed and re-disinfected. The Contractor shall immediately remove the pipe section from the pipe trench and re-disinfect the pipe section if required by the Owner's Representative. The disinfection of the pipeline shall require that all dirt, construction residue, dust and contaminants be thoroughly pressure washed from the interior of the pipeline, valve, fitting, transition coupling and other pipe component interior surfaces. The interior surfaces shall be dried clean with a cloth or paper towels. The interior surfaces shall then be disinfected with the minimum 1-5 percent solution of chlorine. The pipe section shall not be allowed to be set in place for connection to the existing in-service pipeline until the Owner's Representative approves the witnessed disinfection of the pipeline section.

END OF SECTION 02670

SECTION 02733 – WATER WELL DRILLING, INSTALLATION AND TESTING

PART 1 - GENERAL

1.01 DESCRIPTION

The Contractor shall furnish all labor, equipment, and materials to perform all field operations pursuant to the installation or demolition of the water wells in accordance with Plans, Contract Documents, and any addendum(a).

Field operations shall include, but not be limited to, the construction of access roads and drilling pad areas, drilling and installing casing and screen, well development and production testing, equipping the well with submersible pumping units and casing drop pipe, installation of piping downstream of the well, installation of a flow metering system and installation of a native earth fill separation area.

1.02 PURPOSE

The purpose of this standard is to define the minimum requirements for the demolition and construction of water wells, including preparation of area, disinfection of wells, sampling and testing for water quality, and water well reports.

1.03 REFERENCE SECTIONS, CODES, AND STANDARDS

Section 02050 – Demolition and Salvage

Section 02630 – Ductile Iron Pipe

Section 02640 – PVC Pipe

Section 02666 – Pressure Pipeline Water Testing

Section 02670 – Disinfection of Potable Water Pipelines

AWWA Standard A 100-20 – Water Wells

AWWA Standard C 654-21 – Disinfection of Water Wells

California Water Well Standards – Bulletin 74-81

California Water Well Standards – Bulletin 74-90

California Code of Regulations – Title 17

California Code of Regulations – Title 22

1.04 QUALITY ASSURANCE

- A. The Contractor shall have been engaged in the business of test pumping, construction test holes, and hydraulic reverse circulation rotary-drilled gravel envelope wells of diameter, depth, and anticipated production equivalent to the proposed production wells for a period of at least ten (10) years.

All work shall be performed under the direct supervision of an experienced water well driller and/or drilling supervisor familiar and experienced with the DR drilling process. The Contractor shall employ only competent workers for the execution of this work and shall be held accountable for the conduct and actions of said workers during the entire drilling and construction process.

- B. The Contractor shall employ the services of a Registered Professional Geologist during the entire drilling process who is experienced and knowledgeable with the DR drilling method and associated well design. The well will be drilled, developed, pump tested and equipped in accordance with the recommendations of the Registered Professional Geologist in concurrence with the Engineer.
- C. All components used in the well system shall be certified as suitable for contact with or treatment of, drinking water by an accredited certification organization in accordance with NSF / ANSI 61.

1.05 SUBMITTALS

- A. All records shall be always available to the Owner and Engineer at the project site. The following records and submittals shall be provided:
1. Driller's lithologic log.
 2. E-log or Gamma Ray log.
 3. Drilling Fluid Additives (type and quantity) and Penetration Rate.
 4. Alignment / Plumb log.

5. Surging / air lift pumping records.
6. Step Test pumping records including specific capacities, drawdowns, pumping rates.
7. Sand production records.
8. Constant pumping rate, drawdown, times, and specific gravity.
9. Gravel pack sieve analyses, as applicable.
10. Water Quality / Bacteriological test.
11. Concrete material.
12. Casing material.
13. PVC Pipe material.
14. Screen material.
15. Gravel Pack Pipe material.
16. Sounder Tubes material.
17. Cement Slurry Grout material.
18. Submersible Pump.
19. Electrical Chord for Pump.

1.05 WARRANTY

A. Warranty Conditions

For a period of one (1) year after acceptance of the well by the Owner, the Contractor shall make the following guarantees and accept the following responsibilities concerning their work;

1. Sand production shall be less than 5 ppm within 15 minutes after start of pumping at the constant pump test rate of the well.

2. Sand production shall be less than 1 ppm within two (2) hours after start of pumping at the constant pump test rate of the well.
3. The well casing and screen shall remain intact throughout its entire length.
4. Plumbness and alignment shall remain within tolerances set forth in specifications.

SECTION 2 - PRODUCTS

2.01 MATERIALS

A. Drilling Fluid Additives

If it becomes necessary to add clays or chemicals to the drilling fluid, it must be borne in mind that it is desirable to maintain a mud system containing a minimum of clay and fine sand and to obtain representative lithologic samples and minimize sealing of well with mudcake or mud invasion into formation. If there should be a conflict between the mud requirements for ease in drilling and the mud requirements for sample attainment and minimal sealing; then the ruling requirements shall be those for sample attainment and minimal sealing.

B. Gravel Pack

The gravel to be installed shall be composed of sound, durable, well-rounded particles, containing no silt, clay, organic matter, gypsum, iron, manganese or other deleterious materials. It shall be selected by the Contractor with the submittal approval based on the test hole log, electronic log, and formation analysis. Material shall have an average specific gravity of not less than 2.5 and a uniformity coefficient no greater than 2.0. Gradation shall conform to that required to retain the 50th percentile of the finest aquifer material encountered in the zone(s) where screens are to be placed. Under no circumstances shall crushed rock be installed in the well. A certificate of quality and gradation of the gravel shall be submitted to the Engineer prior to gravel being delivered to the site. The Engineer may elect to have a certified testing laboratory perform an independent sieve analysis to verify conformance with submitted sample. Failure of the submitted sample to meet gradation requirements shall be grounds for rejection.

2.02 WATER QUALITY AND REPORTS

Upon completion of the project, the Contractor shall furnish a written well drillers report describing in detail the well drilling and construction process. In addition, as-built drawings shall be prepared. The as-built drawing shall be submitted to the Engineer for review and approval. The Contractor shall be responsible for filing the official Well Drillers Report, well log, pump test report and all other related documents to the County Imperial Public Health Department, County of Imperial Planning and Development Services Department and California Department of Water Resources for review and approval. See Section 19.1, Water Well Report, for additional Water Well Report requirements.

2.03 WATER WELL REPORT

The Contractor shall prepare a report concerning the construction of the new wells. The reports shall be prepared on California Department of Water Resources forms. The water well report forms shall be prepared in accordance with relevant provisions of Sections 13750 through 13754 (Division 7, Chapter 10, Article 3) of the California Water Code. The Water Well Report forms shall be forwarded as submittal documents for review and approval. Information concerning completion and submission of well construction, alteration, and destruction reports is contained in the Department of Water Resources "Guide to the Preparation of the Water Well Drillers Report", October 1977 or its latest revision. The completed forms shall be submitted to the County of Imperial Public Health Department, County of Imperial Planning and Development Services Department and California Department of Water Resources for review and approval no later than 10 days after the date the well is approved for operation.

PART 3 - EXECUTION

3.01 GENERAL

The contractor shall install a temporary 24-inch diameter surface casing set in cement grout to a depth of 50 feet within a 28-inch diameter nominal borehole. The temporary casing shall be removed as the grout is installed. The Contractor shall then use dual rotary (DR) drilling methods to advance a 12-inch diameter steel casing to a depth of 160 feet. 60-feet of the 12-inch diameter steel casing shall be pulled back to expose 60 feet of 10-inch diameter by 8-inch diameter pre-packed stainless-steel wire wrapped well screen with a 12-inch diameter by 10-inch diameter packer.

The Contractor shall furnish and install all casing, screens, and well pumping equipment.

3.02 WATER WELL DECOMMISSIONING

The existing well to be replaced at the Palo Verde Water Plant shall be decommissioned according to the sequence of events contained within the Project Description on sheet 1 of the improvement plans. The guiding principle to follow in sealing abandoned wells is the restoration, as far as feasible, of the controlling geological conditions that existed before the well was drilled and constructed. Wells are to be sealed for the following reasons:

- A. To eliminate physical hazards.
- B. To prevent contamination of groundwater.
- C. To conserve yield and hydrostatic head of aquifers.
- D. To prevent commingling of waters.

Before sealing operations are initiated the contractor shall confirm the depth of the well and check for obstructions within the well. The decommissioning and demolition of the existing well shall be accomplished in accordance with State of California Water Wells Standards, AWWA Standard A100-15, CCR Title 17 and 22 and the requirements of the County of Imperial Health Department.

The contractor shall maintain complete and accurate records of the entire decommissioning and demolition procedure as part of an Existing Well Decommissioning and Demolition Report. The depth of each layer of all sealing, backfilling materials used and quantity of backfill materials used shall be recorded. Any changes in the well made during the sealing, such as perforating the well casing, shall be recorded in detail.

The Existing Well Decommissioning and Demolition Report shall be submitted to the County of Imperial Health Department for review and approval within 10 days after the decommissioning and demolition of the existing wells.

The old wells shall be abandoned in strict accordance with all the applicable requirements of the County of Imperial Health Department and the previous referred to State of California Water Wells Standards, AWWA Standard A100 – 15 and CCR Titles 17 and 22.

3.03 CASING INSTALLATION

A new 24-inch diameter steel surface casing shall be set in a bore hole not less than four (4) inches greater in diameter than the surface casing. The casing shall be new mild steel casing ASTM A-53, Grade B or better, 0.250-inch wall thickness. No less than fifty (50) feet of surface casing shall be installed. The surface casing shall be installed using the retractable auger drilling method. Installation of the surface casing shall be straight and plumb in accordance with AWWA A100-20.

The annular space between the reamed bore hole wall and the surface casing shall be filled with a sand cement grout. The Contractor shall bring the grout to within (1) foot below the existing ground surface.

After installing the surface casing and cement grout seal, the borehole shall be drilled by the Contractor using the DR drilling method to advance a nominal 12-inch outside diameter, ASTM A53, Grade B or better, 0.375-inch wall steel casing to a depth of 160 feet.

The contractor shall contact the County of Imperial Health Department 48 hours prior to scheduling the pouring of the sanitary seal at telephone number (442) 265-1888. A representative of the County of Imperial Health Department must be present at the project site during the continuous sanitary seal pour.

The casing shall be manufactured with machine beveled ends. The casing shall be manufactured in 20-foot lengths. A Registered Geologist will collect and describe the geologic samples at 10 feet intervals during the drilling process. The samples shall be marked and stored so that they are not impacted by drilling equipment, onsite personnel, or the elements. The Contractor shall provide safe access and a method for sampling the drill cuttings that is satisfactory to the Engineer. Drill cuttings and all formation water developed during the drilling will exit via a cyclone separator where it can be observed and sampled. The drilling supervisor shall maintain a continuous record of borehole depth and drilling rates. The drilling supervisor shall maintain written daily logs of all drilling operations and provide copies of the daily logs to the Engineer and County of Imperial Public Health Department. If subsurface conditions encountered while drilling mandate that the Contractor must use drilling additives, the brand and type of any drilling additives must first be approved by the Engineer and County of Imperial Public Health Department. Any drilling additives must be NSF 60/61 approved for use in drilling potable water wells. Only clean potable water from the designated supply source plus any required NSF approved drilling additives shall be used to drill and construct the well.

3.04 WATER WELL SCREEN INSTALLATION

The Contractor shall have on order, or on location, the blank casing, wire wrapped stainless-steel screens, and centralizers by the time that the borehole drilling is completed. Following the completion of the work described in the preceding specification sections, the Contractor shall install the stainless-steel screen assembly in the borehole in accordance with these specifications, the contract drawings and any specific instructions issued by the Engineer.

The well screen shall be new 8-inch by 10-inch diameter stainless-steel wire wrapped screen with continuous slot width openings of fifty thousandths (0.050) of an inch. The stainless-steel screen shall have a specially sorted glass bead filter pack that has been pre-installed between the two screens to serve as a sand filter. A manufactured K packer assembly shall be attached to the stainless-steel screen. The bottom of the screened section shall be fitted with a closed end cap of stainless-steel. The exact length of the screened interval shall be 60 ft. as shown on the contract drawings. The top of the wire wrapped screen shall have a factory-made K packer assembly that will seal between the wire wrapped screen and the inside of the 12-inch blank steel casing. The stainless-steel screen shall be lowered to the bottom of the advanced casing. When the desired amount of the blank casing and screen has been installed in the 12-inch diameter blank casing, the 12-inch diameter blank casing shall be securely welded to the 24-inch diameter steel surface casing. The 12-inch diameter steel well casing shall become the final completed well diameter that will support the submersible pump and motor.

3.05 WATER WELL CAPACITY TEST

A water well capacity test shall be completed for the new well in conformance with California Code of Regulations Title 22, Sections 64554 (e) (f).

- A. Take an initial water level measurement (static water level) and then pump the well continuously at the pump discharge design rate of approximately 250 gallons per minute until a steady state is defined. Steady state is indicated if the last four (4) hours of drawdown measurements and the elapsed time yield a straight line per a plot which illustrates drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis.
- B. While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of 8 hours at a frequency no less than every hour. During the first two (2) hours

discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours.

- C. To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.
- D. The capacity of the well shall be the pump discharge rate determined by a completed test.
- E. The well capacity test information obtained during the well capacity test shall be in accordance with California Code of Regulations Title 22, Section 64554 (e).

3.06 WELL DEVELOPMENT PRIOR TO SUBMERSIBLE PUMP INSTALLATION

The Contractor shall furnish an air compressor capable of performing airlift development from the bottom of the screened section to the top of it. Well development shall continue until all dirty water has been removed and all screened intervals have been fully developed. The Contractor shall use reverse circulation pipe in conjunction with a dual ring surge block of approximately 8-inch in diameter to closely fit and work the inside of the stainless-steel wire wrapped screened interval. Air lift development water must exit the same energy absorbing cyclone separator as the drill cuttings and formation water. Each 20-foot section of wire wrapped screen shall be agitated by multiple up and down movements of the drill pipe and surge block. The surge block shall then be slowly drawn upward and held at various intervals in order to observe that the well is producing only clean water. Each 20-foot section shall be worked until it can no longer be muddied and is producing sand free water. The Engineer shall make the determination that each screen interval has been fully developed and the well is ready for equipping. Development records should include the following:

- A. Quantity and description of material used in the well construction.
- B. Static and pumping water levels prior to pumping, during pumping and during recovery time.
- C. Methods of measurement.
- D. Duration of each operation.
- E. Observation of results.
- F. Pump discharge rates and specific capacity.

- G. Sand content as a function of pump discharge rates and time.
- H. Sand content as a function of pump discharge rates and specific capacity.
- I. All other pertinent information.

Sand content shall not average more than 5 mg/L for a complete pumping cycle of 2-hour duration when pumping at the design-discharge capacity. Well Development shall be accomplished and comply with applicable sections of AWWA A100-20, California Wells Standards Bulletin 74-90, California Well Standards 74-81 and the CCR Title 17 & 22, latest revision. Upon completion of well development, the Contractor shall tag the bottom of the well to verify the total open depth of the well.

3.07 WATER WELL SUBMERSIBLE PUMP INSTALLATION

The Contractor shall construct the well to be sufficiently straight and plumb in accordance with AWWA A100-20 to permit the free installation and operation of a shrouded 6-inch diameter submersible electric pump of the size and capacity specified.

The Contractor shall equip the newly drilled and developed wells with 15-HP, 277/480-volt three phase, 4 wire submersible motors and 250 GPM submersible pumps. The pumps and motors shall be made of stainless steel and be equipped with a built-in check valve and a motor cooling flow inducing shroud. The pump and motor shall be manufactured by Franklin Electric, Grundfos, Xylem, or an approved equal. A detailed submittal showing all of the precise characteristics of the pumps and motors shall be submitted for review and approval by the Engineer prior to the ordering and installation of the specific pumping units. The submittal shall include details of the sounding tubes and motor cooling shrouds. The permanent pumping equipment shall be installed under the direct observation of the Engineer or his designated representative.

3.08 WELL DISINFECTION

The Contractor shall disinfect the new water wells to remove bacteriological contamination that may cause the well-water supply to be unsafe for human consumption. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a concentration of at least 50 mg/L of available chlorine shall be obtained for the entire water depth of the well. The disinfectant shall be circulated through the pump and back down the well. The inside well casing above the standing water level shall be washed with a chlorine solution of 200 mg/L concentration. All permanent equipment and material to be installed in the well shall be chlorinated immediately before installation. This shall be accomplished by spraying exposed areas with a solution having a

chlorine residual of not less than 200 mg/L. The water well shall be filled with a 50 mg/L available chlorine concentration independently of the downstream pipe. The chlorine solution shall remain in the well section for a minimum period of 12 hours.

If the samples collected after initial disinfection show bacteriological contamination, the Contractor shall prepare and apply a chlorine solution of at least 100 mg/L of available chlorine to the entire water depth of the well and downstream pipeline as noted previously. The inside well casing above the standing water shall be washed with a chlorine solution of 200 mg/L concentration. The contractor shall allow this solution to remain in the well section for a period of at least 24 hours.

The Disinfecting of the wells shall be accomplished in accordance with the procedures contained within ANSI/AWWA C654, latest revision. The Contractor shall provide sufficient flow control and a sampling point for the collection of the required water samples.

