CITY OF PETALUMA
PETALUMA, CALIFORNIA

CONTRACT DOCUMENTS FOR

MANOR LANE TANK REHABILITATION

CITY PROJECT NO. C67501007

(Notice Inviting Bids, Instructions to Bidders, Bid Forms, General Conditions, Special Provisions, Technical Specifications, Construction Agreement, Bond Forms, Project Drawings)

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA

Questions concerning interpretation of improvement plans, special provisions, contract documents and bid items shall be directed to:

Department of Public Works and Utilities
202 N. McDowell Boulevard
Petaluma, CA. 94954
Phone: (707) 778-4546 ***Fax: (707) 206-6034***

Attention: Dan Herrera

Office Hours: Monday thru Thursday - 8:00 to 5:00 p.m.
Friday – 8:00 to 4:00 p.m.

Bid Opening: March 10th, 2022, at 2:00 p.m.

CITY OF PETALUMA
PETALUMA, CALIFORNIA

MANOR LANE TANK REHABILITATION

CITY PROJECT NO. C67501007

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA

Prepared by:

Dan Herrera, P.E. C77596

1/19/2022
Date

M.Sean Jeane, P.E. C52402

1/19/2022
Date

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NOTICE INVITING BIDS

1. **RECEIPT OF BIDS**: Sealed Bids will be received at the office of the City Clerk of the City of Petaluma located at 11 English Street, Room 4, Petaluma, California, 94952-2610, until 2:00 PM *(enter time)* on Thursday, March 10, 2022, for the Manor Tank Rehabilitation Project C67501007. Any Bids received after the specified time and date will not be considered. Fax and other electronically transmitted Bids will not be accepted.

2. **OPENING OF BIDS**: The Bids will be publicly opened and read at 2:00 PM (*enter time*) on Thursday, March 10, 2022 at the above-mentioned office of the CITY. The CITY reserves the right to postpone the date and time for opening of Bids at any time prior to the aforesaid date and time.

3. **COMPLETION OF WORK**: The WORK must be completed within ninety (90) working days after the commencement date stated in the Notice to Proceed.

4. **DESCRIPTION OF WORK**: The WORK includes Removal and Replacement of existing interior and exterior coatings, replacement of valves, piping, welding of steel reinforcement ring, miscellaneous welding and repairs of steel tank, installation of tank venting, installation of various piping and appurenances including sample tamp and pressure control piping .

5. **SITE OF WORK**: The site of the WORK is located: The steel tank is located at 2805 Manor Lane in the City of Petaluma.

6. **OBTAINING CONTRACT DOCUMENTS**: The Contract Documents are entitled "Manor Tank Rehabilitation City Project No. C67501007."

   The Contract Documents may be obtained by 4:00 P.M., Monday through Thursday at the office of Public Work & Utilities, 202 North McDowell Boulevard, Petaluma, California 94954.

   If you would like to receive the bid document via the CITY's website, at no cost, please go to:

   - https://cityofpetaluma.org/bid-opportunities-2/
   - Fill out the Plan Holder's form by clicking on the Plan Holder's form link
   - Fill in all fields
   - Click on the submit button at the end of the form

   Submitting the Plan Holder's form on-line automatically puts you on the CITY's Bidders List and you will be notified of any Addendums or information pertaining to the bid by email.

   If you would like to purchase bid documents, please call Phone No. 707-778-4585 , Attention: Tiffany Avila, upon payment of $50.00 (non-refundable) for each set of Contract Documents (including technical specification and accompanying reduced scale drawings). The scale of the reduced drawings is about one-half of the original scale. At the Bidder's request and expense, the Contract Documents may be sent by overnight mail.

   ☐ Full-scale drawings are not available.

   ☒ If full-scale drawings are available and desired, they may be purchased at

reproduction cost from Digitech, 1340 Commerce St., Suite K, Petaluma, CA. 94954, (707) 769-0410.

7. **BID SECURITY**: Each Bid shall be accompanied by a certified or cashier's check or Bid Bond executed by an admitted surety in the amount of 10% percent of the Total Bid Price payable to the City of Petaluma as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it. Upon acceptance of the Bid, if the Bidder refuses to or fails to promptly execute the Agreement the Bidder's security shall be forfeited to the CITY.

8. **CONTRACTOR'S LICENSE CLASSIFICATION**: In accordance with the provisions of California Public Contract Code Section 3300, the CITY has determined that the CONTRACTOR shall possess a valid Class A or C-33 license at the time that the Contract is awarded. Failure to possess the specified license shall render the Bid as non-responsive and shall act as a bar to award of the Contract to any bidder not possessing said license at the time of award.

9. **PREFERENCE FOR MATERIAL**: Substitute products will be considered prior to award of the Contract in accordance with Section 3400 of the California Public Contract Code. The Bidder will submit data substantiating its request for a substitution of "an equal" item within 14 days following submission of its Bid. Substantiation date will conform to the requirements of the instructions for Proposed Substitutions of "or equal" items contained in the bid Forms. The ENGINEER will make a determination of approval of rejection of the proposed substitution prior to the award of the Contract. No request for substitution of "an equal" items will be considered by the ENGINEER after award of the Contract.

10. **REJECTION OF PROPOSALS**: The CITY reserves the right to reject all or any part of all bids submitted, waive informalities and irregularities, and will not, to the extent allowed by law, be bound to accept the lowest bid.

11. **BIDS TO REMAIN OPEN**: The Bidder shall guarantee the total bid price for a period of 90 calendar days from the date of bid opening.

12. **CALIFORNIA WAGE RATE REQUIREMENTS**: In accordance with the provisions of California Labor Code Sections 1770, 1773, 1773.1, and 1773.7 as amended, the Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with he standards set forth in Section 1773 for the locality in which the WORK is to be performed. A copy of said wage rates is on file at the office of the City Clerk. It shall be mandatory upon the CONTRACTOR to whom the WORK is awarded and upon any subcontractor under the CONTRACTOR to pay not less than said specified rates to al workers employed by them in the execution of the WORK.

13. **LABOR COMPLIANCE PURSUANT TO CALIFORNIA LABOR CODE §1771.1**: A contractor of subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirement of Section 4104 of the Public Contract Code or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for unregister contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuance to Section 1725.5 at the time contract is awarded.

14. **RETAINAGE FROM PAYMENTS**: The CONTRACTOR may elect to receive 100 percent of payments due under the Contract Documents from time to time, without retention of any portion of the payment by the CITY, by depositing securities of equivalent value with the CITY in accordance with he provisions of Section 22300 of the Public Contract Code. Alternatively, the CONTRACTOR may request, and the CITY shall make payment of retentions earned directly to the escrow agent at the expense of CONTRACTOR. At the expense of the CONTRACTOR, the CONTRACTOR may direct the investments of the payments into securities and the CONTRACTOR shall receive the interest earned on the investments upon the same terms as provided in Section 22300 of the Public Contract Code for securities deposited by the CONTRACTOR. The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the escrow agent in administering the escrow account and all expenses of the CITY. These expenses and payment terms shall be determined by the CITY's Finance Director or his/her designee and the escrow agent. Upon satisfactory completion of the WORK, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of Section 22300 of the Public Contract Code. Such securities, if deposited by the CONTRACTOR, shall be valued by the CITY, whose decision on valuation of the securities shall be final. Securities eligible for investment under this provision shall be limited to those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters or credit, or any other security mutually agreed to by the CONTRACTOR and the CITY.