The Contractor shall assume the costs associated with the required disinfection sampling and testing of the water wells. A total of four (4) bacteria tests shall be required. Two (2) bacteria tests shall be obtained for the wells. A minimum of two (2) water samples shall be obtained for each bacteria test. The costs shall include the transportation of the Water Samples to the testing laboratory and the testing costs of the laboratory. If the disinfection test samples fail the contractor shall repeat the water well disinfection procedure including the required testing at the contractors cost until the disinfection testing produces approved results. The laboratory testing results shall be issued to the Palo Verde Water District, County of Imperial Public Health Department, and the Construction Manager.

3.09 WATER QUALITY TESTING

Water quality shall be determined by analyses of water samples collected from the well. The analyses shall be performed by a laboratory acceptable to the County of Imperial Public Health Department. Sampling procedures shall be accomplished according to the latest edition of the United States Environmental Protection Agency's, "*Manual of Methods for Chemical Analysis of Water and Wastes*".

Water temperatures, pH, specific conductance, and dissolved oxygen shall be determined from samples collected and analyzed in the field.

The County of Imperial Public Health Department was contacted during the design phase of this project. ***The County of Imperial Public Health Department shall require the following Inorganic Chemicals,***

Radionuclides, Organic Chemicals and Secondary Contaminants be tested:

1. Title 22 - California Code of Regulations – Chapter 15 (Domestic Water Quality and Monitoring Regulations) – Article 4 – Section 64431 – ***Table 64431 – A (Inorganic Chemicals), latest edition.***
2. Title 22 – California Code of Regulations – Chapter 15 (Domestic Water Quality and Monitoring Regulations) – Article 5 – Section 64442 – ***Table 64442 – (Gross Alpha Particle Activity, Radium 226, Radium 228, and Uranium), latest edition.***
3. Title 22 – California Code of Regulations – Chapter 15 (Domestic Water Quality and Monitoring Regulations) – Article 5.5 – Section 64444 – ***Table 64444 – A (Organic Chemicals), latest edition.***
4. Title 22 – California Code of Regulations – Chapter 15 (Domestic Water Quality and Monitoring Regulations) – Article 16 – Section 64449 – ***Table 64449 – A and Table 64449 – B (Secondary Contaminants), latest edition***

A set of the above tests shall be obtained for each well. The Contractor shall pay for all costs related to obtaining the samples, transporting the samples, and testing the samples. A full testing report is to be issued to the Palo Verde Water District, County of Imperial Health Department, and the Engineer. If the samples are contaminated or damaged and it is necessary to obtain a second set of test samples, the contractor shall incur all costs with regard to obtaining, transporting and testing the second set of samples.

END OF SECTION 02733

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall provide finished structural concrete, complete, in accordance with the Contract Documents.
- B. The following types of concrete are covered in this Section:
 - 1. **STRUCTURAL CONCRETE**: Normal weight (145 PCF) concrete to be used in all cases except where noted otherwise in the Contract Documents.
 - 2. **LEAN CONCRETE**: Concrete to be used for thrust blocks, anchor blocks, pipe trench cut-off blocks and cradles, where the preceding items are detailed on the Plans as unreinforced. Concrete to be used as protective cover for dowels intended for future connection.
- C. The term “hydraulic structure” used in these Specifications refers to environmental engineering concrete structures for the containment, treatment, or transmission of water, or other fluids.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. The Work of the following Sections applies to the Work of this Section. Other Sections, not referenced below, shall also apply to the extent required for proper performance of this Work.
 - 1. Section 03100 - Concrete Formwork
 - 2. Section 03200 - Reinforcement Steel
 - 3. Section 03290 - Joints in Concrete Structures
 - 4. Section 03315 – Grout
 - 6. Section 09800 – Protective Coatings

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Except as otherwise indicated in this Section, the Contractor shall comply with the latest adopted edition of the Standard

Specifications for Public Works Construction (SSPWC), together with the latest adopted editions of the Regional Amendments.

B. The current edition of the Uniform Building Code (UBC) of International Conference of Building Officials (ICBO).

C. National Sanitation Foundation

1. NSF / ANSI 61: Drinking Water System Components – Health Effects

D. Federal Specifications:

1. UU-B-790A(1)(2): Building Paper, Vegetable Fiber (Kraft, Water-Proofed, Water Repellant and Fire Resistant)

E. Commercial Standards:

1. ACI 117: Standard Tolerances for Concrete Construction and Materials

2. ACI 214: Recommended Practice for Evaluation of Strength Test Results of Concrete

3. ACI 301: Specifications for Structural Concrete for Buildings

4. ACI 309: Consolidation of Concrete

5. ACI 315: Details and Detailing of Concrete Reinforcement

6. ACI 318: Building Codes Requirements for Reinforced Concrete

7. ACI 350R: Environmental Engineering Concrete Structures

F. ASTM Standards in Building Codes:

1. ASTM C 31: Practice for Making and Curing Concrete Test Specimens in the Field

2. ASTM C 33: Specification for Concrete Aggregates

3. ASTM C 39: Test Method for Compressive Strength of Cylindrical Concrete Specimens
4. ASTM C 40: Test Method for Organic Impurities in Fine Aggregates for Concrete
5. ASTM C 42: Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
6. ASTM C 88: Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
7. ASTM C 94: Specification for Ready-Mixed Concrete
8. ASTM C 136: Test Method for Sieve Analysis of Fine and Coarse Aggregates
9. ASTM C 138: Test Method for Unit Weight, Yield, and Air Content of Concrete
10. ASTM C 143: Test Method for Slump of Hydraulic Cement Concrete
11. ASTM C 150: Specification for Portland Cement
12. ASTM C 156: Test Method for Water Retention by Concrete Curing Materials
13. ASTM C 157: Test Method for Length Change of Hardened Hydraulic Cement Mortar and Concrete
14. ASTM C 192: Practice for Making and Curing Concrete Test Specimens in the Laboratory
15. ASTM C 231: Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
16. ASTM C 260: Specification for Air-Entraining Admixtures for Concrete
17. ASTM C 289: Test Method for Potential Reactivity of Aggregates (Chemical Method)
18. ASTM C 309: Specification for Liquid Membrane-Forming Compounds for Curing Concrete

19. ASTM C 494: Specification for Chemical Admixtures for Concrete
20. ASTM C 107: Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
21. ASTM D 1751: Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)
22. ASTM D 2419: Test Method for Sand Equivalent Value of Soils and Fine Aggregate
23. ASTM E 119: Method for Fire Tests of Building Construction and Materials

1.04 CONTRACTOR SUBMITTALS

- A. Mix Designs: Before starting the Work and within 14 days of the Notice to Proceed, the Contractor shall submit to the Owner's Representative, for review, preliminary concrete mix designs which shall illustrate the proportions and gradations of all materials proposed for each class and type of concrete specified herein in accordance with Specification Section 01330 – Submittals/Shop Drawings. The mix designs shall be checked and certified to conform to these Specifications by an independent testing laboratory acceptable to the Owner's Representative or Resident Project Representative to be in conformance with these Specifications. All costs related to such checking and testing shall be borne by the Contractor at no cost to the Owner.
- B. Delivery Tickets: Where ready-mix concrete is used, the Contractor shall furnish delivery tickets at the time of delivery of each load of concrete. Each ticket shall show the state-certified equipment used for measuring and the total quantities, by weight, of cement, sand, each class of aggregate, admixtures, and the amounts of water in the aggregate added at the batching plant, and the amount of water allowed to be added at the site for the specific design mix. In addition, each ticket shall state the mix number, total yield in cubic yards, and the time of day, to the nearest minute, corresponding to the times when the batch was dispatched, when it left the plant, when it arrived at the site, when unloading began, and when unloading was finished.

- C. The Contractor shall provide the following submittals in accordance with ACI 301:
 - 1. Mill tests for cement.
 - 2. Admixture certification. Chloride ion content must be included.
 - 3. Aggregate gradation and certification.
 - 4. Materials and methods for curing.
- D. The Contractor shall provide catalog cuts and other manufacturer's technical data demonstrating compliance with the requirements indicated and specified herein for all admixtures used in the concrete mix design.

1.05 QUALITY ASSURANCE

A. GENERAL

- 1. Tests on component materials and for compressive strength and shrinkage of concrete will be performed as specified herein. Test for determining slump will be in accordance with the requirements of ASTM C 143.
- 2. The cost of all laboratory tests requested by the Owner's Representative or Resident Project Representative for cement, aggregates, and concrete, will be borne by the Contractor. The laboratory must meet or exceed the requirements of ASTM C 1077.
- 3. Concrete for testing shall be supplied by the Contractor at no cost to the Owner and the Contractor shall provide assistance to the independent testing laboratory acceptable to the Owner's Representative or Resident Project Representative in obtaining samples, and disposal and clean up of excess material.
- 4. A minimum of one (1) set of concrete cylinders and a slump test shall be obtained for every major concrete placement. A minimum of one (1) set of concrete cylinders shall be obtained for all concrete structures, foundations and slabs. One (1) set of cylinders shall be obtained for every forty (40) yards of concrete placed for a particular pour. For instance, if the walls of a structure require eighty (80) yards of

concrete; then two (2) sets of concrete cylinders shall be required.

B. Field Compression Tests:

1. Compression test specimens will be taken during construction from the first placement of each class of concrete specified herein and at intervals thereafter as selected by the Owner's Representative or Resident Project Representative to ensure continued compliance with these Specifications. Each set of test specimens will consist of four (4) cylinders.
2. Compression test specimens for concrete shall be made in accordance with Section 9.2 of ASTM C 31. Specimens shall be 6-inch diameter by 12-inch high cylinders.
3. Compression tests shall be performed in accordance with ASTM C 39. One (1) test cylinder will be tested at 7 days and two (2) at 28 days. The remaining cylinder will be held to verify test results, if needed.

C. Evaluation and Acceptance of Concrete:

1. Evaluation and acceptance of the compressive strength of concrete shall be according to the requirements of ACI 318, Chapter 5, "Concrete Quality", and as specified herein.
2. A statistical analysis of compression test results will be performed according to the requirements of ACI 214. The standard deviation of the test results shall not exceed 640 PSI, when ordered at equivalent water content as estimated by slump.
3. If any concrete fails to meet these requirements, immediate corrective action shall be taken to increase the compressive strength for all subsequent batches of the type of concrete affected.
4. When the standard deviation of the test results exceeds 640 PSI, the average strength for which the mix is designed shall be increased by an amount necessary to satisfy the statistical requirement that the probability of any test being more than 500 PSI below or the average of any three (3) consecutive tests being below the specified compressive strength is 1 in 100. The required average strength shall be

calculated by Criterion No. 3 of ACI 214 using the actual standard deviation.

5. All concrete which fails to meet the ACI requirements and these Specifications is subject to removal and replacement at no cost to the Owner.

D. Construction Tolerances: Set and maintain concrete forms and perform finishing operations so as to ensure that the completed Work is within the tolerances specified herein. Surface defects and irregularities are defined as finishes and are to be distinguished from tolerances. Tolerance is the specified permissible variation from lines, grades, or dimensions shown. Where tolerances are not stated in the Specifications, permissible deviations will be in accordance with ACI 117.

1. The following construction tolerances are hereby established and apply to finished walls and slab unless otherwise illustrated:

<u>Item</u>	<u>Tolerance</u>
Variation of the constructed linear outline from the established position in plan.	In 10 feet: ¼ inch In 20 feet or more: ½ inch
Variation from the level or from the grades shown.	In 10 feet: ¼ inch In 20 feet or more: ½ inch
Variation from the plumb.	In 10 feet: ¼ inch In 20 feet or more: ½ inch
Variation in the thickness of slabs and walls.	Minus ¼ inch; Plus ½ inch
Variation in the locations and sizes of slabs and wall openings.	Plus or minus ¼ inch

E. Floor Slab Surface Hardener:

1. Job Mockup: In a location designated by the Owner's Representative or Resident Project Representative, place a minimum 100 square feet floor mockup using materials and procedures proposed for use in the Project. Revise materials and procedures as necessary to obtain acceptable finish surface. Maintain the same controls and procedures used in the acceptable mockup throughout the Project.

2. Field Service: During job mockup and initial period of installation, the manufacturer of the surface hardener shall furnish the service of a trained, full-time representative to advise on proper use of the product. Notify surface hardener manufacturer at least three (3) days before initial use of the product.
3. Installer Qualifications: Installer shall have a minimum of three (3) years experience and shall be specialized in the application of dry shake surface hardeners.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. General:

1. All materials specified herein shall be classified by the Environmental Protection Agency as acceptable for potable water use within 30 days of application.
 2. Materials shall be delivered, stored, and handled so as to prevent damage by water or breakage. Only one (1) brand of cement shall be used. Cement reclaimed from cleaning bags or leaking containers shall not be used. All cement shall be used in the sequence of receipt of shipments.
- B. All materials furnished for the Work shall comply with the requirements of Sections 201, 203, and 204 of ACI 301, as applicable.
- C. Storage of materials shall conform to the requirements of Section 2.5 of ACI 301 or the SSPWC.
- D. Materials for concrete shall conform to the following requirements:
1. Cement shall be standard brand Portland Cement conforming to ASTM C 150 for Type V. A minimum of 85 percent of cement by weight shall pass a 325 screen. A single brand of cement shall be used throughout the Work, and before its use, the brand shall be acceptable to the Owner's Representative. The cement shall be suitably protected from exposure to moisture until used. Cement that has become lumpy shall not be used. Sacked cement shall

be stored in such a manner so as to permit access for inspection and sampling. Certified mill test reports, including fineness, for each shipment of cement to be used shall be submitted to the Owner's Representative or Resident Project Representative if requested regarding compliance with these Specifications.

2. Water for mixing and curing shall be potable, clean, and free from objectionable quantities of silty organic matter, alkali, salts and other impurities. The water shall be considered potable, for the purposes of this Section, only if it meets the requirements of the local governmental agencies. Agricultural water with high total dissolved solids concentration (over 1,000 mg/l) shall not be used.
3. Aggregates shall be obtained from pits acceptable to the Owner's Representative, shall be nonreactive, and shall conform to ASTM C 33. Maximum size of coarse aggregate shall be as specified herein. Lightweight sand for fine aggregate will not be permitted.
 - a) Coarse aggregates shall consist of clean, hard, durable gravel, crushed gravel, crushed rock or a combination thereof. The coarse aggregates shall be prepared and handled in two or more size groups for combined aggregates with a maximum size greater than $\frac{3}{4}$ inch. When the aggregates are proportioned for each batch of concrete the two size groups shall be combined. See the Paragraph in Part 2 entitled "Trial Batch and Laboratory Tests" for the use of the size groups.
 - b) Fine aggregates shall be natural sand or a combination of natural and manufactured sand that are hard and durable. When tested in accordance with ASTM D 2419, the sand equivalency shall not be less than 75 percent for an average of three samples, nor less than 70 percent for an individual test. Gradation of fine aggregate shall conform to ASTM C 33, with 15 to 30 percent passing the number 50 screen and 5 to 10 percent passing the number 100 screen. The fineness modulus of sand used shall not be over 3.00.
 - c) Combined aggregates shall be well graded from coarse to fine sizes, and shall be uniformly graded

between screen sizes to produce a concrete that has optimum workability and consolidation characteristics. Where a trial batch is required for a mix design, the final combined aggregate gradations will be established during the trial batch process.

- d) When tested in accordance with ASTM C 33, the ratio of silica released to reduction in alkalinity shall not exceed 1.0.
 - e) When tested in accordance with ASTM C 33, the fine aggregate shall produce a color in the supernatant liquid no darker than the reference standard color solution.
 - f) When tested in accordance with ASTM C 33, the coarse aggregate shall show a loss not exceeding 42 percent after 500 revolutions, or 10.5 percent after 100 revolutions.
 - g) When tested in accordance with ASTM C 33, the loss resulting after five cycles shall not exceed 10 percent for fine or coarse aggregate when using sodium sulfate.
4. Ready-mix concrete shall conform to the requirements of ASTM C 94.
5. Admixtures: All admixtures shall be compatible and by a single manufacturer capable of providing qualified field service representation. Admixtures shall be used in accordance with manufacturer's recommendations. If the use of an admixture is producing an inferior end result, discontinue use of the admixture. Admixtures shall not contain thiocyanates nor more than 0.05 percent chloride ion, and shall be nontoxic after 30 days.
- a) Set controlling and water reducing admixtures: Admixtures may be added at the Contractor's option to control the set, affect water reduction, and increase workability. The addition of an admixture shall be at no increase in cost to the Owner. The use of an admixture shall be subject to acceptance by the Owner's Representative. Concrete containing an admixture shall be first placed at a location determined by the Owner's Representative.

Admixtures specified herein shall conform to the requirements of ASTM C 494. The required quantity of cement shall be used in the mix regardless of whether or not an admixture is used.

- 1) Concrete shall not contain more than one water-reducing admixture. Concrete containing an admixture shall be first placed at a location determined by the Owner's Representative.
- 2) Set controlling admixture shall be either with or without water-reducing properties. Where the air temperature at the time of placement is expected to be consistently over 80°F, a set retarding admixture such as Plastocrete by Sika Corporation; Pozzolith 300R by Master Builders; Daratard by W. R. Grace; or equal shall be used. Where the air temperature at the time of placement is expected to be consistently under 40°F, a noncorrosive set accelerating admixture such as Plastocrete 161FL by Sika Corporation; Pozzutec 20 by Master Builders; Daraset by W. R. Grace; or equal shall be used.
- 3) Normal range water reducer shall conform to ASTM C 494, Type A, WRDA 79 by W. R. Grace; Pozzolith 322-N by Master Builders; Plastocrete 161 by Sika Corporation; or equal. The quality of admixture used and the method of mixing shall be in accordance with the manufacturer's instructions and recommendations.
- 4) High range water reducer shall conform to ASTM C 494, Type F or G. Daracem 100 or WDRA 19 by W. R. Grace; Sikament FF or Sikament 86 by Sika Corporation; Rheobuild 1000 or Rheobuild 716 by Master Builders; or equal. High range water reducer shall be added to the concrete after all other ingredients have been mixed and initial slump has been verified. No more than 14 ounces of water reducer per sack of cement shall be used. Water reducer shall be considered as part of

the mixing water when calculating water cement ratio.

- 5) If the high range water reducer is added to the concrete at the job site, it may be used in conjunction with the same water reducer added at the batch plant. Concrete shall have a slump of 3 inches + ½ inch before adding the high range water reducing admixture at the job site. The high range water-reducing admixture shall be accurately measured and pressure injected into the mixer as a single dose by an experienced technician. A standby system shall be provided and tested before each day's operation of the job site system.
 - 6) Concrete shall be mixed at mixing speed for a minimum of 30 mixer revolutions after the addition of the high range water reducer.
 - 7) Fly ash: Fly ash shall not be allowed.
6. Shrinking Reducing Agent Admixture: All Structural Concrete shall include 0.5 gallons, per cubic yard of concrete, of W.R. Grace Eclipse, or an approved equal.

2.02 CURING MATERIALS

- A. Materials for curing concrete as specified herein shall conform to the following requirements and ASTM C 309:
1. All curing compounds shall be white pigmented and resin based. Sodium silicate compounds shall not be allowed. Concrete curing compound shall be Spartan Cote Cure-Seal Hardener by the Burke Company; Super Rez Seal by Euclid Chemical Company; MB-429 as manufactured by Master Builders; or equal. Water-based resin curing compounds shall be used only where local air quality regulations prohibit the use of a solvent-based compound. Water-based curing compounds shall be Aqua Resincure by the Burke Company; Aqua-Cure by Euclid Chemical Company; Masterkure-W by Master Builders; or equal.

2. Polyethylene sheet for use as a concrete curing blanket shall be white, and shall have a nominal thickness of 6 mils. The loss of moisture when determined in accordance with the requirements of ASTM C 156 shall not exceed 0.055 grams per square centimeter of surface.
3. Polyethylene-coated water proof paper sheeting for use as concrete curing blanket shall consist of white polyethylene sheeting free of visible defects, uniform in appearance, having a nominal thickness of 2 mils and permanently bonded to waterproof paper conforming to the requirements of Federal Specification UU-B-790A(1)(2). The loss of moisture, when determined in accordance with the requirements of ASTM C156, shall not exceed 0.055 gram per square centimeter of surface.
4. Polyethylene-coated burlap for use as concrete curing blanket shall be 4 mils thick, white opaque polyethylene film impregnated or extruded into one side of the burlap. Burlap shall weigh not less than 9 ounces per square yard. The loss of moisture, when determined in accordance with the requirements of ASTM C 156, shall not exceed 0.055 gram per square centimeter of surface.
5. Curing mats for use in Curing Method 6 as specified herein, shall be heavy shag rugs or carpets or cotton mats quilted at 4 inches on center. Curing mats shall weigh a minimum of 12 ounces per square yard when dry.
6. Evaporation retardant shall be a material such as Confilm as manufactured by Master Builders; Eucobar as manufactured by Euclid Chemical Company; or equal.

2.03 NONWATERSTOP JOINT MATERIALS

- A. Materials for nonwaterstop joints in concrete shall conform to the following requirements:
 1. Preformed joint filler shall be a nonextruding, resilient, bituminous type conforming to the requirements of ASTM D 1751.
 2. Mastic joint sealer shall be a material that does not contain evaporating solvents; that will tenaciously adhere to concrete surfaces; that will remain permanently resilient and pliable; that will not be affected by continuous presence of water and

will not in any way contaminate potable water; and that will effectively seal the joints against moisture infiltration even when the joints are subject to movement due to expansion and contraction. The sealer shall be composed of special asphalts or similar materials blended with lubricating and plasticizing agents to form a tough, durable mastic substance containing no volatile oils or lubricants and shall be capable of meeting the test requirements set forth hereinafter, if testing is required by the Owner's Representative.

2.04 MISCELLANEOUS MATERIALS

- A. Damp-proofing agent shall be an asphalt emulsion, such as Hydrocide 600 by Sonneborn; Damp-proofing Asphalt Coating by Euclid Chemical Company; Sealmastic by W. R. Meadows Inc., or equal.
- B. Bonding agents shall be epoxy adhesives conforming to the following products for the applications specified:
 - 1. For bonding freshly-mixed, plastic concrete to hardened concrete, Sikadur 32 Hi-Mod Epoxy Adhesive, as manufactured by Sika Corporation; Concsive Liquid (LPL), as manufactured by Master Builders; BurkEpoxy MV as manufactured by The Burke Company; or equal.
 - 2. For bonding hardened concrete or masonry to steel, Sikadur 31 Hi-Mod Gel as manufactured by Sika Corporation; BurkEpoxy NS as manufactured by The Burke Company; Concsive Paste (LPL) as manufactured by Master Builders; or equal

2.05 CONCRETE DESIGN REQUIREMENTS

- A. Mix Design:
 - 1. General: Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the qualities specified. The exact proportions in which these materials are to be used for different parts of the Work will be determined during the trial batch. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and maximum smoothness of

surface. In mix designs, the percentage of sand of the total weight of fine and coarse aggregate shall not exceed 41 for hydraulic structures or 50 for all other structures, unless noted otherwise. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the Owner. All changes shall be subject to review by the Owner's Representative.

2. Water-Cement Ratio and Compressive Strength: The minimum compressive strength and cement content of concrete shall be not less than that specified in the following table:

<u>Type of Work</u>	Min. 28-Day Compressive Strength (PSI)	Max Size Aggregate (in)	Minimum Cement Per CU YD (lb)	Max W/C Ratio (by weight)
Structural Concrete:				
Normal weight reinforced concrete (145 pcf)	5,000	3/4	658	0.45
Lean Concrete	4,500	3/4	611	0.45

NOTE: The Contractor is cautioned that the limiting parameters specified above are not a mix design. Additional cement or water-reducing agent may be required to achieve workability demanded by the Contractor's construction methods and aggregates. The Contractor is responsible for any costs associated with furnishing concrete with the required workability.

3. Adjustments to Mix Design: The mixes used shall be changed whenever such change is necessary or desirable to secure the required strength, density, workability, and surface finish and the Contractor shall be entitled to no additional compensation because of such changes.

B. Consistency:

1. The quantity of water entering into a batch of concrete shall be just sufficient, with a normal mixing period, to produce a concrete which can be worked properly into place without segregation, and which can be compacted by the vibratory methods herein specified to give the desired density, impermeability and smoothness of surface. The quantity of water shall be changed as necessary, with variations in the nature or moisture content of the aggregates, to maintain uniform production of a desired consistency. The consistency of the concrete in successive batches shall be determined by slump tests in accordance with ASTM C 143. The slumps shall be as follows:

<u>Part of Work</u>	<u>Slump (in)</u>
All concrete, unless noted otherwise	4 inches + 1/2-inch
With high range water reducer added	5 inches + 1/2-inch

C. Trial Batch and Laboratory Tests:

1. Before placing any concrete, a testing laboratory approved by the Owner's Representative or Resident Project Representative will prepare a trial batch of each class of structural concrete, based on the preliminary concrete mixes submitted by the Contractor. During the trial batch the aggregate proportions may be adjusted by the testing laboratory using the two coarse aggregate size ranges to obtain the required properties. If one size range produces an acceptable mix, a second size range need not be used. Such adjustments shall be considered refinements to the mix design and shall not be the basis for extra compensation to the Contractor. All concrete shall conform to the requirements of this Section, whether the aggregate proportions are from the Contractor's preliminary mix design, or whether the proportions have been adjusted during the trial batch process. The trial batch will be prepared using the aggregates, cement and admixture proposed for the project. The trial batch materials shall be of a quantity such that the testing laboratory can obtain 3 drying shrinkage, and six compression test specimens from each batch. The cost, of not more than three laboratory trial batch tests for each

specified concrete strength will be borne by the Contractor. The Contractor shall furnish and deliver the materials in steel drums to the approved testing laboratory. Any additional trial batch testing required shall be performed by the testing laboratory at no additional cost to the Owner.

2. The determination of compressive strength will be made by testing 6-inch diameter by 12 inch high cylinders; made, cured and tested in accordance with ASTM C 192 and ASTM C 39. Three compression test cylinders will be tested at 7 days and 3 at 28 days. The average compressive strength for the three cylinders tested at 28 days for any given trial batch shall not be less than 125 percent of the specified compressive strength.
3. A sieve analysis of the combined aggregate for each trial batch shall be performed according to the requirements of ASTM C 136. Values shall be given for percent passing each sieve.
4. In lieu of trial batch and laboratory tests specified in this Section, the Contractor may submit previously-designed, tested, and successfully-used concrete mixes, using materials similar to those intended for this project, together with a minimum of three certified test reports of the 28 day strength of the proposed concrete mix.

D. Shrinkage Limitation:

1. The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21 day drying age or at 28 day drying age shall be 0.036 percent or 0.042 percent, respectively. Use a mix design for construction that has first met the trial batch shrinkage requirements. Shrinkage limitations apply only to structural concrete.
2. The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25 percent.
3. If the required shrinkage limitation is not met during construction, take any or all of the following actions, at no additional cost to the Owner for securing the specified shrinkage requirements. These actions may include changing the source of aggregates, cement and/or admixtures; reducing water content; washing of aggregate to

reduce fines; increasing the number of construction joints, modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage.

E. Measurement of Cement and Aggregate:

1. The amount of cement and of each separate size of aggregate entering into each batch of concrete shall be determined by direct weighing equipment acceptable to the Owner's Representative.

2. Weighing Tolerances:

<u>Material</u>	<u>Percent of Total Weight</u>
Cement	1
Aggregates	3
Admixtures	3

F. Measurement of Water:

1. The quantity of water entering the mixer shall be measured by a suitable water meter or other measuring device of a type acceptable to the Owner's Representative or Resident Project Representative and capable of measuring the water in variable amounts within a tolerance of one percent. The water feed control mechanism shall be capable of being locked in position so as to deliver constantly any specified amount of water to each batch of concrete. A positive quick-acting valve shall be used for a cut-off in the water line to the mixer. The operating mechanism must be such that leakage will not occur when the valves are closed.

2.06 READY-MIXED CONCRETE

A. At the Contractor's option, ready-mixed concrete may be used meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94, including the following supplementary requirements.

B. Ready-mixed concrete shall be delivered to the site of the Work, and discharge shall be completed within one and one-half hour (90 minutes) after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first.

- C. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the resettable, recording type, and shall be mounted in the driver's cab. The counters shall be actuated at the time of starting mixers at mixing speeds.
- D. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.
- E. Truck mixers and their operation shall be such that the concrete throughout the mixed batch as discharged is within acceptable limits of uniformity with respect to consistency, mix, and grading. If slump tests taken at approximately the one-quarter (1/4) and three-quarter (3/4) points of the load during discharge give slumps differing by more than one inch (1") when the specified slump is 3 inches or less, or if they differ by more than 2 inches when the specified slump is more than 3 inches, the mixer shall not be used on the Work unless the causing condition is corrected and satisfactory performance is verified by additional slump tests. All mechanical details of the mixer, such as water measuring and discharge apparatus, condition of the blades, speed of rotation, general mechanical condition of the unit, and clearance of the drum, shall be checked before a further attempt to use the unit will be permitted.
- F. Each batch of ready-mixed concrete delivered at the job site shall be accompanied by a delivery ticket furnished to the Owner's Representative or Resident Project Representative in accordance with Subsection 03300-1.04B.
- G. The use of nonagitating equipment for transporting ready-mixed concrete will not be permitted. Combination truck and trailer equipment for transporting ready-mixed concrete will not be permitted. The quality and quantity of materials used in ready-mixed concrete and in batch aggregates shall be subject to continuous inspection at the batching plant by the Owner's Representative.

2.07 FLOOR HARDENER (SURFACE APPLIED)

- A. Surface hardener shall be a light reflective nonoxidizing metallic aggregate dry shake surface hardener.
 - 1. Surface hardener shall be premeasured, premixed and packaged at the factory.
 - 2. Apply surface hardener at the rate of 1.8 to 2.5 lb per square foot.
 - 3. Surface hardener shall be Alumiplate®, by Master Builders, Inc., or equal.
- B. Curing Compound shall meet the moisture retention requirements of ASTM C 309 and surface hardener manufacturer's recommendations.
- C. Monomolecular Film: Evaporation retarder shall be used to aid in maintaining concrete moisture during the early placement stages of plastic concrete. Evaporation retarder shall be as recommended by surface hardener manufacturer.

2.08 NSF / ANSI STANDARD 61

- A. All cementitious material, admixtures, curing compounds, and other industrial produced materials used in concrete, or for curing or repairing of concrete, that can contact potable water or water that will be treated to become potable shall be listed in NSF / ANSI Standard 61.

PART 3 - EXECUTION

3.01 PROPORTIONING AND MIXING

- A. Proportioning: Proportioning of the concrete mix shall conform to the requirements of Chapter 3, "Proportioning" of ACI 301.
- B. Mixing: Mixing of concrete shall conform to the requirements of Chapter 7 of said ACI 301 Specifications.
- C. Slump: Maximum slumps shall be as specified herein.
- D. Retempering: Retempering of concrete or mortar which has partially hardened shall not be permitted.

3.02 PREPARATION OF SURFACES FOR CONCRETING

- A. General: Earth surfaces shall be thoroughly wetted by sprinkling, before the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud, and debris at the time of placing concrete.
- B. Joints in Concrete: Concrete surfaces upon or against which concrete is to be placed, where the placement of the concrete has been stopped or interrupted so that, as determined by the Owner's Representative, the new concrete cannot be incorporated integrally with that previously placed, are defined as construction joints. The surfaces of horizontal joints shall be given a compacted, roughened surface for good bond. The joint surfaces shall be cleaned of all laitance, loose or defective concrete, foreign material, and roughened to a minimum of ¼ inch amplitude. Such cleaning and roughening shall be accomplished by hydroblasting or sandblasting (exposing aggregate) followed by thorough washing. All pools of water shall be removed from the surface of construction joints, and the joint surface shall be coated with an epoxy-bonding agent, unless indicated otherwise, before the new concrete is placed.
- C. Placing Interruptions: When placing of concrete is to be interrupted long enough for the concrete to take a set, the working face shall be given a shape by the use of forms or other means, that will secure proper union with subsequent Work; provided that construction joints shall be made only where acceptable to the Owner's Representative.
- D. Embedded Items: No concrete shall be placed until all formwork, installation of parts to be embedded, reinforcement steel, and preparation of surfaces involved in the placing have been completed and accepted by the Owner's Representative or Resident Project Representative at least 4 hours before placement of concrete. All surfaces of forms and embedded items that have become encrusted with dried grout from concrete previously placed shall be cleaned of all such grout before the surrounding or adjacent concrete is placed.
- E. All inserts or other embedded items shall conform to the requirements herein.
- F. All reinforcement, anchor bolts, sleeves, inserts, and similar items shall be set and secured in the forms where illustrated on the Plans or by approved shop drawings and shall be acceptable to the Owner's Representative or Resident Project Representative before

any concrete is placed. Accuracy of placement is the responsibility of the Contractor.

- G. Casting New Concrete Against Old: Where concrete is to be cast against old concrete (any concrete which is greater than 60 days of age), the surface of the old concrete shall be thoroughly cleaned and roughened by hydroblasting or sandblasting (exposing aggregate). The joint surface shall be coated with an epoxy bonding agent unless indicated otherwise by the Owner's Representative.
- H. No concrete shall be placed in any structure until all water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the Work. No concrete shall be deposited underwater nor shall the Contractor allow still water to rise on any concrete until the concrete has attained its initial set. Water shall not be permitted to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary dewatering operations for removing ground water, if required, will be subject to the review of the Owner's Representative.
- I. Corrosion Protection: Pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction shall be so positioned and supported before placement of concrete that there will be a minimum of 2 inches clearance between said items and any part of the concrete reinforcement. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.
- J. Openings for pipes, inserts for pipe hangars and brackets, and the setting of anchors shall, where practicable, be provided for during the placing of concrete.
- K. Anchor bolts shall be accurately set, and shall be maintained in position by templates while embedded in concrete.
- L. Cleaning: The surfaces of all metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed.