15. **PAYMENT BOND**: Pursuant to and in accordance with California Civil Code Section 3247, a payment (labor and materials) bond must be filed if the expenditure for the WORK is in excess of Twenty-Five Thousand Dollars ($25,000).

16. **PRE-BID CONFERENCE VISITS**: [At least on box below MUST be checked]

☐ **Check if no pre-bid conference/site is to be held**: _____.

☐ **Mandatory pre-bid conference/site visit to be held**: Prospective bidders are required to attend a mandatory pre-bid conference/site visit at _____(*enter time*) on _____, at the _____, offices at _____. Prospective bidders that fail to attend the mandatory pre-bid conference/site visit will be ineligible to bid on the project. Following the conference at City offices, City staff and prospective bidders will meet at the project Site. Transportation to the project site will be the responsibility of prospective bidders. The purposes of the conference/site visit are to discuss the scope of the project and bidding requirements and to acquaint bidders with Site conditions.

No information communicated at the pre-bid conference/site visit may amend the project bidding requirements. Project bidding requirements may only be amended by addenda issued by authorized City officials. Following the pre-bid conference/site visit, prospective bidders may submit detailed technical questions in writing. If warranted, the City may respond to such questions by addenda.

☒ **Non-Mandatory pre-bid conference/site visit to be held**: Prospective bidders are invited to attend a non-mandatory pre-bid conference/site visit at 2:00 P.M. (*enter time*) on Monday, January 31, 2022 , at the City of Petaluma's Public Works and Utilities Office, 202 North McDowell Blvd, Petaluma, CA 94954. Following the

conference at City offices, City staff and prospective bidders will meet at the project Site. Transportation to the project site will be the responsibility of prospective bidders. The purposes of the conference/site visit are to discuss the scope of the project and bidding requirements, and to acquaint bidders with Site conditions.

No information communicated at the pre-bid conference/site visit may amend the project bidding requirements. Project bidding requirements may only be amended by addenda issued by authorized City officials. Following the pre-bid conference/site visit, prospective bidders may submit detailed technical questions in writing. If warranted, the City may respond to such questions by addenda.

17. **PROJECT ADMINISTRATION**: All communications relative to the WORK shall be directed to the ENGINEER prior to opening of the Bids.

NAME: Dan Herrera, PE

ADDRESS: Department of Public Works and Utilities

202 North McDowell Boulevard

Petaluma, CA 94954

PHONE: (707) 778-4589

18. **CITY'S RIGHTS RESERVED**: The CITY reserves the right to reject any or all bids, to waive any minor irregularity in a bid, and to make awards to the lowest responsive, responsible bidder as it may best serve the interest of the CITY.

CITY: Petaluma

BY: 

DATE: 01/13/2022

END OF NOTICE INVITING BIDS

INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS. Terms used in these Instructions to Bidders and the Notice Inviting Bids which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to CITY, as distinct from a sub-bidder, who submits a price or quote to a Bidder.

2. LOCAL BUSINESS LICENSE. All CONTRACTORS, including subcontractors, not already having a local business license for the work contemplated, will be required to secure the appropriate license before a Contract can be executed.

3. INTERPRETATIONS AND ADDENDA.

3.1 All questions about the meaning or intent of the Contract Documents are to be directed to the ENGINEER. Additions, deletions, or revisions to the Contract Documents 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 Contract Documents. Questions received less than 14 days prior to the date of Bids may not be answered. Only answers to such questions issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

3.2 Addenda may also be issued to make other additions, deletions, or revisions to the Contract Documents.

3.3 Bidders shall make no special interpretation or inference of intent from differing formats in the Technical Specifications.

4. BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE.

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

A. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical" data referred to below);

B. To visit the site to become familiar with local conditions that may affect cost, progress, or performance of the WORK;

C. To consider federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the WORK;

D. To study and carefully correlate the Bidder's observations with the Contract Documents; and

E. To notify the ENGINEER of all conflicts, errors, ambiguities, or discrepancies in or between the Contract Documents and such other related data.

4.2 Reference is made to the Supplementary General Conditions for identification of:

A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Utilities) which are at or contiguous to the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.

C. Those environmental reports or drawings relating to Asbestos, Hazardous Waste, PCBs, Petroleum, and/or Radioactive Materials identified at the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.

D. The ENGINEER makes no representation as to the completeness of the reports or drawings referred to in Paragraphs 4.2A, 4.2B, and 4.2C. above or the accuracy of any data or information contained therein. The Bidder may rely upon the accuracy of the technical data contained in such reports and drawings. However, the Bidder may not rely upon any interpretation of such technical data, including any interpretation or extrapolation thereof, or any non-technical data, interpretations, and opinions contained therein.

4.3 Copies of reports and drawings referred to in Paragraph 4.2 will be made available by the CITY to any Bidder on request, if said reports and drawings are not bound herein. 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, are incorporated herein by reference.

4.4 Information and data reflected in the Contract Documents with respect to Underground Utilities at or contiguous to the site are based upon information and data furnished to the ENGINEER by the owners of such Underground Utilities or others, and the CITY does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions.

4.5 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Utilities, and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.

4.6 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface,

subsurface, and Underground Utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

4.7 On request a minimum of 2 working days in advance, the ENGINEER will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests, and studies as each Bidder deems necessary for submission of a Bid. Location of any excavation or boring shall be subject to prior approval of ENGINEER and applicable agencies. Bidder shall fill all holes, restore all pavement to match existing structural section, and shall clean up and restore the site to its former condition upon completion of such explorations. ENGINEER reserves the right to require Bidder to execute an Access Agreement with the CITY prior to accessing the site.

4.8 The lands upon which the WORK is to be performed, rights-of-way, and easements for access thereto and other lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the CITY unless otherwise provided in the Contract Documents.

4.9 The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of this Paragraph 4 and the following:

A. That the Bid is premised upon performing the WORK required by the Contract Documents without exception and such means, methods, techniques, sequences, or procedures of construction (if any) as may be required by the Contract Documents;

B. That Bidder has given the ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies in the Contract Documents and the written resolution thereof by the ENGINEER is acceptable to the Bidder; and

C. That the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

5. BID FORMS. The Bid shall be submitted on the Bid Forms provided by the City. All blanks on the Bid Forms shall be completed in ink. All names must be printed below the signatures. The Bid shall be submitted in a sealed envelope which shall be plainly marked in the upper left hand corner with the name and address of the Bidder and shall bear the words "BID FOR" followed by the title of the Contract Documents for the WORK, the name of the CITY, the address where Bids are to be delivered or mailed to, and the date and hour of opening of Bids.