3.03 HANDLING, TRANSPORTING AND PLACING

- A. General: Placing of concrete shall conform to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section. No aluminum materials shall be used in conveying any concrete.
- B. Nonconforming Work or Materials: Concrete which upon or before placing is found not to conform to the requirements specified herein shall be rejected and immediately removed from the Work. Concrete which is not placed in accordance with these Specifications, or which is of inferior quality, shall be removed and replaced at no additional expense to the Owner.
- C. Unauthorized Placement: No concrete shall be placed except in the presence of duly authorized representative of the Owner's Representative. The Contractor shall notify the Owner's Representative or Resident Project Representative in writing at least 48 hours in advance of placement of any concrete.
- D. Placement in Wall Forms: Concrete shall not be dropped through reinforcement steel or into any deep form, nor shall concrete be placed in any form in such a manner as to leave accumulation of mortar on the form surfaces above the placed concrete. In such cases, some means such as the use of hoppers and, if necessary, vertical ducts of canvas, rubber, or metal shall be used for placing concrete in the forms in a manner that it may reach the place of final deposit without separation. In no case shall the free fall of concrete exceed 4 feet below the ends of ducts, chutes, or buggies. Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than 6 feet in horizontal direction. Concrete in forms shall be deposited in uniform horizontal layers not deeper than 2 feet; and care shall be taken to avoid inclined layers or inclined construction joints except where such are required for sloping members. Each layer shall be placed while the previous layer is still soft. The rate of placing concrete in forms shall not exceed 5 feet of vertical rise per hour. Sufficient illumination shall be provided in the interior of all forms so that the concrete at the places of deposit is visible from the deck or runway.
- E. Conveyor Belts and Chutes: All ends of chutes, hopper gates, and all other points of concrete discharge throughout the Contractor's conveying, hoisting and placing system shall be so designed and arranged that concrete passing from them will not fall separated into whatever receptacle immediately receives it. Conveyor belts, if used, shall be of a type acceptable to the Owner's Representative. Chutes longer than 50 feet will not be permitted. Minimum slopes

of chutes shall be such that concrete of the specified consistency will readily flow in them. If a conveyor belt is used, it shall be wiped clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. All conveyor belts and chutes shall be covered.

- F. Placement in Slabs: Concrete placed in sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the placement. As the Work progresses, the concrete shall be vibrated and carefully worked around the slab reinforcement, and the surface of the slab shall be screeded in an up-slope direction.
- G. Temperature of Concrete: The temperature of concrete when it is being placed shall be not more than $90^{\circ}F$ nor less than $55^{\circ}F$ for sections less than 12 inches thick nor less than $50^{\circ}F$ for all other sections. Concrete ingredients shall not be heated to a temperature higher than that necessary to keep the temperature of the mixed concrete, as placed, from falling below the specified minimum temperature. When the temperature of the concrete is $85^{\circ}F$ or above, the time between the introduction of the cement to the aggregates and discharge at the Site shall not exceed 45 minutes. If concrete is placed when the weather is such that the temperature of the concrete would exceed $90^{\circ}F$, the Contractor shall employ effective means, such as precooling of aggregates and mixing water using ice or placing at night, as necessary to maintain the temperature of the concrete, as it is placed, below $90^{\circ}F$. The Contractor shall be entitled to no additional compensation on account of the foregoing requirements.
- H. Cold Weather Placement:
1. Placement of concrete shall conform to ACI 306.1 - Standard Specification for Cold Weather Concreting, and the following.
 2. Remove all snow, ice and frost from the surfaces, including reinforcement, against which concrete is to be placed. Before beginning concrete placement, thaw the subgrade to a minimum depth of 6 inches. All reinforcement and embedded items shall be warmed to above $32^{\circ}F$ before concrete placement.
 3. Maintain the concrete temperature above $50^{\circ}F$ for at least 3 days after placement.
- I. Hot Weather Placement:

1. Placement of concrete shall conform to ACI 305R - Hot Weather Concreting, and the following.
2. Only set retarding admixture shall be used in concrete when air temperature is expected to be consistently over 80°F.
3. The maximum temperature of concrete shall not exceed 90°F immediately before placement.
4. From the initial placement to the curing state, concrete shall be protected from the adverse effect of high temperature, low humidity, and wind.

3.04 PUMPING OF CONCRETE

- A. General: If the pumped concrete does not produce satisfactory end results, discontinue the pumping operation and proceed with the placing of concrete using conventional methods.
- B. Pumping Equipment: The pumping equipment must have two (2) cylinders and be designed to operate with one (1) cylinder only in case the other one is not functioning. In lieu of this requirement, the Contractor shall maintain a standby pump on the site during pumping.
- C. The minimum diameter of the hose (conduits) shall be in accordance with ACI 304.2R.
- D. Pumping equipment and hoses (conduits) that are not functioning properly, shall be replaced.
- E. Aluminum conduits for conveying the concrete shall not be permitted.
- F. Field Control: Concrete samples for slump, air content, and test cylinders will be taken at the placement (discharge) end of the line.

3.05 ORDER OF PLACING CONCRETE

- A. The order of placing concrete in all parts of the Work shall be acceptable to the Owner's Representative. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints. The placing of units shall be accomplished by placing alternate units in a manner such that each unit placed shall have cured at least 7 days for hydraulic structures

and 3 days for all other structures before the contiguous unit or units are placed, except that the corner sections of vertical walls shall not be placed until the two (2) adjacent wall panels have cured at least 14 days for hydraulic structures and 7 days for all other structures.

- B. The surface of the concrete shall be level whenever a run of concrete is stopped. To ensure a level, straight joint on the exposed surface of walls, a wood strip at least $\frac{3}{4}$ inch thick shall be tacked to the forms on these surfaces. The concrete shall be carried about $\frac{1}{2}$ inch above the underside of the strip. About one (1) hour after the concrete is placed, the strip shall be removed and any irregularities in the edge formed by the strip shall be leveled with a trowel and all laitance shall be removed.

3.06 TAMPING AND VIBRATING

- A. As concrete is placed in the forms or in excavations, it shall be thoroughly settled and compacted, throughout the entire depth of the layer which is being consolidated, into a dense, homogeneous mass, filling all corners and angles, thoroughly embedding the reinforcement, eliminating rock pockets, and bringing only a slight excess of water to the exposed surface of concrete during placement. Vibrators shall be Group 3 (per ACI 309) high speed power vibrators (8,000 to 12,000 rpm) of an immersion type in sufficient number and with (at least one) standby units as required. Group 2 vibrators may be used only at specific locations when accepted by the Owner's Representative.
- B. Care shall be exercised in placing concrete around waterstops. The concrete shall be carefully worked by rodding and vibrating to make sure that all air and rock pockets have been eliminated. Where flat-strip type waterstops are placed horizontally, the concrete shall be worked under the waterstops by hand, making sure that all air and rock pockets have been eliminated. Concrete surrounding the waterstops shall be given additional vibration, over and above that used for adjacent concrete placement to assure complete embedment of the waterstops in the concrete.
- C. Concrete in walls shall be internally vibrated and at the same time rammed, stirred, or worked with suitable appliances, tamping bars, shovels, or forked tools until it completely fills the forms or excavations and closes snugly against all surfaces. Subsequent layers of concrete shall not be placed until the layers previously placed have been worked thoroughly as specified. Vibrators shall be provided in sufficient numbers, with standby units as required, to

accomplish the results herein specified within 15 minutes after concrete of the prescribed consistency is placed in the forms. The vibrating head shall be kept from contact with the surfaces of the forms. Care shall be taken not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

3.07 FINISHING CONCRETE SURFACES

- A. General: Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the alignment, profiles, and dimensions shown are defined as tolerances and are specified in Part 1, herein. These tolerances are to be distinguished from irregularities in finish as described herein. Aluminum finishing tools shall not be used.
- B. Formed Surfaces: No treatment is required after form removal except for curing, repair or defective concrete, and treatment of surface defects. Where architectural finish is required, it shall be as specified or as shown.
1. Surface holes larger than ½ inch in diameter or deeper than ¼ inch are defined as surface defects in basins and exposed walls.
- C. Unformed Surfaces: After proper and adequate vibration and tamping, all unformed top surfaces of slabs, floors, walls, and curbs shall be brought to a uniform surface with suitable tools. Immediately after the concrete has been screeded, it shall be treated with a liquid evaporation retardant. The retardant shall be used again after each Work operation as necessary to prevent drying shrinkage cracks. The classes of finish specified for unformed concrete surfaces are designated and defined as follows:
1. FINISH U1 - Sufficient leveling and screeding to produce an even, uniform surface with surface irregularities not to exceed 3/8-inch. No further special finish is required.
 2. FINISH U2 - After sufficient stiffening of the screeded concrete, surfaces shall be float finished with wood or metal floats or with a finishing machine using float blades. Excessive floating of surfaces while the concrete is plastic and dusting of dry cement and sand on the concrete surface to absorb excess moisture will not be permitted. Floating shall be the minimum necessary to produce a surface that is

free from screed marks and is uniform in texture. Surface irregularities shall not exceed 1/4-inch. Joints and edges shall be tooled where shown or as determined by the Owner's Representative.

3. FINISH U3 - After the floated surface (as specified for Finish U2) has hardened sufficiently to prevent excess of fine material from being drawn to the surface, steel troweling shall be performed with firm pressure such as will flatten the sandy texture of the floated surface and produce a dense, uniform surface free from blemishes, ripples, and trowel marks. The finish shall be smooth and free of all irregularities.
 4. FINISH U4 - Steel trowel finish (as specified for Finish U3) without local depressions or high points. In addition, the surface shall be given a light hairbroom finish with brooming perpendicular to drainage unless otherwise shown. The resulting surface shall be rough enough to provide a nonskid finish.
- D. Unformed surfaces shall be finished according to the following schedule:

UNFORMED SURFACE FINISH SCHEDULE

<u>Area</u>	<u>Finish</u>
Grade slabs and foundations to be covered with concrete or fill material	U1
Floors to be covered with grouted tile or topping grout	U2
Slabs which are water bearing with slopes 10 percent and less	U4
Sloping slabs which are water bearing with slopes greater than 10 percent	U4
Slabs not water bearing	U4
Slabs to be covered with built-up roofing	U2
Interior slabs and floors to receive architectural finish	U3

E. Floor Hardener (Surface Applied) - Required

1. Provide concrete with the following additional requirements:
 - a) Maximum slump of 4 inches when peak ambient temperatures are expected to be more than $65^{\circ}F$, and no more than 3 inches when ambient temperatures are below $65^{\circ}F$.
 - b) Maximum air content of 3 percent.
 - c) Do not use calcium chloride or set-accelerating admixtures containing calcium chloride.
 - d) Do not use admixtures that increase bleeding.
 - e) Do not use fly ash.
2. After the concrete has been leveled and as soon as the concrete will support an operator and machine without disturbing the level or working up excessive fines, float the surface of the slab with a mechanical float fitted with float shoes. Following floating, apply $1/2$ to $2/3$ of the total amount of dry shake surface hardener so that a uniform distribution of surface hardener is obtained. The use of a mechanical spreader is recommended. Once the shake has absorbed sufficient moisture (indicated by the darkening of the shake), float the surface. Immediately apply the remaining $1/3$ to $1/2$ of the shake and allow to absorb moisture. Do not place dry shake on concrete surface when bleed water is present.
3. Use finishing machines with detachable float shoes. Compact surface by a third mechanical floating if time and setting characteristics of the concrete will allow. Do not add water to the surface.
4. As surface further stiffens, indicated by loss of sheen, hand or mechanically trowel with blades set relatively flat. Remove all marks and pinholes in the final raised trowel operation.

5. Follow all application instructions of the floor surface hardener manufacturer.
6. Cure finished floors using fill-forming curing compound recommended by surface hardener manufacturer. Uniformly apply curing compound over the entire surface at a coverage that will provide moisture retention in excess of the requirements of ASTM C 309. Maintain ambient temperature of 50°F or above during the curing period.
7. Keep floors covered and free of traffic and loads for a minimum of 14 days after completion.

3.08 ARCHITECTURAL FINISH

A. General: Architectural finishes shall be required only where specifically called out on the Plans. In all other cases, the paragraph above, entitled "Finishing Concrete Surfaces", shall apply.

1. Immediately after the forms have been stripped, the concrete surface shall be inspected and any poor joints, voids, rock pockets, or other defective areas shall be repaired and all form-tie holes filled as indicated herein.
2. Architectural finishes shall not be applied until the concrete surface has been repaired as required and the concrete has cured at least 14 days.
3. All architecturally treated concrete surfaces shall conform to the accepted sample required herein in texture, color, and quality. It shall be the Contractor's responsibility to maintain and protect the concrete finish.

B. Smooth Concrete Finish:

1. The concrete surface shall be wetted, and a grout shall be applied with a brush. The grout shall be prepared by mixing one (1) part Portland Cement and one (1) part of fine sand that will pass a No. 16 sieve with sufficient water to give it the consistency of thick paint. The cement used in said grout shall be 1/2 gray and 1/2 white Portland Cement, as determined by the Owner's Representative. White Portland Cement shall be Atlas White or equal. Calcium chloride in the amount of 5 percent by volume of the cement shall be used in the brush coat. The freshly applied grout shall be

vigorously rubbed into the concrete surface with a wood float filling all small air holes. After all surface grout had been removed with a steel trowel, the surface shall be allowed to dry and, when dry, shall be vigorously rubbed with burlap to remove completely all surface grout so that there is no visible paint-like film of grout on the concrete. The entire cleaning operation for any area shall be completed the day it is started, and no grout shall be left on the surface overnight.

2. Cleaning operations for any given day shall be terminated at panel joints. It is essential that the various operations be carefully timed to secure the desired effect which is a light-colored concrete surface of uniform color and texture without any appearance of a point or grout film.
3. In the event that improper manipulation results in an inferior finish, rub such inferior areas with carborundum bricks.
4. Before beginning any of the final treatment on exposed surfaces, treat in a satisfactory manner a trial area of at least 200 square feet in some inconspicuous place selected by the Owner's Representative or Resident Project Representative and preserve said trial area undisturbed until the completion of the job.

C. Sandblasted Concrete Finish:

1. Sandblasting shall be done in a safe manner acceptable to local authorities and per OSHA requirements. The sandblasting shall be a light sandblast to remove laitance and to produce a uniform fine aggregate surface texture with approximately 1/32 to 1/16 inch of surface sandblasted off. Corners, patches, form panel joints, and soft spots shall be sandblasted with care.
2. A 3 square foot sample panel of the sandblasted finish shall be provided by the Contractor for acceptance by the Owner's Representative or Resident Project Representative before starting the sandblasting Work. The sample panel shall include a corner, plugs, and joints and shall be marked after approval. All other sandblasting shall be equal in finish to the sample panel.
3. Protection against sandblasting shall be provided on all surfaces and materials not requiring sandblasting but within or adjacent to areas being sandblasted. After sandblasting,

the concrete surfaces shall be washed with clean water and excess sand removed.

3.09 CURING AND DAMP-PROOFING

- A. General: All concrete shall be cured for not less than 14 days after placing, in accordance with the methods specified herein for the different parts of the Work, and described in detail in the following paragraphs:

<u>Surface To Be Cured or Damp-proofed</u>	<u>Method</u>
Unstripped forms	1
Wall sections with forms removed	6
Construction joints between footings and walls, and between floor slab and columns	2
Encasement concrete and thrust blocks	3
All concrete surfaces not specifically provided for elsewhere in this Paragraph	6
Floor slabs on grade	6
Slabs not on grade	6

- B. Method 1: Wooden forms shall be wetted immediately after concrete has been placed and shall be kept wet with water until removed. If steel forms are used the exposed concrete surfaces shall be kept continuously wet until the forms are removed. If forms are removed within 14 days of placing the concrete, curing shall be continued in accordance with Method 6, herein.
- C. Method 2: The surface shall be covered with burlap mats which shall be kept wet with water for the duration of the curing period, until the concrete in the walls has been placed. No curing compound shall be applied to surfaces cured under Method 2.
- D. Method 3: The surface shall be covered with moist earth not less than 4 hours, nor more than 24 hours, after the concrete is placed. Earthwork operations that may damage the concrete shall not begin until at least 7 days after placement of concrete.

- E. Method 4: The surface shall be sprayed with a liquid curing compound.
1. It shall be applied in accordance with the manufacturer's printed instructions at a maximum coverage rate of 200 square feet per gallon and in such a manner as to cover the surface with a uniform film which will seal thoroughly.
 2. Where the curing compound method is used, care shall be exercised to avoid damage to the seal during the curing period. Should the seal be damaged or broken before the expiration of the curing period, the break shall be repaired immediately by the new application of additional curing compound over the damaged portion.
 3. Wherever curing compound may have been applied by mistake to surfaces against which concrete subsequently is to be placed and to which it is to adhere, said compound shall be entirely removed by wet sandblasting just before the placing of new concrete.
 4. Where curing compound is specified, it shall be applied as soon as the concrete has hardened enough to prevent marring on unformed surfaces, and within 2 hours after removal of forms from contact with formed surfaces. Repairs required to be made to formed surfaces shall be made within the said 2 hour period; provided, however, that any such repairs which cannot be made within the said 2 hour period shall be delayed until after the curing compound has been applied. When repairs are to be made to an area on which curing compound has been applied, the area involved shall first be wet-sandblasted to remove the curing compound, following which repairs shall be made as specified herein.
 5. At all locations where concrete is placed adjacent to a panel which has been coated with curing compound, the previously coated panel shall have curing compound reapplied to an area within 6 feet of the joint and to any other location where the curing membrane has been disturbed.
 6. Before final acceptance of the Work, all visible traces of curing compound shall be removed from all surfaces in such a manner that does not damage surface finish.

F. Method 5:

1. Until the concrete surface is covered with curing compound, the entire surface shall be kept damp by applying water using nozzles that atomize the flow so that the surface is not marred or washed. The concrete shall be given a coat of curing compound in accordance with Method 4, herein. Not less than 1 hour nor more than 4 hours after the coat of curing compound has been applied, the surface shall be wetted with water delivered through a fog nozzle, and concrete-curing blankets shall be placed on the slabs. The curing blankets shall be polyethylene sheet, polyethylene-coated waterproof paper sheeting or polyethylene-coated burlap. The blankets shall be laid with the edges butted together and with the joints between strips sealed with 2 inch wide strips of sealing tape or with edges lapped not less than 3 inches and fastened together with a waterproof cement to form a continuous watertight joint.
2. The curing blankets shall be left in place during the 14 day curing period and shall not be removed until after concrete for adjacent Work has been placed. Should the curing blankets become torn or otherwise ineffective, replace damaged sections. During the first 3 days of the curing period, no traffic of any nature and no depositing, temporary or otherwise, of any materials shall be permitted on the curing blankets. During the remainder of the curing period, foot traffic and temporary depositing of materials that impose light pressure will be permitted only on top of plywood sheets 5/8 inch minimum thickness, laid over the curing blanket. Add water under the curing blanket as often as necessary to maintain damp concrete surfaces at all times.

G. Method 6: This method applies to both walls and slabs.

1. The concrete shall be kept continuously wet by the application of water for a minimum period of at least 14 consecutive days, beginning immediately after the concrete has reached final set or forms have been removed or until the concrete surface is covered with the curing medium. The entire surface shall be kept damp by applying water using nozzles that atomize the flow so that the surface is not marred or washed.
2. Heavy curing mats shall be used as a curing medium to retain the moisture during the curing period. The curing

medium shall be weighted or otherwise held in place to prevent being dislodged by wind or any other causes and to be substantially in contact with the concrete surface. All edges shall be continuously held in place.

3. The curing blankets and concrete shall be kept continuously wet by the use of sprinklers or other means both during and after normal working hours. The concrete shall be maintained in a cool condition from the heat of hydration and the solar heat of the sun.
 4. Immediately after the application of water has terminated at the end of the curing period, the curing medium shall be removed, any dry spots shall be rewetted, and curing compound shall be immediately applied in accordance with Method 4, herein.
 5. Dispose of excess water from the curing operation to avoid damage to the Work.
- H. Damp-proofing: The exterior surface of all buried roof slabs shall be damp-proofed as follows:
1. Immediately after completion of curing the surface shall be sprayed with a damp-proofing agent consisting of an asphalt emulsion. Application shall be in two (2) coats. The first coat shall be diluted to 1/2 strength by the addition of water and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon of dilute solution. The second coat shall consist of an application of the specified material, undiluted, and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon. Damp-proofing material shall be as specified herein.
 2. As soon as the asphalt emulsion, applied as specified herein, has taken an initial set, the entire area thus coated shall be coated with whitewash. Any formula for mixing the whitewash may be used which produces a uniformly coated white surface and which so remains until placing of the backfill. Should the whitewash fail to remain on the surface until the backfill is placed, apply additional whitewash.

3.10 PROTECTION

- A. Protect all concrete against injury until final acceptance by the Owner.

- B. Fresh concrete shall be protected from damage due to rain, hail, sleet, or snow. Provide such protection while the concrete is still plastic and whenever such precipitation is imminent or occurring.

3.11 CURING IN COLD WEATHER

- A. Water curing of concrete may be reduced to 6 days during periods when the mean daily temperature in the vicinity of the worksite is less than $40^{\circ}F$; provided that, during the prescribed period of water curing, when temperatures are such that concrete surfaces may freeze, water curing shall be temporarily discontinued.
- B. Concrete cured by an application of curing compound will require no additional protection from freezing if the protection at $50^{\circ}F$ for 72 hours is obtained by means of approved insulation in contact with the forms or concrete surfaces; otherwise the concrete shall be protected against freezing temperatures for 72 hours immediately following 72 hours protection at $50^{\circ}F$. Concrete cured by water curing shall be protected against freezing temperatures for 3 days immediately following the 72 hours of protection at $50^{\circ}F$.
- C. Discontinuance of protection against freezing temperatures shall be such that the drop in temperature of any portion of the concrete will be gradual and will not exceed $40^{\circ}F$ in 24 hours. In the spring, when the mean daily temperature rises above $40^{\circ}F$ for more than 3 successive days, the specified 72 hour protection at a temperature not lower than $50^{\circ}F$ may be discontinued for as long as the mean daily temperature remains above $40^{\circ}F$; provided, that the concrete shall be protected against freezing temperatures for not less than 48 hours after placement.
- D. Where artificial heat is employed, special care shall be taken to prevent the concrete from drying. Use of unvented heaters will be permitted only when unformed surfaces of concrete adjacent to the heaters are protected for the first 24 hours from an excessive carbon dioxide atmosphere by application of curing compound; provided, that the use of curing compound for such surfaces is otherwise permitted by these Specifications.

3.12 TREATMENT OF SURFACE DEFECTS

- A. As soon as forms are removed, all exposed surfaces shall be carefully examined and any irregularities shall be immediately rubbed or ground in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of

surfaces to be smoothed will not be permitted. No repairs shall be made until after inspection by the Owner's Representative. In no case will extensive patching of honeycombed concrete be permitted. Concrete containing minor voids, holes, honeycombing, or similar depression defects shall have them repaired as specified herein. Concrete containing extensive voids, holes, honeycombing, or similar depression defects, shall be completely removed and replaced. All repairs and replacements herein specified shall be promptly executed by the Contractor at its own expense.

- B. Defective surfaces to be repaired shall be cut back from trueline in a minimum depth of ½ inch over the entire area. Feathered edges will not be permitted. Where chipping or cutting tools are not required in order to deepen the area properly, the surface shall be prepared for bonding by the removal of all laitance or soft material, and not less than 1/32 inch depth of the surface film from all hard portions, by means of an efficient sandblast. After cutting and sandblasting, the surface shall be wetted sufficiently in advance of shooting with shotcrete or with cement mortar so that while the repair material is being applied, the surfaces under repair will remain moist, but not so wet as to overcome the suction upon which a good bond depends. The material used for repair proposed shall consist of a mixture of 1 sack of cement to 3 cubic feet of sand. For exposed walls, the cement shall contain such a proportion of Atlas White Portland Cement as is required to make the color of the patch match the color of the surrounding concrete.
- C. Holes left by tie-rod cones shall be reamed with suitable toothed reamers so as to leave the surfaces of the holes clean and rough. These holes then shall be repaired in an approved manner with dry-packed cement grout. Holes left by form-tying devices having a rectangular cross-section, and other imperfections having a depth greater than their least surface dimension, shall not be reamed but shall be repaired in an approved manner with dry-packed cement grout.
- D. All repairs shall be built up and shaped in such a manner that the completed Work will conform to the requirements of this Section, as applicable, using approved methods which will not disturb the bond, cause sagging, or cause horizontal fractures. Surfaces of said repairs shall receive the same kind and amount of curing treatment as required for the concrete in the repaired section.
- E. Before filling any structure with water, all cracks that may have developed shall be "vee'd" and filled with construction joint sealant for water-bearing structures conforming to the materials and

methods specified in Section 03290 - Joints in Concrete Structures. This repair method shall be accomplished on the water bearing face of members. Before backfilling, faces of members in contact with fill, which are not covered with a waterproofing membrane, shall also have cracks repaired as specified herein.

3.13 PATCHING HOLES IN CONCRETE

A. Patching Small Holes:

1. Holes which are less than 12 inches in their least dimension and extend completely through concrete members, shall be filled as specified herein.
2. Small holes in members which are water-bearing or in contact with soil or other fill materials, shall be filled with nonshrink grout. Where a face of the member is exposed to view, the nonshrink grout shall be held back 2 inches from the finished surface. The remaining 2 inches shall then be patched according to the paragraph in Part 3 entitled - Treatment of Surface Defects.
3. Small holes through all other concrete members shall be filled with nonshrink grout, with exposed faces treated as above.

B. Patching Large Holes:

1. Holes which are larger than 12 inches in their least dimension, shall have a keyway chipped into the edge of the opening all around, unless a formed keyway exists. The holes shall then be filled with concrete as specified.
2. Holes which are larger than 24 inches in their least dimension and which do not have reinforcing steel extending from the existing concrete, shall have reinforcing steel set in grout in drilled holes. The reinforcing added shall match the reinforcing in the existing wall unless required otherwise by the Improvement Plans or approved shop drawings.
3. Large holes in members which are water bearing or in contact with soil or other fill, shall have a bentonite type waterstop material placed around the perimeter of the hole as specified in the Section 03290 - Joints in Concrete Structures, unless there is an existing waterstop in place.

3.14 CARE AND REPAIR OF CONCRETE

- A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the Owner. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time before the final acceptance of the completed Work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with acceptable concrete at the Contractor's expense.

END OF SECTION 03300

SECTION 05220 - CONCRETE BOLTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall provide concrete anchor bolts, inserts, complete, in accordance with the Contract Documents. Principal items are anchor bolts placed in concrete, adhesive anchors, expansion bolts, and drilled anchors.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Except as otherwise indicated in this Section of the Specifications, the Contractor shall comply with the latest adopted edition of the Standard Specifications for Public Works Construction (SSPWC), together with the latest adopted editions of the Regional Amendments.
- B. The current edition of the Uniform Building Code (UBC) of International Conference of Building Officials (ICBO).
- C. Federal Specifications:
1. MIL-A-907E Antiseize Thread Compound, High Temperature
- D. Commercial Standards (Current Edition):
1. American Welding Society AWS A 5 Series.
 2. ANSI/AWS B 3.0 Welding Procedure and Performance Qualifications
 3. ANSI/AWS D 1.1 Specification for Welding Code - Steel
 4. ANSI/AWS D 1.3 Specification for Welding Sheet Steel in Structure
 5. AISC American Institute of Steel Construction - Manual of Steel Construction
- E. ASTM Standards in Building Codes (Current Edition):
1. ASTM A 36 Specification for Structural Steel

- | | | |
|----|------------|---|
| 2. | ASTM A 123 | Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products |
| 3. | ASTM A 153 | Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| 4. | ASTM A 193 | Specifications for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service |
| 5. | ASTM A 194 | Specifications for Carbon and Alloy Steel Nuts for Bolts and High Pressure and High Temperature Service |
| 6. | ASTM A 307 | Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile |
| 7. | ASTM A 320 | Specification for Alloy Steel Bolting Materials for Low-Temperature Service |
| 8. | ASTM A 563 | Specification for Carbon and Alloy Steel Nuts |

1.04 CONTRACTOR SUBMITTALS

- A. Shop Drawings: Shop drawings of all concrete bolts shall be submitted to the Owner's Representative for review in accordance with the Specification Section 01330 – Submittals/Shop Drawings.

- B. An International Conference of Building Officials (ICBO) report listing the ultimate load capacity in tension and shear for each size and type of adhesive and expansion concrete anchor used shall be submitted for review. The Contractor shall submit manufacturer's recommended installation instructions and procedures for all adhesive and expansion anchors for review and approval. The Contractor shall follow approved procedures during installation of concrete anchors.

- C. No substitution for the indicated adhesive anchors will be considered unless accompanied with ICBO report verifying strength and material equivalency, including temperature at which load capacity is reduced to 90 percent of that determined at 75°F.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Anchor Bolts: Anchor bolts shall be fabricated of materials complying with SSPWC Subsections 206-1.4.1 and 209-2.2, and as follows:
1. Steel bolts: ASTM A 307 Grade A.
 2. Fabricated steel bolts: ASTM A 36.
 3. Stainless steel bolts, nuts, washers: ASTM A 320, Type 316.
- B. Standard Service Bolts (not Buried or Submerged): Except where otherwise indicated, all bolts, anchor bolts, and nuts shall be steel, galvanized after fabrication as indicated herein unless the bolts are for pipe fittings, transition couplings, mechanical restrained joint fittings, flanged coupling adapters or other piping or piping fittings. The bolts and hardware for these items are specified in Section 02650. Threads on galvanized bolts and nuts shall be formed with suitable taps and dies such that they retain their normal clearance after hot-dip galvanizing. Except as otherwise indicated, steel for bolts, anchor bolts and cap screws shall be in accordance with the requirements of ASTM A 307, Grade A or B, or threaded parts of ASTM A 36.
- C. Buried or Submerged Bolts: Unless other corrosion-resistant bolts are indicated, all bolts, anchor bolts, nuts and washers which are buried, submerged, or below the top of the wall inside any hydraulic structure shall be Type 316 stainless steel conforming to ASTM A 193 for bolts, and to ASTM A 194 for nuts, unless the bolts are for pipe fittings, transition couplings, mechanical restrained joint fittings, flanged coupling adapters or other piping or piping fittings. The bolts and hardware for these items are specified in Section 02650. All threads on stainless steel bolts shall be protected with an antiseize lubricant suitable for submerged stainless steel bolts, to meet government specification MIL-A-907E.
- 1, Antiseize lubricant shall be classified as acceptable for potable water use.
 2. Antiseize lubricant shall be "PURE WHITE" by Anti-Seize Technology, Franklin Park, IL, 60131; AS-470 by Dixon Ticonderoga Company, Lakehurst, NJ, 08733, or equal.

D. Bolt Requirements:

- 1, The bolt and nut material shall be free-cutting steel.
2. The nuts shall be capable of developing the full strength of the bolts. Threads shall be Coarse Thread Series conforming to the requirements of the American Standard for Screw Threads. All bolts and cap screws shall have hexagon heads, and nuts shall be Heavy Hexagon Series.
3. The length of all bolts shall be such that after joints are made up, each bolt shall extend through the entire nut, but in no case, more than ½ inch beyond the nut.

E. Adhesive Anchors: Unless otherwise indicated, all drilled, concrete or masonry anchors shall be adhesive anchors. No substitutions will be considered unless accompanied with ICBO report verifying strength and material equivalency.

- 1, Epoxy adhesive anchors are required for drilled anchors where exposed to weather, in submerged, wet, splash, overhead, and corrosive conditions, and for anchoring handrails, pumps, mechanical equipment, and reinforcing bars. Epoxy anchor grout shall comply with Section 03315 - Grout. Threaded rod shall be stainless steel Type 316.
2. Unless otherwise indicated, glass capsule, polyester resin adhesive anchors will be permitted in locations not indicated above, and shall be Hilti HVA, or equal. Threaded rod shall be galvanized steel.

F. Expanding-Type Anchors: Expanding-type anchors, if indicated or permitted, shall be steel expansion-type ITW Ramset/Redhead "Trubolt" anchors; McCulloch Industries "Kwick-Bolt"; or equal. Lead caulking anchors will not be permitted. Size shall be as indicated. Expansion-type anchors, which are to be embedded in grout, may be steel. Nonembedded buried, or submerged anchors shall be stainless steel.

G. Powder-Driven Pins: Powder-driven pins for installation in concrete shall be heat-treated steel alloy. If the pins are not inherently sufficiently corrosion-resistant for the conditions to which they are to be exposed, they shall be protected in an acceptable manner. Pins shall have capped or threaded-heads capable of transmitting the loads the shanks are required to support.

- H. Impact Anchor: Impact anchors shall be an expansion-type anchor in which a nail-type pin is driven to produce the expansive force. It shall have a zinc sleeve with a mushroom-style head and stainless steel nail pin. Anchors shall be Metal Hit Anchors, manufactured by Hilti, Inc.; Rawl Zamac Nailin, manufactured by the Rawlplug Company, or equal.

2.02 GALVANIZING

- A. Iron and Steel: ASTM A 123, with average weight per square foot of 2.0 ounces, and not less than 1.8 ounces per square foot.
- B. Ferrous Metal Hardware Items: ASTM A 153 with average coating weight of 1.3 ounces per square foot.
- C. Touch-Up Material For Galvanized Coatings: Repair galvanized coatings marred or damaged during erection or fabrication by use of DRYGALV, as manufactured by the American Solder and Flux Company, Galvalloy, Galvion, Rust-Oleum 7085 Cold Galvanizing Compound, or equal, applied in accordance with the manufacturer's instructions.

2.03 WELDING ELECTRODES

- A. Steel Electrodes: Use welding electrodes conforming with AWS D 1.1, except E7024 rods or electrodes shall not be used.
- B. Aluminum Electrodes: Contingent upon alloys being welded, use only inert gas-shielded arc or resistant-welding process with filler alloys conforming to UBC Standard No. 28, Table 28-1-C. Use no process requiring a welding flux.
- C. Stainless Steel Electrodes: Perform welding of stainless steel with electrodes and techniques as contained in pertinent AWS A5 series specification, and as recommended in Welded Austenitic Chromium-Nickel Stainless Steel Techniques and Properties as published by the International Nickel Company, Inc., New York, New York.

PART 3 - EXECUTION

3.01 FABRICATION AND INSTALLATION REQUIREMENTS

- A. Fabrication and Installation: Except as otherwise indicated, the fabrication and installation of anchor bolts shall conform to the

requirements of the American Institute of Steel Construction “Manual of Steel Construction”.