5.2 The Bid must set forth the name and 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 a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the WORK according to detailed Drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid or, in the case of bids or offers for the construction of streets and highways, including bridges, in excess of one-half of 1 percent of the prime contractor's total bid or ten thousand dollars ($10,000), whichever is greater.

6. CERTIFICATES.

6.1 Bids by corporations must be executed in the corporate name by the president, a vice-president, or other corporate officer. Such Bid shall be accompanied by the enclosed Certificate of Authority to sign, attested by the secretary or assistant secretary, and with the corporate seal affixed. The corporate address and sate of incorporation must appear below the signature.

6.2 Bids by partnerships must be executed in the partnership name and be signed by a managing partner, accompanied by the enclosed Certificate of Authority to sign, and his/her title must appear under the signature and the official address of the partnership must appear below the signature.

6.3 Bids by joint venture must be executed in the joint venture name and be signed by a joint venture managing partner, accompanied by the enclosed Certificate of Authority to sign, and his/her title must appear under the signature and the official address of the joint venture must appear below the signature.

7. DISQUALIFICATION OF BIDDERS. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the CITY believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the CITY believes that collusion exists among the Bidders, all Bids will be rejected. A party who has quoted prices to a bidder is not hereby disqualified from quoting prices to other Bidders, or from submitting a Bid directly for the WORK. If a Bidder is not registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5 and Section 1771.1, then the Bid may be rejected as non-responsive.

8. QUANTITIES OF WORK. The quantities of work or material stated in unit price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any unit price item of the WORK by an amount up to and including 25 percent of any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Bid price.

9. SUBSTITUTE OR "OR EQUAL" ITEMS. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a particular manufacturer and the name is followed by the words "or equal", the Bidder may write the name of a substitute manufacturer (which the Bidder considers as an "or equal") in the List of Proposed Substitutions in the Bid Forms. The ENGINEER will make a determination of approval or rejection of the proposed substitution prior to award of the Contract. No request for substitution of an "or equal" item will be considered by the ENGINEER after award of the Contract. The procedure for the submittal of substitute or "or equal" products is contained in the Bid Forms. The Bidder shall not be relieved of any obligations of the Contract Documents or be entitled to an adjustment in the Contract Price in the event any proposed substitution is not approved.

10. COMPETENCY OF BIDDERS. In selecting the lowest responsive, responsible Bidder, consideration will be given not only to the financial standing but also to the general competency of the Bidder for the performance of the WORK covered by the Bid. To this end, each Bid shall be supported by a statement of the Bidder's experience as of recent date including: (a) all projects worked on by the Bidder over the past three (3) years including the contract amount for each project; (b) all complaints made against the Contractor's license in the past ten (10) years; and (c) all claims and lawsuits presented or filed in the last five (5) years, regardless of the form, regarding any public works project.

11. SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time and at the proper place.

12. BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified or cashier's check or approved Bid Bond in the amount stated in the Notice Inviting Bids. Said check or bond shall be made payable to the CITY and shall be given as a guarantee that the Bidder, if awarded the WORK, will enter into an Agreement with the CITY and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the CITY. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein. Bid Bonds shall comply with the requirements applicable to payment and performance bonds in the General Conditions.

12.1 BIDDING CAPACITY. Each Bid shall be accompanied by a list of the projects currently being worked on by Bidder, their size, contract price, scheduled completion date, location, and owner. Additionally, Bidder shall provide certified evidence of its current bonding capacity.

13. DISCREPANCIES IN BIDS. In the event there is more than one Bid item in a Bid Schedule, the Bidder shall furnish a price for all Bid Items in the Schedule, and failure to do so will render the Bid non-responsive and shall cause its rejection. In the event there are unit price Bid items in a Bidding schedule and the amount indicated for a unit price Bid item does not equal the product of the unit price and quantity, the unit price shall

govern and the amount will be corrected accordingly, and the BIDDER shall be bound by said correction. In the event there is more than one Bid item in a Bid Schedule and the total indicated for the Schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the Schedule will be corrected accordingly, and the BIDDER shall be bound by said correction.

14. MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS. Unauthorized conditions, limitations, or provisos attached to the Bid shall render it informal and may cause its rejection as being non-responsive. The Bid forms shall be completed without interlineations, alterations, or erasures in the printed text. Alternative Bids will not be considered unless called for. Oral, telegraphic, or telephonic Bids or modifications will not be considered.

15. WITHDRAWAL OF BID. The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids prior to the scheduled closing time for receipt of Bids.

16. BID PROTEST. Any Bid protest must be submitted in writing to the City Manager before 5:00 p.m. on the fifth (5^{th}) working day following Bid opening.

    A. The initial protest document must contain a complete statement of the basis for the protest, and all supporting documentation.

    B. The party filing the protest must have actually submitted a Bid for the WORK. A subcontractor of a party submitting a Bid for the WORK may not submit a Bid protest. A party may not rely on the Bid protest submitted by another Bidder, but must timely pursue its own protest.

    C. The protest must refer to the specific portion of the bid document which forms the basis for the protest.

    D. The protest must include the name, address and telephone number of the person representing the protesting party.

    E. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

    F. The CITY will give the protested Bidder five (5) working days after the receipt of the protest to submit a written response. The responding Bidder shall transmit the response to the protesting Bidder concurrent with delivery to the CITY.

G. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of Bid protest. The Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.

H. If the CITY determines that a protest is frivolous, the protesting bidder may be determined to be non-responsible and that bidder may be determined to be ineligible for future contract awards.

17. AWARD OF CONTRACT. Award of the contract, if awarded, will be made to the lowest responsive, responsible Bidder whose Bid complies with the requirements of the Contract Documents. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid items in an individual Bid Schedule. In the event the WORK is contained in more than one Bid Schedule, the CITY may award Schedules individually or in combination. In the case of two Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded. The CITY may condition the award upon the Bidder's timely submission of all items required by the Contract Documents, including, but not limited to the executed Agreement, performance, labor and materials, and maintenance bonds, and required certificates of insurance and endorsements.

18. RETURN OF BID SECURITY. Within 14 days after award of the contract, the CITY will, if requested, return the Bid securities accompanying such Bids that are not being considered in making the award. All other Bid securities will be held until the Agreement has been finally executed. They will then be returned, if requested, to the respective Bidders whose Bids they accompany.

19. EXECUTION OF AGREEMENT. The Bidder to whom award is made shall execute a written Agreement with the CITY on the form of agreement provided, shall secure all insurance, and shall furnish all certificates and bonds required by the Contract Documents within five (5) working days after receipt of Notice of Award from the CITY. Failure or refusal to enter into an Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the CITY may award the Contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the CITY.

20. LIQUIDATED DAMAGES. Provisions for liquidated damages, if any, are set forth in the Agreement.

21. WORKERS' COMPENSATION REQUIREMENT. The Bidder should be aware that in accordance with Section 3700 of the California Labor Code it will, if awarded the Contract, be required to secure the payment of compensation to its employees and execute the Workers' Compensation Certification in the form contained in these Contract Documents.