- B. Install adhesive expansion and drilled anchor bolts in accordance with method specified in ICBO for manufacturer product.
- C. Powder-Driven Pins: Powder-driven pins shall be installed by a craftsman who is certified by the manufacturer as being qualified to install the manufacturer’s pins. Pins shall be driven in one initial movement by an instantaneous force that has been carefully selected to attain the required penetration. Driven pins shall conform to the following requirements where “D” = Pin’s shank diameter:

Material Penetrated by Pin	Material’s Minimum Thickness	Pin’s Shank Penetration in Supporting Material	Minimum Space From Pin’s CL to Edge of Penetrated Material	Minimum Pin Spacing
Concrete	16D	6D minimum	14D	20D

3.02 WELDING

- A. Perform all welding in accordance with the “Structural Welding Code-Steel”, AWS D 1.1, and current revisions. Use only welders qualified by tests in accordance with AWS B 3.0.

3.03 GALVANIZING

- A. Bolts, anchor bolts, nuts and similar threaded fasteners, after being properly cleaned, shall be galvanized in accordance with the requirements of ASTM A 153. Field repairs to galvanizing shall be made using “Galvinox”, “Galvo-Weld”, or equal.

3.04 INSPECTION

- A. The Owner’s Representative reserves the right to inspect all materials and workmanship covered in this Section. Such inspections will not relieve the Contractor’s responsibility to furnish materials and workmanship in accordance with the Specifications. If inspections indicate that materials or workmanship are defective, the Contractor shall remove and replace the defective work at no additional cost to the Owner.

END OF SECTION 05220

SECTION 05650 - PRE-ENGINEERED SHADE STRUCTURE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Install Pre-Engineered Shade Structure per dimensions and type illustrated in the Plans.
- B. **PRODUCT DESIGN LOADS:** To meet governing Building Department requirements. Soil loading and seismic design criteria to be obtained from project specific Geotechnical Report. Minimal Building Department requirements shall be used when no specific Geotechnical Report is provided.
- C. **DESIGN METHOD:** Per applicable building code. Note: Manufacturer to use three-dimensional structural analysis to determine member load and forces.
- D. The pre-engineered package shall be a pre-cut and pre-fabricated package that shall include powder coated structural frame members, roof material, fasteners, and trim as well as the installation instructions. The structure shall be shipped knocked down for minimum shipping charges. Field labor will be kept to a minimum by pre-manufactured parts. No onsite welding will be permitted. Connection bolts shall be concealed within the tubing where possible.
- E. Where possible, tube column to concrete base will be surface mounted with all anchor bolts hidden within the column.
- F. Where possible, the structure will have a moment connection at the top of the column and a pinned connection at the base of the column to ensure a clean connection at the base, reduce the size of the concrete base, and provide for one-step concrete installation process.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 03300 – Cast-In-Place Concrete

1.03 REFERENCES

- A. American Institute of Steel Construction (AISC)

- B. American Iron and Steel Institute (AISI) Specifications for Cold Formed Members.
- C. American Society of Testing and Materials (ASTM)
- D. American Society for Quality (ASQ)
- E. American Welding Society (AWS)
- F. California Building Code (CBC)
- G. International Building Code (IBC)
- H. Leadership in Energy and Environmental Design (LEED)
- I. Lightning Protection Institute (LPI)
- J. National Fire Protection Association (NFPA)
- K. OSHA Steel Erection Standard 29 CFR 1926 Subpart R-Steel Erection
- L. Steel Structures Painting Council (SSPC) SSPC-SP10 Near White Blast Cleaning

1.04 SUBMITTALS

- A. Submit 3 set shop drawings and 2 sets structural calculations wet signed and sealed by a Professional Engineer licensed in the State of California.

1.05 QUALITY ASSURANCE:

Provide evidence of commitment of quality craftsmanship as demonstrated by the following:

A. SUPPLIER QUALIFICATIONS:

1. The product shall be designed, produced, and finished at a facility owned and directly supervised by the supplier who has at a minimum of ten years under same ownership making steel frame pre-manufactured structures. Cumulative experience in fabrication will not be an acceptable alternative.
2. The product shall be shipped from a single source.

3. Membership in American Institute of Steel Construction.
4. Membership for American Society of Quality.
5. Membership in American Welding Society.
6. Membership in Chemical Coaters Association International.
7. Membership in Construction Specifications Institute.
8. Full time on-staff Licensed Engineer.
9. Full time on-staff Quality Assurance Manager.
10. Published Quality Management System.
11. Full time on-staff AWS Certified Welding Inspector.
12. Continued certification by an independent inspection agency.
13. Control of finishing quality by in-house shot blast, pretreatment, primer and powder coating.

1.06 PRODUCT STORAGE AND HANDLING

- A. Comply with the requirements of Section 01600 – Materials and Equipment.

1.07 WARRANTY

- A. Supply manufacturer's standard 10 year limited warranty on frame and 10 years limited warranty on paint system.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. USA SHADE & Fabric Structures,
Ph: 800-966-5005
www.usa-shade.com
- B. Pre-Fab Builders
1364 East Valencia Drive
714-575-9265
www.prefabinc.org

- C. Substitutions must be approved a minimum of ten (10) days before bid. All approved manufacturers shall be notified in writing before the bid date and shall not be allowed to bid without written notification.
- D. Alternate suppliers must meet the qualifications and provide proof of certifications listed.
- E. Alternate suppliers must provide equivalency to paint system.
- F. Alternate suppliers must provide proof that their designs do not infringe on patents or copyrights.

2.02 MATERIALS

- A. STRUCTURAL FRAMING: structural steel tube minimum ASTM A500 grade B, "I" beams; tapered columns, open channels, or wood products shall not be accepted for primary beams.
- B. COMPRESSION RING: structural channel or welded plate minimum ASTM A36 or COMPRESSION TUBE: structural steel tube minimum ASTM A500 grade B.
- C. STRUCTURAL FASTENERS: ASTM A325 high strength bolts and A563 high strength nuts, ASTM A307 anchor bolts.
- G. "R" PANEL/MULTI-RIB METAL ROOFING: Multi-rib roofing shall be 24 gauge ribbed galvalume steel sheets with ribs 1 3/16" high and 12" on center. Roof surface shall be painted with Kynar 500 to the manufacturer's standard color. Ceiling surface shall be white. Roof panels are factory precut to size and angle to provide one-step installation.
 - 1. Metal roofing trim shall match the color of the roof and shall be factory made of 26 gauge Kynar 500 painted steel. Trim shall include panel ridge caps, eave trim, splice channels, roof peak cap, and corner trim as applicable for model selected., reference drawings for additional information. Painted screws and butyl tape are included.
 - 2. Ridge Caps shall be performed with a single central bend to match the roof pitch and shall be hemmed on the sides.

2.03 ACCESSORIES / OPTIONAL

- A. ELECTRICAL ACCESS AND BOX CUTOUTS: Electrical access to be provided per manufacturer's electrical access sheet. Electrical cut outs shall be marked as height above finish floor and size of cutout required.
- B. Electrical access at compression shall be provided.
- C. Electrical access up through columns to be provided.

2.04 FABRICATION

- A. All steel fabrication of tubes and plates shall be factory controlled under a documented Quality Management System. All parts shall be permanently etched with identification numbers. Fabrication facility will be experienced for a minimum of ten years in precision tube and plate fabrication. Cumulative experience in fabrication will not be an acceptable alternative.
- B. Certified AWS welders, shall make all welded connections in accordance with AWS Specifications and trained by an AWS Certified Welding Inspector.

2.05 FINISH STEEL

- A. For quality control purposes, steel shall be cleaned, pretreated and finished at a facility owned and directly supervised by the manufacturer. Steel shall be shot blasted to SSPC-SP10 near-white blast cleaning. SSPC-SP2 hand tool cleaning will not be an acceptable alternative. Parts shall be pretreated in a 3 stage iron phosphate or equal washer. Epoxy primer powder coat to be applied to parts for superior corrosion protection. Top powder coat of Super Durable TGIC Powder Coat to color selected from manufacturer's standard color chart. For environmental purposes, finish shall allow no VOC emissions. Sample production parts shall have been tested and meet the following criteria:
 - 1. Salt spray resistance per ASTM B 117/ ASTM D 1654 to 5000 hours with no creep from scribe line and rating of 10.
 - 2. Humidity resistance per ASTM D2247-02 to 3000 hours with no loss adhesion or blistering.
 - 3. Color/UV resistance per ASTM G154-04 to 2000 hours exposure, alternate cycles with results of (a) no chalking (b) 75% color retention (c) Color variation maximum 3.0 E

variation CIE formula (before and after 2000 hours exposure).

PART 3 - ERECTION

- A. Footings: The structure shall be set on prepared footings designed by the Shade Structure Manufacturer. Anchor bolts shall also be provided by Shade Structure Manufacturer. Concrete slab (if required) is to be provided by others.
- B. The contractor must use appropriate construction practices for the specific site conditions.
- C. Install all components according to manufacturer's installation instructions and these specifications.

END OF SECTION 05650

SECTION 11660 – FINISH WATER TURBIDIMETER EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish and install a Finish Water Turbidimeter(s), together with supports, controls, accessories, and appurtenances necessary for monitoring finish water, complete and operable, as illustrated on the Plans and in accordance with the requirements of the Contract Documents.
- B. Turbidimeter to monitor finish water turbidity is to be located as illustrated on the Plans and in accordance with the requirements of the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 11000 – Equipment General Provisions, as applicable.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

Comply with the applicable reference specifications as specified in the General Requirements.

1.04 CONTRACTOR SUBMITTALS

Submittals shall be made in accordance with Section 01300 - Contractor Submittals.

1.05 WARRANTY

The Turbidimeter shall have a one (1) year warranty from date of installation.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The turbidimeter shall be in-line type and monitor low-range (0.001 to 100 NTU) turbidity.
- B. Measurement Procedure: The method of measuring turbidity will be nephelometric. An incandescent light will be directed into the sample stream in the turbidimeter. The light scattered at 90

degrees will be sensed by a submerged photocell in the measuring chamber. Other methods that may foul or fog a glass window will not be acceptable.

The method will meet or exceed instrument design criteria set by USEPA method 180.1 and Standard Methods 2130B.

2.02 PERFORMANCE REQUIREMENTS

- A. Measurement Range: 0.001 to 100 Nephelometric Turbidity Units (NTU).
- B. Accuracy:
 - 1. ± 2 percent of reading or 0.020 NTU from 0 to 40 NTU
 - 2. ± 5 percent of reading from 40 to 100 NTU
- C. Resolution:
 - 1. 0.001 NTU up to 9.9999 NTU
- D. Repeatability: ± 1.0 percent of reading
- E. Recorder Outputs: two selectable for 4-20 mA and RS-485 Modbus.
- F. Alarm: Two (2) set point alarms, each equipped with an SPDT relay with unpowered contacts rated 5A resistive load at 230 Vac

2.03 OPERATIONAL CRITERIA

- A. Sample flow rate: 1 gallon per minute
- B. Sample Temperature: 32 to 122 degrees F (0 to 50 degrees C)
- C. Operating Temperature: 32 to 104 degrees F (0 to 40 degrees C)
- D. Input Pressure: 1 to 101 psi

2.04 MANUFACTURED SYSTEM

- A. The turbidimeter shall consist of an incandescent light source, photocell, and bubble trap.
- B. The turbidimeter shall be housed in a NEMA 4X/IP66 enclosure made of corrosion-resistant polystyrene.

- C. The optical components of the turbidimeter are mounted in a sealed, removable head assembly.

2.05 EQUIPMENT

- A. The turbidimeter operates using 100 to 240 VAC power.
- B. The turbidimeter operates continuously.
- C. The sample stream into the turbidimeter flows through an internal bubble trap.

2.06 COMPONENTS

- A. Standard Equipment:
 - 1. Turbidimeter sensor head
 - 2. Turbidimeter body
 - 3. Manual
 - 4. Calibration Kit
 - 5. Floor stand, when wall or panel installation is not called out on drawings.
- B. Connectors
 - 1. Sample inlet fitting: 0.25-inch NPT female.
 - 2. Drain fitting: 0.5-inch NPT female
 - 3. Contractor to coordinate, provide, and complete connections to piping/tubing.

2.07 ACCESORIES

- A. Calibration / verification module
- B. Desiccant Refill
- C. Power Cord 120 VAC / 240 VAC
- D. Replacement Ultrasonic Cuvette Assembly

2.08 SPARE PARTS

- A. All spare parts recommended by the manufacturer shall be provided and shipped with equipment.

2.10 MANUFACTURER

A. Manufacturers:

1. Model: 28053 MTOL+ Online Process Turbidimeter
HF Scientific
www.watts.com
2. Or equal.

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be shipped tightly with padding to prevent damage to components.
- B. All fittings shall be installed and, if necessary, removed for shipping and shipped separately unless otherwise noted by the Contractor.
- C. Upon arrival at the destination, inspect equipment and accessories for damage in transit. If damage has occurred, Manufacturer / Supplier is to be notified immediately.

3.02 INSTALLATION

- A. Turbidimeter and appurtenances shall be installed in accordance with manufacturer's instruction and recommendations or approved procedures submitted with the shop drawings and as shown.

3.03 TRAINING

- A. Manufacturer and Contractor are to coordinate appropriate time for training in relation to start-up. The Contractor will then coordinate an appropriate date and time for training with Owner and Engineer.
- B. The manufacturer's representative shall furnish the service of a competent technical service representative for a eight (8) hour training session with Owner's personnel.

END OF SECTION 11660

SECTION 15615 - VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall provide all tools, supplies, materials, equipment, and labor necessary for furnishing, epoxy coating, installing, adjusting, and testing of all valves, check valves, combination air and vacuum release valves and appurtenant work, complete and operable, in accordance with the requirements of the Contract Documents. Where buried valves are illustrated on the Plans, the Contractor shall furnish and install valve boxes to grade, with covers, extensions, and position indicators.
- B. The provisions of this Section shall apply to all valves and valve operators specified in the various Sections of Divisions 2, 13, 15 and 17 of these Specifications except where otherwise specified in the Contract Documents. Valves and operators in particular locations may require a combination of units, sensors, limit switches, and controls specified in other sections of these Specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Divisions 2 and 15, applicable sections, Pipe, Fittings, and Valves
- B. Section 09800 - Protective Coatings
- C. Division 16 - Electrical, applicable sections

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Comply with the reference specifications of the General Requirements.
- B. Comply with the current provisions of the following Codes and Standards.
 - ANSI B 16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800
 - ANSI B 16.5 Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys

ANSI/ASME B 1.20.1	General Purpose Pipe Threads (inch)
ANSI/ASME B 31.1	Power Piping
ASTM A 36	Specification for Structural Steel
ASTM A 48	Specification for Gray Iron Castings
ASTM A 126	Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A 536	Specification for Ductile Iron Castings
ASTM B 61	Specification for Steam or Valve Bronze Castings
ASTM B 62	Specification for Composition Bronze or Ounce Metal Castings
ASTM B 148	Specification for Aluminum-Bronze Castings
ASTM B 584	Specification for Copper Alloy Sand Castings or General Applications
ANSI/AWWA C 500	Gate Valves for Water and Sewage Systems
ANSI/AWWA C 502	Dry-Barrel Fire Hydrants
ANSI/AWWA C 503	Wet-Barrel Fire Hydrants
ANSI/AWWA C 504	Rubber-Seated Butterfly Valves
ANSI/AWWA C 506	Backflow Prevention Devices - Reduced Pressure Principle and Double Check Valves Types
ANSI/AWWA C 507	Ball Valves 6 inches through 48 inches
AWWA C 508	Swing-Check Valves for Waterworks Service, 2 inches Through 24 inches NPS
ANSI/AWWA C 509	Resilient-Seated Gate Valves for Water and Sewage Systems

AWWA C 550	Protective Interior Coatings for Valves and Hydrants
SSPC-SP-5	White Metal Blast Cleaning
MSS-SP-70	Manufacturers Standardization Society of the Valve and Fitting Industry; Cast Iron Gate Valves. Flanged and Threaded Ends
NSF / ANSI 61:	Drinking Water System Components – Health Effects

1.04 CONTRACTOR SUBMITTALS

- A. Submittals shall be made in accordance with General Requirements. In addition to product information, the Contractor shall submit for approval lay-out drawings showing valve locations within the piping system, supports, and identification numbers.
- B. The following submittals and specific information shall be provided.
 1. Shop Drawings: Shop drawings of all valves and operators including associated wiring diagrams and electrical data, shall be furnished as specified in General Requirements. Submit for approval the following:
 - a. Manufacturer's literature, illustrations, paint certifications, specifications, detailed drawings, data and descriptive literature on all valves and appurtenances.
 - b. Deviations from Contract Documents
 - c. Engineering data including dimensions, materials, size and weight.
 - d. Fabrication, assembly and installation drawings.
 - e. CV values, head loss curves, and as required, calculations.
 - f. Special tools list.