22. NON-COLLUSION AFFIDAVIT. Bidders must execute the following affidavit and submit the same with his/her bid:

23. MATERIALS SUPPLIERS LIST. Bidders and their subcontractors must complete the List of Materials Suppliers and Material Guarantee form provided with the Bid Forms and must submit the completed form with the Bid.

END OF INSTRUCTIONS TO BIDDERS

BID PROPOSAL CERTIFICATE
(if Corporation)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the _____ _____, a corporation existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to execute the Bid Proposal dated _____, 20____, for the _____ _____ project, in the City of Petaluma, and that his/her execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____, day of _____, 20____.

_____
Secretary

(SEAL)

BID PROPOSAL CERTIFICATE
(if Partnership)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the _____
_____,
a partnership existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as the General Partner of the Partnership, be and is hereby authorized to execute the Bid Proposal dated _____, 20___, for the _____ project, in the City of Petaluma and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 20___.

_____
Partner

(SEAL)

BID PROPOSAL CERTIFICATE
(if Joint Venture)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the _____
_____
_____
a joint venture existing under the laws of the State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the joint venture, be and is hereby authorized to execute the Bid Proposal dated _____, 20___, for the _____ _____ project, in the City of Petaluma, and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Managing Partner

(SEAL)

BID PROPOSAL CERTIFICATE
(if Proprietorship)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that _____, as owner of _____ that I am authorized to execute the Bid Proposal dated _____, 20____, for the _____ _____ project, in the City of Petaluma, and that my execution thereof shall be the official act and deed of this proprietorship.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____, day of _____, 20____.

_____
Owner

(SEAL)

SECTION I

BID FORMS
(TO BE SUBMITTED WITH BIDS)

BIDDER'S AFFIDAVIT OF NON-COLLUSION SUBMITTED WITH BID

_____, *[Contractor]* hereby declares that:

He or she is _____ *[title/position]* of _____, *[company name]* 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 induced or solicited any other bidder to put in a false or sham bid, and 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 or 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 date 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.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated: _____ _____

Signature

Public Contract Code section 7106
Code of Civil Procedure section 2015.5

END OF BIDDER'S AFFIDAVIT OF NON-COLLUSION SUBMITTED WITH BID

BID PROPOSAL CERTIFICATE
(if Corporation)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the _____ _____, a corporation existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to execute the Bid Proposal dated _____, 20____, for the _____ _____ project, in the City of Petaluma, and that his/her execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____, day of _____, 20____.

_____
Secretary

(SEAL)

BID PROPOSAL CERTIFICATE
(if Partnership)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the _____
_____,
a partnership existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as the General Partner of the Partnership, be and is hereby authorized to execute the Bid Proposal dated _____, 20___, for the _____ project, in the City of Petaluma and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 20___.

_____
Partner

(SEAL)

BID PROPOSAL CERTIFICATE
(if Joint Venture)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the _____
_____
_____
a joint venture existing under the laws of the State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the joint venture, be and is hereby authorized to execute the Bid Proposal dated _____, 20___, for the _____ _____ project, in the City of Petaluma, and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Managing Partner

(SEAL)

BID PROPOSAL CERTIFICATE
(if Proprietorship)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that _____, as owner of _____ that I am authorized to execute the Bid Proposal dated _____, 20____, for the _____ _____ project, in the City of Petaluma, and that my execution thereof shall be the official act and deed of this proprietorship.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____, day of _____, 20____.

_____
Owner

(SEAL)

PROPOSAL

To the City Council of the City of Petaluma:

The undersigned declares that he/she has carefully examined the location of the proposed work, that he/she has examined the plans and specifications, and read the accompanying instructions to bidders, and hereby proposes to furnish all materials and do all the work required to complete the said work in accordance with said plans, specifications, and special provisions for the unit or lump sum prices set forth in the attached Bid Schedule.

It is understood and agreed that the undersigned shall complete the work of the contract within the time provided for in the Contract Documents and Specifications governing said work.

If awarded the contract, the undersigned hereby agrees to sign said contract and to furnish the necessary bonds, insurance certificates and agreements within five (5) working days after receipt of Notice of Award of said contract from the City.

The undersigned has examined the location of the proposed work and is familiar with the plans, specifications and other contract documents and the local conditions at the place where the work is to be done.

The undersigned has checked carefully all the figures on the attached Bid Schedule and understands that the City will not be responsible for any errors or omissions on the part of the undersigned in making up the bid.

Enclosed find bidder's bond, certified check, or cashier's check no. _____ of the _____ (Company) (Bank) for _____ Dollars ($_____).

This project requires a Class A or C-33 California State Contractor's License.

Contractor's License No. _____ License Class _____

Expiration Date of Contractor's License _____

This project requires registration with the California State Department of Industrial Relations.

Public Works Contractor Registration No. _____

Registration Date _____ Expiration Date _____

A bid submitted to a public agency by a contractor who is not licensed and not registered shall be considered non-responsive and shall be rejected by the public agency. The undersigned contractor declares that the contractor's license number, public work contractor registration number, and expiration dates stated herein are made under penalty of perjury under the laws of the State of California.

Contractor: _____

Signed by: _____

Title: _____

Address: _____

_____

Phone: _____

Fax: _____

Email:_____

Dated this _____ day of _____, 20___.

END OF PROPOSAL

BID SCHEDULE

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization/Demobilzation	1	LS		
2	Interior Tank Coatings	1	LS		
3	Exterior Tank Coatings	1	LS		
4	Valve Vault Improvements	1	LS		
5	Tank Appurtenances	1	LS		
6	Door Sheet	120	Hours		
7	Replace Rafter Ties	13	EA		
8	Electrical Work	1	LS		

Total Base Bid **$** _____

*Note: In case of error in extension of price into the total price column, the unit price will govern.

Total Amount of Bid (written in words) is:_____

_____ Dollars and

_____ Cents.

In the event of discrepancy between words and figures, the words shall prevail.

$_____
Figures

ALTERNATE BID SCHEDULES

BID ALTERNATE A

Seal Weld Roof Plates					
Item No.	**Description**	**Estimated Quantity**	**Unit**	**Unit Price**	**Total Price**
1	Seal Weld Roof Plates	1	LS		

Total Bid Alternate A **$** _____

*Note: In case of error in extension of price into the total price column, the unit price will govern.

Total Amount of Alternate Bid (written in words) is:_____

_____ Dollars and

_____ Cents.

In the event of discrepancy between words and figures, the words shall prevail.

$_____

Figures

BID ALTERNATE B

Steel Banding Around Bottom Shell Course					
Item No.	**Description**	**Estimated Quantity**	**Unit**	**Unit Price**	**Total Price**
1	Steel Banding Around Bottom Shell	1	LS		

Total Bid Alternate B $ _____

*Note: In case of error in extension of price into the total price column, the unit price will govern.

Total Amount of Alternate Bid (written in words) is:_____

_____ Dollars and

_____ Cents.

In the event of discrepancy between words and figures, the words shall prevail.

$_____

Figures

Note: The award of contract shall be based on the lowest responsive and responsible bidder of the Total Base Bid

The City reserves the right to choose any bid alternates to be awarded.

Address of Bidder	Signature of Bidder
City	Name of Bidder (Print)
Telephone Number of Bidder	Fax Number of Bidder
Contractor's License Number	License's Expiration Date

Addendum Acknowledgement

Addendum No. 1 Signature Acknowledging Receipt:_____ Date:_____

Addendum No. 2 Signature Acknowledging Receipt:_____ Date:_____

Addendum No. 3 Signature Acknowledging Receipt:_____ Date:_____

Addendum No. 3 Signature Acknowledging Receipt:_____ Date:_____

LIST OF SUBCONTRACTORS

In accordance with Section 4104 of the Public Contracting Code of the State of California, each bidder shall list below the name and location of place of business of each subcontractor who will perform a portion of the contract work in an amount in excess of one-half of one percent of the total contract price or, in the cases of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of 1 percent of the prime contractor's total bid or ten thousand dollars ($10,000), whichever is greater. In each such instance, the nature and extent of the work to be performed shall be described.

If a prime contractor fails to specify a subcontractor or if a prime contractor specifies more than one subcontractor for the same portion of work to be performed under the contract in excess of one-half of one percent of the prime contractor's total bid, the prime contractor agrees that he or she is fully qualified to perform that portion himself or herself, and that the prime contractor shall perform that portion himself or herself. The subcontracting of work for which no subcontractor was designated in the original bid and which is in excess of one-half of one percent of the total contract price, will be allowed only with the written consent of the City.

Name of Subcontractor	**Address of Office, Mill, or Shop**	**Description of Work to be Performed (also show Bid Schedule Item Number)**	**Public Works Contractor Registration Number**

END OF LIST OF SUBCONTRACTORS

LIST OF MATERIAL SUPPLIERS AND MATERIAL GUARANTEE

The bidder is required to name the make and supplier of the material items listed below to be furnished under these specifications. The bidder shall name a manufacturer for each item and the supplier of the item if the supplier is not the manufacturer. The naming of more than one supplier for a single item or naming a supplier followed by the words "or equal" will not be acceptable. Substitution of any listed supplier following submission of this form with the Bid shall only be permitted as authorized by the Engineer pursuant to Section 6.3 of the General Conditions.

Failure to complete this form and submit it with the bid proposal may cause the proposal to be rejected as being incomplete and not responsive to the solicitation.

Item	Supplier & Manufacturer	Address

MATERIAL GUARANTEE

In addition to completion of the list of material suppliers on the Material Suppliers form, the bidder may be required to furnish prior to award of contract, a complete statement of the origin, composition and manufacturer of any or all materials to be used in the construction of the work, together with samples, which samples may be subjected to test, provided for in these specifications or in the Special Provisions to determine their quality and fitness for the work.

END OF
LIST OF MATERIAL SUPPLIERS AND MATERIAL GUARANTEE

QUESTIONNAIRE AND FINANCIAL ASSURANCE STATEMENT

The following statements as to experience and financial qualifications of the Proposer are submitted in conjunction with the proposal as a part thereof, and the truthfulness and accuracy of the information is guaranteed by the Proposer.

The Proposer has been engaged in the contracting business under the present business for _____ years. Experience in work of a nature similar to that covered in the proposal extends over a period of _____ years.

The Proposer, as a contractor, has never failed to satisfactorily complete a contract awarded to contractor, except as follows:

_____

_____

_____

List all claims and lawsuits presented or filed in the last five (5) years, regardless of the form, regarding any public works project:

_____

_____

_____

The following contracts for work have been completed in the last three (3) years for the persons, firm or authority indicated and to whom reference is made:

Year	Type of Work-Size, Length and Contract Amount	Location and For Whom Performed
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The following complaints have been made against the Proposer's contractor's license within the past ten (10) years:

Date:_____ Nature of Complaint _____

_____

_____

Reference is hereby made to the following bank or banks as to the financial responsibility of the proposer:

NAME OF BANK ADDRESS

Reference is hereby made to the following surety companies as to the financial responsibility and general reliability of the proposer:

NAME OF SURETY COMPANY:

I, the undersigned, declare under penalty of perjury under the laws of the State of California, that the foregoing is true and correct.

SIGNATURE OF PROPOSER DATE

NAME OF PROPOSER

END OF
QUESTIONNAIRE AND FINANCIAL STATEMENT FORM

STATEMENT OF QUALIFICATIONS

All Bidders shall submit a Statement of Qualifications as specified herein as an attachment to the Bid Documents.

A. The following are minimum requirements for the Bidder to be found responsible to perform the Work. Bidder's compliance with the minimum qualification requirements will be measured by the experience of the supervisory personnel who will have responsible charge of the various major components of the Work. If Bidder subcontracts portions of the Work, City, in its determination of whether the minimum qualification requirements have beden met, will consider the qualifications of the Subcontractor's supervisory personnel.

1. Five years experience as a continuously operating entity engaged in the performance of similar work.
2. Satisfactory experience on public works projects, with no history of default termination within 5 years.
3. Within the past five years, completed three potable water tank coating and rehabilitation projects of a similar nature and complexity with a contract dollar amount of at least $500,000 each.
4. Sufficient financial strength, stability and resources as measured by Bidder's equity, debt-to-assets ratio, and capability to finance the Work to be performed.
5. Evidence that Bidder and its team, including without limitation, its Mechanical, Structural, and Painting and Coating Subcontractors, including the Bidder to the extent Bidder performs such Work itself, (hereafter "designated Subcontractors"), have the human and physical resources of sufficient quantity and quality to perform the Work under Contract Documents in a timely and Specification-compliant manner, to include:
   a. Construction and management organizations with sufficient personnel and requisite disciplines, licenses, skills, experience, and equipment for the Project. Provide names and resumes of Project Manager and Superintendent.
   b. A field organization with skills, experience, and equipment sufficient to perform all on-Site Work and necessary scheduling.
   c. Expertise of Key Personnel to accomplish the duties and responsibilities required to perform the Work under Contract Documents. Minimum experience requirements of Key Personnel including the completion of two projects of similar nature and complexity and having five years of experience on projects of similar nature and complexity.

   d. List of plant and equipment owned by the Bidder, which is definitely available for use on the proposed work as required (not committed to other projects). Information to include Quantity; Name Type and Capacity; Condition; Location.

6. Any history within the past five (5) years that Bidder ever failed to complete a public works construction project in Petaluma within the time allowed by the contract, including written agreed upon contract time extensions or liquidated damages will eliminate bidder. For any other jurisdictions, Bidder shall provide failure to complete history within last five (5) years. Information to include: jurisdiction name, address, telephone number of the owner of such public works construction project including the name of the agencies' contact person, and further, describe in detail the nature of the improvement work.

B. Owner will notify Apparent Low Bidder in writing of any deficiencies found and will provide Bidder the opportunity to respond in writing with reasonable clarifications but will not allow any changes in the nature of Bidder as a business entity.

BID BOND

We, _____ as Principal, and _____ as Surety, jointly and severally, bind ourselves, our heirs, representatives, successors and assigns, as set forth herein, to the City of Petaluma (herein called "the Owner") for the payment of the penal sum of _____ Dollars ($_____), lawful money of the United States, which is ten (10) percent of the total amount bid by bidder to the Owner. Principal has submitted the accompanying bid for the construction of the Manor Tank Rehabiliation project.