2. Valve Labeling: The Contractor shall submit a schedule of valves to be labeled indicating in each case the valve location and the proposed wording for the label. Complete nameplate data of valves and actuators is required.
3. Operation and Maintenance Manuals:
 - a. Submit complete installation, operation and maintenance manuals including test reports, maintenance data and schedules, description of operation, and spare parts information.
 - b. Furnish Operation and Maintenance Manuals in conformance with the requirements of the General Requirements.
4. Shop Tests: Hydrostatic tests shall be performed, when required by the valve specifications included herein.
5. Certificates: Where specified or otherwise required by Engineer, submit Test Certificates and Certificates of Compliance with AWWA standards and other specifications, especially where it concerns the suitability of the materials of construction for the particular application.

1.05 QUALITY ASSURANCE

- A. Valve Testing: Valves shall be shop tested per manufacturer's recommendations and applicable AWWA/ANSI specifications prior to shipment. Manufacturer's certification that valves have been shop tested shall be submitted for approval 30 days prior to scheduled shipment.
- B. Bronze Parts: Where specified, all interior bronze parts of valves shall conform to the requirements of ASTM B 62, or, where not subject to dezincification, to ASTM B 584.
- C. Shop Inspection: Shop inspection of valve construction, testing and coating shall be witnessed and approved by the ENGINEER. All valves will be shop inspected unless otherwise waived in writing by the Engineer.
- D. The Contractor shall demonstrate that each valve installed as a part of a piping system will operate under field conditions in a manner consistent with the design of the system. All testing of valves shall be witnessed and approved by the Engineer.

- E. For all pneumatic, hydraulic, and electric motor operators and controls, it shall be the responsibility of the Contractor to provide a qualified representative of the valve manufacturer to perform all field adjustments to set operator limit switches for the required functions. The cost of providing a qualified representative of the valve manufacturer for field adjustments shall be included in the Contractor's bid. All wiring of motor operators shall be identified with a unique number unlike any other wiring identification. It is the responsibility of the Contractor to coordinate the requirements of this section with those involving both specifications of Division 16, "Electrical" and Division 17, "Instrumentation."
- F. All adjustments, calibration, and/or testing shall be done in the presence of the Engineer.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site to ensure uninterrupted progress of the Work. Deliver anchorage devices, which are to be embedded in cast-in-place concrete, in ample time to not delay the Work.
- B. All boxes, crates and packages shall be inspected by Contractor upon delivery to the site. Contractor shall notify Engineer if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition, in accordance with manufacturer's instructions.
- C. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms or other supports. Protect steel members and packaged materials from corrosion and deterioration.
- D. Provide full-face protectors of waterproof material fastened to each side of the valve body to protect joints and the valve interior.

PART 2 - PRODUCTS

2.01 GENERAL VALVE REQUIREMENTS

- A. General: The Contractor shall furnish all valves, operators, actuators, valve-operating units, stem extensions, and other accessories as shown or specified. All valves shall have the name of the manufacturer and the site of the valve cast on the body or bonnet or shown on a permanently attached plate in raised letters.

All valves shall be new and of current manufacture. All valves, 6 inch and larger, shall have operators with position indicators. Where buried, these valves shall be provided with valve boxes and covers containing position indicators, and valve extensions.

- B. Valve Flanges: The flanges of valves shall be in accordance with Divisions 2 and 15.
- C. Valve Stems: Except where otherwise specified, valves with motorized operators shall have stems conforming to ASTM A 276 Type 316 stainless steel with minimum tensile strength of 95,000 psi, and a minimum yield point of 75,000 PSI, and elongation of 25% in 2 inches. Manually operated valves shall have silicon-bronze stems conforming to ASTM B 584-875, having minimum tensile strength of 60,000 PSI, a minimum yield point of 24,000 PSI, and elongation of 16% in 2 inches. Where subject to dezincification, manually operated valve stems shall be of bronze conforming to ASTM B 62, containing no more than 5% zinc, nor more than 2% aluminum.
- D. Protective Coating: Except where otherwise specified, ferrous surfaces, exclusive of stainless steel surfaces, in the water passages of all valves 4 inch and larger, as well as the exterior surfaces of all submerged, buried or aboveground valves and operators, shall be fusion bonded epoxy. Flange faces of valves shall not be coated. The valve manufacturer shall certify in writing that such coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications.
- E. Valve Operators:
 - 1. Valve operators shall be provided for specific valves as required by the specification section.
 - 2. When one, or more, underground valve is installed, an adjustable valve key shall be provided to the Owner.
- G. Nuts and Bolts: All nuts and bolts on valve flanges and supports shall be coated with a flouropolymer as manufactured by Tripac (Tripac 2000 Blue), or an approved equal. All bolts on valve bonnets and exterior valve hardware shall be Type 316 stainless steel.

2.02 RESILIENT SEATED GATE VALVES

Resilient seated gate valves shall conform to AWWA C 509, latest edition. The wedge shall be fully encapsulated in the elastomer, including the guides. The brass stem nut shall be rigidly enclosed in the wedge to maintain alignment. The valve body shall be composed of ductile iron.

The stem shall have two (2) O-rings and a wiper above the collar and one (1) O-ring below the collar. Stem seals must be replaceable with the valve under pressure.

The stem material shall be standard bronze. Stainless steel (ANSI-420) shall also be acceptable for use as an alternative.

The waterway shall be full size to allow for tapping use; no cavities or depressions shall be permitted in the seat area.

Valve body and bonnet shall be electrostatically applied, fusion bonded, epoxy coated both inside and out by the valve manufacturer. The coating shall meet the requirements of AWWA C 550, latest edition. Coating shall be applied only at the valve manufacturer's facilities. Exterior hardware shall be composed of Type 316 stainless steel.

The bonnet bolts shall not be exposed to the environment.

O-ring style seals shall be used as gaskets on the bonnet and on the stuffing box. The below grade valves shall be supplied with a standard 2 inch operating nut. All valves shall be wrapped with a polyethylene material.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering resilient wedge gates valves which may be incorporated into the work are:

- a. AFC
- b. Clow
- c. AVK
- d. Waterous
- e. M&H Valve Company
- f. Mueller
- g. Or Equal.

2.03 BUTTERFLY VALVES

A. General:

All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C 504.

Both valve ends shall be mechanical-joint (or other, as available) per AWWA Standard C 111. Accessories (bolts, glands and gaskets) shall be supplied by the valve manufacturer.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering butterfly valves which may be incorporated into the work are:

- a. Bray
- b. Pratt
- c. Dezurik
- d. Clow
- e. Or Equal.

All valves must use full AWWA C 504 Class 150B valve shaft diameter, and full Class 150B underground-service-operator torque rating throughout entire travel, to provide capability for operation in emergency service. All valves shall be NSF approved.

B. Valve:

Valve body shall be composed of ductile iron with 18-8 Type 304 stainless steel body seat. Valve vane shall be ductile iron, having rubber seat mechanically secured with an integral 18-8 stainless steel clamp ring and 18-8 stainless steel self-locked screws.

Rubber seat shall be a full-circle 360 degree seat not penetrated by the valve shaft. For valves 4" - 12", the valve shaft shall be one piece, extending full size through the entire valve. Valve shaft shall be 304 stainless steel. Packing shall be O-ring cartridge designed for permanent duty in underground service. For 14 inches and larger valve shaft shall be 18-8 stainless steel stub shaft design keyed to the vane with stainless steel taper pins.

Body Type: All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C 504.

Valve ends shall be: As noted in the Plans.

Wafer: Suitable for installation between 125# or 150# ASA flanges (available 4 inch through 20 inch).

Flanged: Short body valves per Table 2 of AWWA Spec C 504. Flanges shall be 125# ANSI (available all sizes). Also flanged by MJ in 6 inch, 8 inch and 16 inch sizes.

Mechanical Joint: Both ends of valve shall be "MJ" per AWWA C 111. "MJ" accessories (bolts, glands, gaskets) must be supplied by valve manufacturer (available all sizes - also flanged by MJ in 6 inch, 8 inch, 12 inch and 16 inch sizes). Both ends of valve shall be "MJ" per AWWA C111. "MJ" accessories (bolts, glands, gaskets) shall be supplied by valve manufacturer (available all sizes - also flanged by MJ in 6 inch, 8 inch, 12 inch and 16 inch sizes).

C. Operator:

Valve operator shall be of the traveling-nut type, sealed, gasketed, and lubricated for underground service. It shall be capable of withstanding an overload input torque of 450 ft. lbs at full-open or full-closed position without damage to the valve or valve operator. It shall be designed for submergence in water to 25 feet head pressure for up to 72 hours.

Valve shall be capable of easy closure by one man using standard valve key, even under emergency line-break conditions as severe as those that would cause a valve maximum opening torque requirement of as much as two times AWWA Class 150B.

All valves shall open left (clockwise to close), and be equipped with 2 inch AWWA operating nut.

Crank, Handwheel or Chainwheel: All manual operators for service other than underground shall have position indicator and shall be totally enclosed and permanently lubricated. In any event, a maximum pull of 80 pounds on the crank or wheel shall produce full Table 1 output torque throughout entire travel. Operators shall full-closed positions without damage to valve or operator. Operators shall be of the "traveling-nut" type. All valves shall open left (clockwise to close).

Cylinder: Cylinder operator shall be of the base mounted configuration. Cylinder barrel shall be of molybdenum-disulfide lined glass fiber reinforced epoxy tubing, to provide a corrosion-free, self-lubricated high strength barrel. Rod seal shall be of urethane, molybdenum-disulfide filled, to provide a self-lubricated, long life seal.

Piston rod shall be of hard chromium plated 18-8 stainless steel, and shall be top and bottom guided in a heavy cast iron mechanism housing for positive alignment. Guiding shall be accomplished by bronze bearings at ends of housing straddling all side loads improved in operation. Entire operator including piston rod shall be fully enclosed. Operator shall produce full AWWA Standard C 504 Table 1 output torque throughout entire travel for Class (25A) (25B) (75B) (150B) with a minimum supply pressure of PSI (water) (air) (oil).

Electric Valve Actuators: Actuators shall be provided as called out in the improvement Plans. The actuator shall be compact and low profile to minimize space requirements. The actuator shall operate over 90°. The actuator shall provide easy access for field wiring and adjustment. The actuator shall be built to withstand line vibration and shock without failure.

The enclosure shall be die-cast aluminum for environmental protection. The waterproof enclosure shall be certified to UL, CSA and CE NEMA 4 waterproof standards. The waterproof/explosion proof enclosure shall be certified to UL NEMA 4 hazardous locations. The enclosure shall be provided with captive cover bolts to prevent loss of cover bolts when cover is removed. The enclosure shall have two conduit connections (one for power wiring and one for control signal wiring) in either NPT or metric threads as specified. The actuator enclosure shall be provided with a high visibility valve position display prominently labeled and color coded to indicate the valve position throughout the full range of travel.

The motor shall be a single phase, permanent split capacitor reversible induction type with Class F or better insulation. The motor shall contain a built-in UL approved automatic reset thermal overload protector set at 275° F (135°C) embedded in the motor windings. Motors shall be 24 VAC, 120 VAC 50/60 Hz or 240 VAC 50/60 Hz as specified on the Electrical and or Instrumentation Plans.

The actuator shall have a self-locking gear train system consisting of a worm and worm gear output drive mechanism which will hold the valve in the desired position without the need for an electro-mechanical braking system. The spur gear train shall have precision cut multi-staged gears which will withstand locked rotor conditions and are permanently lubricated at the factory.

Mechanical stainless-steel travel stops shall be provided and located outside the actuator enclosure for ease of adjustment.

Stainless steel lock nuts to hold the travel stops in position and o-ring seals for waterproof protection shall be provided. The mechanical travel stops shall be capable of limiting the travel of the actuator in either direction from full closed to full open.

The actuator shall be equipped with a manual override handwheel to rotate the valve without electrical power. The manual override system shall ensure positive and efficient manual operation without the use of extra tools or levers.

An automatic power cutout switch shall be provided to cut power to the motor when the actuator manual override is engaged. This cutout shall also function as a safety emergency power shutdown device and shall be accessible from outside the actuator enclosure.

All travel switches shall be:

Single Pole, Double Throw Form C Type
UL Listed and CSA Approved
10A at 125/250 VAC and 1/2A at 125 VDC

The actuator switches shall be pre-wired to a terminal block for ease of access and all internal wiring shall range from 12-22 AWG. The travel limit switches shall limit the actuator travel in both the open and closed direction of travel. Cams for each travel limit switch shall be infinitely adjustable by finger touch or screw driver.

Actuators shall be designed for electric operation for the following service conditions:

Temperature ranges of -40°F (-40°C) to +150°F (+65°C)
Duty Cycle: 25% for Intermittent Operation
100% for Continuous Operation

All actuators shall be factory tested to ensure proper operation.

All actuators shall mount directly to the valve mounting flange and stem without the need for any brackets or couplings.

The actuator shall be designed to accept any of the following optional accessories if specified during the submittal review process:

- A. Torque Limiting System:
 - Shall include a 2 SPDT mechanical switches and 2 factory calibrated adjusting screws.

- The switches, in response to a predetermined load on the actuator output shaft, shall interrupt power to the motor.
- The switches shall operate at any point and in both directions of actuator level.

B. Heater:

- Shall include a self-regulating temperature control to prevent condensation build-up.
- Shall be pre-wired to the terminal block for ease of connection to external source.
- Rated output shall be 15W at 120 or 220 VAC.

C. Microprocessor Servo:

- Shall provide precise modulating control of the valve position in response to an analog input signal.
- Shall have an analog output signal proportional to the actual valve position and the signal shall be configurable to either current or voltage output.
- Voltage spike protection shall be provide on all input terminals.
- Independent adjustments shall be provided for Deadband and for both open and closed Speed Control of the actuator.
- Input signals shall be:
 - 4-20 mADC 250 Ohm Input Impedance
 - 0-10 VDC 2.1k Ohm Input Impedance
 - 2-10 VDC
 - 10k Ohm or great potentiometer
- Calibration shall be accomplished by pressing a single button to initiate the calibration routine.
- Control characteristics shall be linear and duty cycle shall be 100%.
- Internal feedback shall be by means of a 10k Ohm potentiometer.
- Retransmission outputs shall be:
 - 4-20 mADC
 - 0-5 VDC
 - 0-10 VDC
 - 2-10 VDC
- Separate Speed Control adjustments shall be provided for adjustment of open and close travel speeds.

- Inputs for the control box, handwheel, LED status indicators and self-diagnostic capability shall also be provided.
- DeviceNet Servos shall also be available if specified.

D. Local Control Station:

- For local electrical operation of the actuator.
- Shall flush mount to the actuator and include:
 - a local/off/remote control switch
 - an open/stop/close switch
 - two lights which indicate open and closed valve position
- Enclosure shall be aluminum and waterproof (NEMA 4, 4X, IP 65)

D. Coating:

Standard coating shall be universal primer. Coating shall be applied to entire valve body and vane before final assembly.

Valve body shall be electrostatically applied, fusion bonded, epoxy coated to all surfaces of valve body and vane to an average minimum film thickness of 5 mils, conforming to AWWA C 550 Standard. Coating shall be applied only at the valve manufacturer's facilities. Exterior valve hardware shall be composed of Type 316 stainless steel hardware for butterfly valve flanges shall consist of flouropolymer coated hardware as manufactured by Tripac (Tripac 2000 Blue) or an approved equal.

E. Tests:

All valves shall be tested bottle-tight at rated working pressure by the manufacturer as follows:

4" through 12"	200 PSI
14" Up	150 PSI

In addition, a hydrostatic test with vane partially open shall be given to the assembled valve as follows:

4"	400 PSI
14" Up	300 PSI

2.04 SWING CHECK VALVES

The check valves shall be manufactured of gray cast iron in conformance with ASTM A 126 Grade B. The swing check valves shall comply with AWWA C 508, latest revision. The check valve shall be provided with flanges in accordance with ANSI B 16.1, Class 125.

The valve design shall be full flow equal to nominal pipe diameter at all points through the valve. The valve shall be capable of passing 3-inch diameter sphere. The seating surface shall be on a 45-degree angle to minimize disc travel. A threaded port with pipe plug shall be provided on the bottom of the valve to allow for field installation of a backflow actuator, without special tools or removing the valve from the line.

The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content. A threaded port with plug shall be provided in the access cover to allow for field installation of a mechanical, disc position indicator.

The disc shall be of one-piece construction, precision molded with an integral O-ring type sealing surface and contain alloy steel and nylon reinforcement in the flexible hinge area. The flex portion of the disc shall be warranted for 25 years. Non-slam closing characteristics shall be provided through a short 35-degree disc stroke and a memory disc return action.

The valve body and cover shall be constructed of ductile iron per ASTM A 536 Grade 65-45-12.

The disc shall be precision molded Buna N (NBR), ASTM D 2000-BG.

The exterior and interior of the valve shall be coated with an ANSI/NSF 61 approved fusion bonded epoxy coating.

2.05 SILENT CHECK VALVES

The Silent Check Valve shall be globe style. The check valve shall be the silent operating type that begins to close as the forward flow diminishes and fully closes at zero velocity preventing flow reversal and resultant water hammer.

The valves shall be constructed for potable water service use and shall be certified to NSF/ANSI 61, Drinking Water System Components – Health

Effects, and certified to be Lead-Free in accordance with NSF/ANSI 372. The manufacturer shall have a quality management system that is certified to conform with ISO 9001 by an accredited, certifying body. The Globe Style valves shall be supplied with 125- or 150-pound flanges.