If the Principal is awarded the contract and enters into a written contract, in the form prescribed by the Owner, at the price designated by his bid, and files the bonds required by the Agreement with the Owner, and carries all insurance in type and amount which conforms to the contract documents and furnishes required certificates and endorsements thereof, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Forfeiture of this bond, or any deposit made in lieu thereof, shall not preclude the Owner from seeking all other remedies provided by law to cover losses sustained as a result of the Principal's failure to do any of the foregoing.

Principal and Surety agree that if the Owner is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay the Owner's reasonable attorney's fees, witness fees and other costs incurred with or without suit.

Executed on _____, _____.

_____
PRINCIPAL

By_____
Signature

_____
Title

Any claims under this bond may be addressed to:

_____ (Name and address of Surety's agent for service of process in California, if different from above)

_____

_____ (Telephone number of Surety's agent in California)

_____

(Attach Acknowledgment)

_____
SURETY

By_____
(Attorney-in-Fact)

NOTICE:

No substitution or revision to this bond form will be accepted. Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also verify that Surety is an "Admitted Surety" (i.e., qualified to do business in California), and attach proof of verification (website printout from the California Department of Insurance website (http://www.insurance.ca.gov/docs/index.html) or certificate from County Clerk).

END OF BID BOND

SITE VISIT AFFIDAVIT
TO BE EXECUTED
BY BIDDER, NOTARIZED AND SUBMITTED WITH BID

(To Accompany Bid)

State of California)
) ss.
County of)

_____, **being first duly sworn**, deposes and says that he or
(Contractor's Authorized Representative)

she is

_____of _____, the party making the foregoing
(Title of Representative) (Contractor's Name)

bid, has visited the Site of the Work as described in the Contract and has examined and familiarized themselves with the existing conditions, as well as all other conditions relating to the construction which will be performed. The submitting of a bid shall be considered an acknowledgement on the part of the Bidder of familiarity with conditions at the site of Work. The Bidder further acknowledges that the site examination has provided adequate and sufficient information related to existing conditions which may affect cost, progress or performance of the Work.

Signature Name of Bidder

SECTION II

GENERAL CONDITIONS

CITY OF PETALUMA - GENERAL CONDITIONS

TABLE OF CONTENTS

ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated in this Article 1 which meanings are applicable to both the singular and plural thereof. If a word which is entirely in upper case in these definitions is found in lower case in the Contract Documents, then the lower case word will have its ordinary meaning.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the CITY and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by the ENGINEER which is to be used by the CONTRACTOR to request progress payments or final payment and which is to be accompanied by such supporting documentations as is required by the Contract Documents.

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.

Bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Labor and Materials, and Maintenance Bonds and other instruments of security.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the CITY, 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.

CITY - The City of Petaluma.

Clarification - A document issued by the ENGINEER to the CONTRACTOR that clarifies the requirements(s) and/or design intent of the Contract Documents, which may not represent an addition, deletion, or revision in the WORK or an adjustment in the Contract Price or the Contract Times.

Contract Documents - The Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates, affidavits and other documentation), Agreement, Performance Bond, Labor and Materials Bond, Maintenance Bond, General Conditions, any Supplementary General

Conditions, Special Provisions, Specifications, Drawings, all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents. Shop Drawings are not Contract Documents.

Contract Price - The total monies payable by the CITY to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Times - The number or numbers of successive calendar days or dates stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture, or other legal entity with whom the CITY has executed the Agreement.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective Work - Work that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or work that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are included and/or referred to in the Contract Documents. Shop Drawings are not Drawings as so defined.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER - The City Manager or his/her designee.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 U.S.C. Section 6906) as amended from time to time.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Lien or Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When related to public works construction, Lien or Mechanic's Lien may be called Stop Notice.

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a separately identifiable part of the WORK or a period of time within which the separately identifiable part of the WORK should be performed prior to completion of all the WORK.

Notice of Award - The written notice by the CITY to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein within the time specified, the CITY will enter into an Agreement.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the CITY that the WORK is Complete and fixing the date of completion. After acceptance of the WORK by the CITY Council, the form is signed by the CITY and filed with the County Recorder. This filing starts the 30 day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the CITY to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK for the purpose for which it is intended prior to completion of all the WORK.

Partial Utilization - Use by the CITY of a completed part of the WORK for the purpose for which it is intended prior to completion of all the WORK.

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 Wastes and crude oils.

Project - The total construction project of which the WORK to be provided under the Contract Documents may be the whole, or as part as indicated elsewhere in the Contract Documents.

Record Drawings - Drawings generated by marking a set of Drawings to reflect all of the changes that have occurred during construction of the Project.

Resident Project Representative - The authorized representative of the ENGINEER who is assigned to the Site or any part thereof.

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.

Shop Drawings - All drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR to illustrate some portion of WORK.

Site - Lands or other areas designated in the Contract Documents as being furnished by the CITY for the performance of the construction, storage, or access.

Special Provisions - Specific clauses setting forth conditions or requirements peculiar to the work and supplementary to the Standard Specifications.

Specifications - The directions, provisions and requirements set forth in the Standard Specifications as supplemental and modified by the special provisions.

Stop Notice - A legal remedy for subcontractors and suppliers who contribute to public works, but who are not paid for their work, which secures payment from construction funds possessed by the CITY. In some states, for public property, the Stop Notice remedy is designed to substitute for a mechanic's lien.

Subcontractor - An individual, partnership, corporation, joint-venture, or other legal 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.

Supplementary General Conditions - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, distributor, materialman, or vendor having a direct contract with the CONTRACTOR or with any Subcontractor to furnish materials, equipment, or product to be incorporated in the WORK by the CONTRACTOR or any Subcontractor.

Utilities - All pipelines, conduits, ducts, cables, wires, tracks, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground or above the ground to furnish any of the following services or materials; water, sewage, sludge, drainage, fluids, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic control, or other control systems.

WORK - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

Working day - Any day except Saturdays, Sundays and CITY holidays.

ARTICLE 2 – PRELIMINARY MATTERS

2.1 DELIVERY OF BONDS AND INSURANCE CERTIFICATES

A. When the CONTRACTOR delivers the signed Agreement to the CITY, the CONTRACTOR shall also deliver to the CITY such Bonds and insurance policies and certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.

2.2 COPIES OF DOCUMENTS

A. The CITY will furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.

2.3 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED

A. The Contract Times will start to run on the commencement date stated in the Notice to Proceed.

2.4 STARTING THE WORK

A. The CONTRACTOR shall begin to perform the WORK on the commencement date stated in the Notice to Proceed, but no work shall be done at the Site prior to said commencement date.

B. Before undertaking each part of the WORK, the CONTRACTOR shall review the Contract Documents in accordance with Paragraph 3.3.

2.5 PRECONSTRUCTION CONFERENCE

A. The CONTRACTOR is required to attend a preconstruction conference. This conference will be attended by the CITY, ENGINEER, and others as appropriate in order to discuss the WORK.