The valve design shall incorporate a center guided, spring loaded disc and having a short linear stroke that generates a flow area equal to the nominal valve size. The operation of the valve shall not be affected by the position of the installation. The valve shall be capable of operating in the horizontal or vertical positions with the flow up or down. All component parts shall be field replaceable without the need of special tools. Globe style valves shall be provided with a replaceable guide bushing held in position by the spring. The spring shall be designed to withstand 100,000 cycles without failure and provide a cracking pressure of 0.50 psi. The globe disc shall be concave to the flow direction providing for disc stabilization, maximum strength, and a minimum flow velocity to open the valve. The valve disc and seat shall have a seating surface finish of 16 micro-inch or better to ensure positive seating at all pressures. A resilient seal shall be provided on the seat to provide zero leakage at both high and low pressures without overloading or damaging the seal. The seal design shall provide both a metal to metal and a metal to resilient seal.

The valves shall be hydrostatically tested at 1.5 times their rated cold working pressure (CWP) and seat tested at the valve CWP. The manufacturer shall provide the test certificates, dimensional drawings, parts list drawing and operation and maintenance manuals with each valve. The exterior of the valve shall be coated with a universal alkyd primer.

Valve interiors and exteriors shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550. The valve body shall be constructed of ASTM A126 Class B Cast Iron. The globe style valve seat and disc shall be ASTM A351 Grade CF8M stainless-steel. The compression spring shall be ASTM A313 Type 316 SS with ground ends.

2.06 VALVE RISER AND VALVE COVER

A 6-inch diameter cast iron valve riser and ductile iron cover shall be placed over each below grade valve. The 6-inch diameter cast iron valve riser and cover shall be manufactured by Star Pipe Products, or an approved equivalent of equal substance and function.

Place an 8 inch deep, 8-inch wide PCC collar concentric with the exterior of the valve extension riser. Place the top of the riser 0.10-feet above the finish grade.

Two (2) 6-foot valve keys for operating of gate valves shall be furnished by the Contractor to the Owner prior to completion of the project.

PART 3 - EXECUTION

3.01 VALVE INSTALLATION

- A. General: All valves, operating units, controls, stem extensions, valve boxes, and accessories shall be handled in a manner to prevent any injury to any part of the valve. Valves shall be installed in accordance with the manufacturer's written instructions and as shown and specified. All valves shall be adequately braced to prevent warpage and bending under the intended use. Valves shall be firmly supported to avoid undue stresses on the pipe. All valves shall be installed so that the valve stems are plumb.
- B. Access: All valves shall be installed to provide easy access for operation, removal, and maintenance and to avoid conflicts between valve operators and structural members or handrails.
- C. Valve Accessories:
 - 1. Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the Contractor to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on Shop drawing submittals.
 - 2. Valve operators and controls are to be installed where specified and designated on the Plans. The Contractor is responsible for installation of the correct valve operator and control as specified to provide a complete piping system as specified.
- D. All valves shall be field tested following installation to demonstrate that the valve operates under field conditions in a manner consistent with the design of the system.
- E. All testing of valves shall be witnessed and approved by the Engineer.

- F. The Contractor shall demonstrate that each valve operator and control installed as a part of a piping system will operate under field conditions as designed and in the manner for which the operator was specified.

END OF SECTION 15615

SECTION 15830 - MISCELLANEOUS VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish and install miscellaneous valves as shown and as specified herein, complete and operable including accessories and, where designated, operators, in accordance with the requirements of the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 2 - Sitework.
- B. Section 11000 – Equipment General Provisions.
- C. Division 15 - Mechanical.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Comply with the reference specifications of the General Requirements.
- B. NSF / ANSI STANDARD 61: Piping, fittings, and appurtenances in contact with potable water or water that will be treated to become potable shall be listed in NSF / ANSI Standard 61 as being suitable for contact with potable water.

1.04 CONTRACTOR SUBMITTALS

- A. Submittals shall be made in accordance with Section 01300 - Contractor Submittals.

1.05 QUALITY ASSURANCE

- A. QUALITY ASSURANCE shall comply with the quality requirements specified in RELATED WORK SPECIFIED ELSEWHERE above.
- B. All valves shall be tested in accordance with manufacturer's recommendation and applicable AWWA/ANSI specifications

PART 2 - PRODUCTS

2.01 COMBINATION AIR-VACUUM VALVES

- A. Combination Air and Vacuum Valves: Combination air valves shall combine the characteristics of air and vacuum valves and air release valves by exhausting accumulated air in systems under pressure and releasing or re-admitting large quantities of air while a system is being filled or drained, respectively. They shall be of the size shown, with flanged or screwed ends to match piping. Bodies, the float, seat, and all moving parts shall be constructed of Type 316 stainless steel. Seat washers and gaskets shall be of a material insuring water tightness with a minimum of maintenance. Valves shall be designed for minimum 150 PSI water-working pressure, unless otherwise shown.

2.02 BACKFLOW PREVENTER VALVES

- A. General: Backflow preventers shall work on the reduced pressure principle. They shall consist of two (2) spring-loaded check valves, automatic differential pressure relief valve, drain valves, and shut-off valves. The body material shall be bronze or cast iron for a working pressure of not less than 150 PSI, with bronze or stainless steel trim. Drain lines with air gaps shall be provided.

B. Manufacturers, or Equal:

1. Model: 4000B
AMES Fire & Waterworks
1427 North Market Boulevard, Suite #9
Sacramento, CA 95854
916-928-0123
916-928-9333: FAX
2. Model: 850V
FEBCO
4381 North Brawley, Suite 102
Fresno, CA 93722
559-441-5300
559-441-5301: FAX
3. Or Equal.

2.03 SMALL PRESSURE REDUCING VALVES (Air, Chemical and Water Systems)

- A. General: Small air and water pressure reducing valves shall be of the spring-loaded diaphragm type with a minimum pressure rating of 250 PSI, with bronze body, nickel alloy or stainless steel seat,

and threaded ends. Each valve shall be furnished with built-in or separate strainer and union ends.

- B. Small chemical (i.e. ammonium hydroxide, sodium bisulfite, and sodium hypochlorite) pressure reducing valves shall be of the spring-loaded diaphragm type with Teflon body, hastelloy or Teflon trim material, and Teflon seat material. Value body shall be flanged.

2.04 LARGE WATER PRESSURE REDUCING VALVES

- A. General: Large water pressure reducing valves shall be of the piston-type or diaphragm-actuated globe type, with cast iron body and stainless steel trim. Unless otherwise shown or specified, the valves shall have a pressure rating of not less than 150 PSI, shall have 125 lb flanges, and shall have an adjustable downstream pressure range with a downstream setting as required.

2.05 PRESSURE RELIEF VALVES

- A. Pressure Relief Valves for chemical piping systems shall be in-line pattern with three ports. Excess pressure shall be relieved through the port in the bottom of the valve. The valve materials shall be as described in Table 2.1. For the diaphragm material, Teflon or other suitable material may be substituted for EPDM.

TABLE 2-1 RELIEF VALVE MATERIALS FOR CHEMICAL SYSTEMS

ITEM	Systems					
	Ammonium Hydroxide	Scale Inhibitor	Sodium Bisulfite	Polymer	Sodium Hypochlorite	Sulfuric Acid
Relief Valves (Body) (Diaphragm)	PVC or Teflon EPDM	PVC EPDM	PVC or Teflon EPDM	PVC or Teflon Teflon	PVC or Teflon Teflon	PVDF or Teflon Teflon

2.06 CORPORATION STOPS

- A. Unless otherwise shown, corporation stops shall be made of solid brass for key operation, with screwed ends with corporation thread or iron pipe thread, as required.
- B. Manufacturer, or Equal:
 1. James Jones.
 2. Mueller.

3. Or equal.

2.07 SOLENOID VALVES

- A. Solenoid valves shall be of the size, type, and class shown and shall be designed for not less than 150 PSI water-working pressure. Valves for water, air, or gas service shall have brass or bronze body with screwed ends, stainless steel trim and spring, Teflon or other resilient seals with material best suited for the temperature and fluid handled. Solenoid valves in corrosive environment shall have stainless steel bodies. For chemicals and all corrosive fluids, solenoid valves with Teflon bodies and springs or other suitable materials shall be used. General purpose enclosures for indoors shall be NEMA type 2. For explosion proof, corrosive, special purpose, or outdoor locations NEMA type 4, 7, 8, 9, 9E, 9F, or 9G enclosures shall be used, as applicable. All coil ratings shall be for continuous duty. For electrical characteristics see electrical drawings or specifications.

2.08 STAINLESS STEEL VALVES

A. General:

1. All valves shall be furnished and installed as illustrated on the Plans.
2. Valves with pneumatic, hydraulic, and electric motor operators and controls shall be in accordance with Division 17.

- B. Fasteners: All bolts, nuts, and washers shall be made of Type 316 stainless steel.

C. Ball Valves:

1. Sizes 1/2" - 2 1/2":
 - a. Class: 900 PSI, Screwed.
 - b. Type: Full port.
 - c. Body: 316 Stainless Steel ASTM A 351.
 - d. Ball: 316 Stainless Steel.
 - e. Seat: Reinforced PTFE Fire Safe.
 - f. Stem: 316 Stainless Steel.

MISCELLANEOUS VALVES

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g. Operator: Manual, Lever.

2.10 WELL SERVICE AIR VALVE

The well service air valves shall be fully automatic float operated valves designed to exhaust air which is present in the pump column on pump startup and allow air to re-enter the column on pump shutdown or should a negative pressure occur. The dual port throttling device shall provide adjustable control of the exhaust rate and allow free flow into the valve through a separate inlet port.

The valves shall be manufactured and tested in accordance with AWWA Standard C512. The manufacturer shall have a quality management system that is certified to ISO 9001 by and accredited, certifying body. The valves shall have full size NPT inlets and outlets equal to the nominal valve size. The body inlet connection shall be hexagonal for a wrench connection. The valves shall have two additional NPT connections for the addition of Air Release Valves, gauges, testing and draining.

The valve body shall provide a through flow area equal to the nominal valve size. A bolted cover with alloy screws and flat gasket shall be provided to allow for maintenance and repair. Floats shall be unconditionally guaranteed against failure including pressure surges. The float shall have a hexagonal guide shaft supported in the body by circular bushings to prevent binding from debris. The float shall be protected against direct water impact by an internal baffle. The resilient seat shall provide drop tight shut off to the full valve pressure rating.

Valves 3 inches (75mm) and smaller will be equipped with a *dual port throttling device* to control the discharge of air from the valve and allow full vacuum flow through a separate port. The device shall have an externally adjustable screw and locknut for adjusting the discharge control disc. The disc shall be sized to allow a 5% flow area when fully throttled. The vacuum port shall be equipped with a spring-loaded disc to allow flow into the valve during negative pressure conditions. Throttling devices with a common exhaust and vacuum port are not acceptable. The material of the body shall be consistent with the Well Service Air Valve. The spring shall be ASTM A313 Type 316 SS. The dual port throttling device shall be mounted on the inlet of the well service air valve to allow free air flow in and restricted flow out of the valve to reduce valve pressure surges. The device shall be a flanged, globe pattern, with a center guided disc and seat assembly. The disc shall have threaded holes to provide adjustment of the flow rate through the valve. The material of the body shall be consistent with the well service air valve. The seat and disc shall be Bronze ASTM B584, alloy C83600.

The well service air valve body, cover and baffle shall be constructed of ASTM A126 Class B cast iron for Class 125 valves. The float, guide shafts and bushings shall be constructed of Type 316 SS. Non-metallic guides and bushings are not acceptable. Resilient seats shall be Buna-N. The valve interior shall be coated with an NSF/ANSI 61 certified fusion bonded epoxy in accordance with AWWA C550. The exterior of the valve shall be coated with a universal alkyd primer. The valve manufacturer shall provide test certificates, dimensional drawings, part list drawings and operation and maintenance manuals.

2.10 NSF / ANSI STANDARD 61

Piping, fittings, and appurtenances in contact with potable water or water that will be treated to become potable shall be listed in NSF / ANSI Standard 61 as being suitable for contact with potable water.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Backflow preventers shall be installed in all potable water lines and as illustrated in the Plans.
- B. All valves shall be installed in accordance with the Manufacturer's printed recommendations.
- C. Field testing of valves shall be performed in accordance with manufacturer's recommendations.
- D. All field testing shall be witnessed and approved by the Engineer.

END OF SECTION 15830

SECTION 17137 – MAGNETIC FLOWMETER

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish and install magnetic flowmeters as shown on the Plans and as specified herein, complete and operable including accessories in accordance with the requirements of the Contract Documents. The flowmeters shall consist of two parts with the manufacturer supplied interconnecting wiring, the field installed flow element and the flow indicating transmitter.
- B. The contractor shall include an aluminum shade to cover the flowmeter. The aluminum shade shall fully shade the flowmeter.
- C. The transmitter is to be installed remote from the flowmeter within the Control Building as illustrated on Plans. The contractor shall provide the necessary Unistrut and other required backing material and hardware to mount and secure the amplifier/transmitters to the Control Building walls. The Contractor shall install all required control and power circuitry for the transmitters and the entire flow metering system.
- D. The Contractor shall install all necessary conduit and conductors (circuitry) between the transmitter and the existing RTU (Remote Terminal Unit) within the Control Building. The location of the existing RTU is within the Control Building. The RTU will transmit the flowmeter output information from the transmitter to the Palo Verde Water District Office or other locations as determined by the Palo Verde Water District.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 2 - Sitework.
- B. Division 15 - Mechanical.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Comply with the reference specifications of the General Requirements.
- B. NSF / ANSI STANDARD 61: Flowmeters and appurtenances in contact with potable water or water that will be treated to become

potable shall be listed in NSF / ANSI Standard 61 as being suitable for contact with potable water.

1.04 CONTRACTOR SUBMITTALS

- A. Provide complete manufacturer's part number, identifying scaling, operating range, housing and wetted parts materials, NEMA rating, product options, consumable materials, and other pertinent information.

1.05 QUALITY ASSURANCE

- A. Equipment to furnished under this section shall be the product of firms regularly engaged in the design and manufacture of this type of equipment. Manufacturer shall assume responsibility for, and guarantee performance of equipment furnished. However, this shall not be construed as relieving the Contractor from responsibility for the proper installation and functioning of the work.

PART 2 - PRODUCTS

2.01 MAGNETIC FLOMETERS:

- A. Manufacturers, or Equal:
 - 1. Ultra Mag by McCrometer
 - 2. TigerMag by Sparling
 - 3. Or Equal.
- B. Materials:
 - 1. All mounting hardware shall be 316 stainless steel, the instrument enclosure shall be rated NEMA 4X, the flow sensor liner shall be Polyurethane lined, and the electrode material shall be 304/316 stainless steel.
- C. Design and Fabrication:
 - 1. Utilize characterized field principle of electromagnetic induction to produce signal directly proportional to flow rate.
 - 2. Provide flanged end connections per ANSI B16 rated for piping system operating and test conditions.

3. Operating pressure: 100 psi. min.
4. Operating temperature (transmitter): 140 Deg F.
5. Grounding requirements:
For non-metallic or lined pipe, the inlet and outlet grounding rings of same material as electrode.
For conductive piping, the conductive path between the meter and the piping flanges.
6. Provide cable between magnetic flowmeter and transmitter. Appropriate length of the sensor cable shall be provided by the Manufacturer.
7. Pulsed DC magnetic field excitation.
8. Automatic zero.
9. Adjustable low flow cutoff.
10. 16-character alphanumeric display shall indicate user-defined flow units and total flow. All menu advise and commands shall be viewed on this display.
11. Minimum signal lock (empty tube zero) to prevent false measurement when tube is empty.
12. Power and outputs:
 - a. Power supply: 117 V +/- 10 percent, 60 Hz.
 - b. 4-20 mA DC isolated output into maximum 800 ohms.
 - c. Scaled frequency output, 24 VDC
 - d. Flow direction with open collector.
13. Accuracy:
 - a. +/- 5 percent of rate above 1 fps.
 - b. +/- 0.01 fps below 1.0 fps.
 - c. Meter operable as specified in liquids with 5.0 micromho/cm or more conductivity.

14. Electrodes shall be self-cleaning.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Equipment and materials specified in this section shall be installed and connected as specified, and as shown on the plans. The contractor shall coordinate the installation with the other trades, to insure proper installation of the flow element, transmitter, and associated conduit and cables.
- B. The Contractor shall calibrate the instruments to the proper ranges, as required by the Owner and the Engineer. Where analog signals are connected to local, or remote monitoring equipment, the Contractor shall verify that the calibrated ranges and scaling of the local and remote indicators are correct.
- C. Contractor shall follow manufacturer's recommendations for the minimum upstream and downstream installation requirements for the flow sensor.
- D. The Manufacturer's representative shall provide an 8-hour day of project site visit to assist with set up, calibration, and testing of the flowmeter and transmitter unit.

3.02 ACCEPTANCE

- A. Prior to final acceptance of the work, the Contractor shall certify the equipment and installation included under this section to be free of defects, and suitable for trouble-free operation under the conditions set forth in these specifications. This requirement is in addition to the manufacturer's guarantee.

3.03 SPARE PARTS

- A. Provide the Owner with a list of the manufacturers' recommended spare parts.

END OF SECTION 17137