B. The CONTRACTOR's initial schedule submittals for shop drawings, obtaining permits, and Plan of Operation and CPM Schedule will be reviewed and finalized. At a minimum, the CONTRACTOR's representatives shall include its project manager, project superintendent and schedule expert. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first Application for Payment. No Application for Payment will be processed prior to receiving acceptable initial submittals from the CONTRACTOR.

ARTICLE 3 – INTENT AND USE OF CONTRACT DOCUMENTS

3.1 INTENT

A. The Contract Documents comprise the entire agreement between the CITY and the CONTRACTOR concerning the WORK. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the State of California .

B. It is the intent of the Contract Documents to describe the WORK, functionally complete, 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 called for specifically.

C. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning unless a definition has been provided in Article 1 of the General Conditions.

3.2 REFERENCE TO STANDARDS

A. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code shall be effective to change the duties and responsibilities of the CITY or the CONTRACTOR or any of their consultants, agents or employees, from those set forth in the CONTRACT Documents, nor shall it be effective to assign to CITY any duty or authority to direct the performance of the WORK or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.3 REVIEW OF CONTRACT DOCUMENTS

A. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual, or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once, and CONTRACTOR shall not proceed with the work affected thereby (except in an emergency as authorized by Paragraph 6.13 until a Clarification, Field Order, or Change Order to the Contract Documents has been issued.

3.4 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

A. Unless otherwise noted herein, conflicts or inconsistencies between parts of the Contract will be resolved by the ENGINEER with a Change Order or an Addendum, if required. Addenda and Change Orders bearing the most recent date shall prevail over Addenda or Change Orders bearing earlier dates. Any reference to addenda-changed specifications or drawings shall be considered to have been changed accordingly. In resolving conflicts resulting from errors or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

1. Change Orders/Addenda (most recent in time take precedence)
2. Agreement and Bond Forms
3. Referenced Standard Specifications
4. Special Provisions
5. Drawings
6. General Conditions
7. Instructions to Bidders
8. Contractor's Bid (Bid Form)
9. Notice Inviting Bids
10. Supplementary General Conditions (if any)
11. Permits from other agencies as may be required by law

B. With reference to the Drawings the order of precedence is as follows:

1. Figures govern over scaled dimensions
2. Detail drawings govern over general drawings
3. Addenda/Change Order drawings govern over any other drawings
4. Drawings govern over standard drawings

3.5 AMENDING 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 a Change Order (pursuant to Article 10).

3.6 REUSE OF DOCUMENTS

A. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the CITY shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall no reuse any of them on the extensions of the Project or any other project without written consent of CITY.

ARTICLE 4 – SITE OF THE WORK

4.1 AVAILABILITY OF LANDS

A. The CITY will furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the CITY, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. 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; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the CITY until a written temporary construction easement agreement has been executed by the CONTRACTOR and the property owner, and a copy of said easement furnished to the ENGINEER prior to said use; and the CITY will not be liable for any claims or damages resulting from the CONTRACTOR's trespass on or use of any such properties. The CONTRACTOR shall provide the CITY with a signed release from the property owner confirming that the lands have been satisfactorily restored upon completion of the WORK.

4.2 REPORTS OF PHYSICAL CONDITIONS

A. **Subsurface Explorations**: Reference is made to any Supplementary General Conditions for identification of those reports of explorations and tests of subsurface conditions at the Site that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. **Existing Structures**: Reference is made to any Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except underground Utilities referred to in Paragraph 4.3 herein) which are at or contiguous to the Site that have been utilized in the preparation of the Contract Documents.

C. The CITY makes no representation as to the completeness of the reports or drawings referred to in Paragraph 4.2 A or B above or the accuracy of any data or information contained therein. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports and drawings. However, the CONTRACTOR may not rely upon any interpretation of such technical data, including any interpolation or extrapolation thereof, or any non-technical data, interpretations, and opinions contained therein.

4.3 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

A. **Indicated**: The information and data indicated in the Contract Documents with respect to existing underground Utilities at or contiguous to the Site are based on information and data furnished to the CITY or the ENGINEER by the owners of such underground Utilities or by others. Unless it is expressly provided in any Supplementary General Conditions the CITY will not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of all of which are deemed to have been included in the Contract Price.

B. **Not Indicated**: If an underground Utility is uncovered or revealed at or contiguous to the Site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such underground Utility and give written notice thereof to that owner and shall notify the ENGINEER.

4.4 DIFFERING SITE CONDITIONS

A. The CONTRACTOR shall notify the ENGINEER, in writing, of the following unforeseen conditions, hereinafter called differing Site conditions, promptly upon their discovery (but in no event later than 14 days after their discovery) and before they are disturbed:

1. Subsurface or latent physical conditions at the Site of the WORK differing materially from those indicated, described, or delineated in the Contract Documents, including those reports discussed in Paragraph 4.2, 4.3, and 4.5.

B. The ENGINEER will review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto.

C. If the ENGINEER concludes that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the difference.

D. In each such case, an increase or decrease in the Contract Price or an extension or shortening the Contract Times, or any combination thereof, will be allowable to the extent that they are attributable to any such difference. If the ENGINEER and the CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefor as provided in Articles 11 and 12.

E. The CONTRACTOR's failure to give notice of differing Site conditions within 14 days of their discovery and before they are disturbed shall constitute a waiver of all claims in connection therewith, whether direct or consequential in nature.

4.5 HAZARDOUS MATERIALS

A. CITY shall be responsible for any Asbestos, Hazardous Waste, Petroleum, or Radioactive Material uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the WORK and which may present a substantial danger to persons or property exposed thereto in connection with the WORK at the Site. CITY will not be responsible for any such material brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

1. Upon discovery of any Asbestos, Hazardous Waste, Petroleum, or Radioactive Material, the CONTRACTOR shall immediately stop all work in any area affected thereby (except in an emergency as required by Paragraph 6.13) and notify ENGINEER (and therefore confirm such notice in writing). CONTRACTOR shall not be required to resume any work in any such affected area until after CITY has obtained any required permits related thereto and delivered to CONTRACTOR special written notice. Such written notice will specify that such condition and any affected area is or has been rendered safe for the resumption of the work or specify any special conditions under which the work may be resumed safely. If ENGINEER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of adjustment, if any, in Contract Price or Contract Times as a result of such work stoppage or such special conditions under which work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided in Articles 11 and 12.

2. If, after receipt of such special written notice, CONTRACTOR does not agree to resume such WORK based on a reasonable belief it is unsafe, or does not agree to resume such WORK under special conditions, ENGINEER may order such portion of the WORK that is in connection with such hazardous condition or in such affected area to be deleted from the WORK. If ENGINEER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the WORK then either party may make a claim therefor as provided in Articles 11 and 12. CITY may have such deleted portion of the WORK performed by CITY's own forces or others in accordance with Article 7.

B. The provisions of Paragraphs 4.2, 4.3, and 4.4 are not intended to apply to Asbestos, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the Site.

4.6 REFERENCE POINTS

A. The ENGINEER will provide the location and elevation of one bench mark, near or on the Site of the WORK, for use by the CONTRACTOR for alignment and elevation control. Unless otherwise specified in any Supplementary General Conditions, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.

B. The CONTRACTOR shall preserve or replace any and all bench marks, section corners, witness corners, stakes, and other survey marks, and in case of their removal or destruction by any party, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by surveyor licensed under the applicable state codes governing land surveyors.

ARTICLE 5 – BONDS AND INSURANCE

5.1 BONDS

A. The CONTRACTOR shall furnish Performance and Labor and Materials Bonds, each in the amount of one hundred percent (100%) of the contract price, as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date of completion, except as otherwise provided by Law or Regulation or by the Contract Documents. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.

B. The CONTRACTOR shall guarantee the WORK to be free of defects in material and workmanship for a period of one (1) year following the CITY's acceptance of the WORK. The CONTRACTOR shall agree to make, at the CONTRACTOR's own expense, any repairs or replacements made necessary by defects in material or workmanship which become evident within the one-year guarantee period. The CONTRACTOR's guarantee against defects required by this provision shall be secured by a Maintenance Bond, in the amount of ten percent (10%) of the contract price, which shall be delivered by the CONTRACTOR to the CITY prior to acceptance of the WORK. The Maintenance Bond shall remain in force for one (1) year from the date of acceptance of the contracted WORK. The CONTRACTOR shall make all repairs and replacements within the time required during the guarantee period upon receipt of written order from the ENGINEER. If the CONTRACTOR fails to make the repairs and replacements within the required time, the CITY may do the work and the CONTRACTOR and the CONTRACTOR's surety for the Maintenance Bond shall be liable to the CITY for the cost. The expiration of the Maintenance Bond during the one-year guarantee period does not operate to waive or void the one-year guarantee, as set forth herein and in paragraph 6.16 of these General Conditions.

C. 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 Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

D. If the surety on any Bond furnished by the CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and surety, which must be acceptable to the CITY.

E. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of California to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

5.2 INSURANCE

Contractor and any subcontractor shall not commence work under this Agreement until Contractor shall have obtained all insurance required under this paragraph and such insurance shall have been approved by the City Attorney as to form and carrier and the City Manager as to sufficiency, nor shall Contractor allow any contractor or subcontractor to commence work on this contract or subcontract until all similar insurance required of the contractor and/or subcontractor shall have been so obtained and approved. All requirements herein provided shall appear either in the body of the insurance policies or as endorsements and shall specifically bind the insurance carrier.

CONTRACTOR shall procure and maintain for the duration of the contract all necessary insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, the Contractor's agents, representatives, employees or subcontractors.

A. **Minimum Scope of Insurance**

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage.

2. Insurance Services Office form number CA covering Automobile Liability, code 1 (any auto).

3. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

4. [Optional] Such other insurance coverages and limits as may be required by the CITY as follows: _____.

B. **Minimum Limits of Insurance**

CONTRACTOR shall maintain limits no less than:

1. General Liability: $2,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate liability is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability: $1,000,000 per accident for bodily injury and property damage.

3. Employer's Liability: Bodily Injury by Accident - $1,000,000 each accident
   Bodily Injury by Disease - $1,000,000 policy limit
   Bodily Injury by Disease - $1,000,000 each employee

C. **Deductibles and Self-Insured Retentions**

Any deductibles or self-insured retentions must be declared to and approved by the CITY. At the option of the CITY, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the CITY, its officers, officials, employees, and volunteers; or the CONTRACTOR shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. **Other Insurance Provisions**

The required general liability and automobile policies are to contain, or be endorsed to contain the following provisions:

1. The CITY, its officers, officials, employees, agents and volunteers are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the CONTRACTOR; products and completed operations of the CONTRACTOR; premises owned, occupied or used by the CONTRACTOR; or automobiles owned, leased, hired or borrowed by the CONTRACTOR. The coverage shall contain no special limitations on the scope of protection afforded to the CITY, its officers, officials, employees, agents or volunteers.

2. For any claims related to this project, the CONTRACTOR's insurance coverage shall be primary insurance as respects the CITY, its officers, officials, employees, agents and volunteers. Any insurance or self-insurance maintained by the CITY, its officers, officials, employees, agents or volunteers shall be excess of the CONTRACTOR's insurance and shall not contribute with it.

3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the CITY, its officers, officials, employees, agents or volunteers.

4. The CONTRACTOR's insurance shall apply separately to each insured against whom claim is made or suit is brought except, with respect to the limits of the insurer's liability.

5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the CITY.

E. **Acceptability of Insurers**

Insurance is to be placed with insurers with a current A.M. Best's ration of no less than A:VII.

F. **Verification of Coverage**

CONTRACTOR shall furnish the CITY with original endorsements effecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. The endorsements are to be on forms provided by the CITY. All endorsements are to be received and

approved by the CITY before work commences. As an alternative to the CITY's forms, the CONTRACTOR's insurer may provide complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.1 COMMUNICATIONS

A. Written communications with the CITY shall be only through or as directed by the ENGINEER.

6.2 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 and all safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.

B. The CONTRACTOR shall designate in writing and keep on the Site at all times during the performance of the WORK a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the ENGINEER. 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 the superintendent shall be as binding as if given to the CONTRACTOR.

C. The CONTRACTOR's superintendent shall be present at the Site at all times while work is in progress and shall be available by phone for emergencies 24 hours per day, 7 days per week. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the Site.

6.3 LABOR, MATERIALS, AND EQUIPMENT

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 furnish, erect, maintain, and remove the construction plant and any required temporary works. The CONTRACTOR shall at all times maintain good discipline and order at the Site. Except in connection with the safety or protection of persons or the WORK or property at the Site or adjacent thereto, and except as otherwise indicated in the

Contract Documents, all work at the Site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday, or any federally observed holiday without the CITY's written consent. The CONTRACTOR shall apply for this consent through the ENGINEER in writing a minimum of 24 hours in advance.

B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid to the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.

C. All increased costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The CITY has the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.

D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, lubricants, power, light, heat, telephone, water, sanitary facilities, and all other facilities, consumables, and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.

E. All materials and equipment incorporated into the WORK shall be of specified quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the CITY. 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. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the CITY or any of its consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9 C.

F. The work, unless otherwise permitted or approved by the ENGINEER, shall be completed with the incorporated use of equipment, materials, and/or products where such are specified. Substitutions and equal alternatives will be permitted as

provided in this article; however, neither the request for substitution nor the offer of alternatives shall in any way by their submittal obligate the CITY to assent to any request or offer. Failure of the CONTRACTOR awarded the work to either submit requests for substitutions or to offer alternatives within the required times provided in this General Condition will be considered as evidence that the work shall be accomplished with trade-named equipment, materials, and/or products as identified in the Specifications and/or the Drawings.

G. Unless otherwise provided elsewhere in the Contract, all equipment, materials, and/or products incorporated into the work shall be new and, where not specified, shall be of the highest quality of the respective kinds for the intended use, and all workmanship shall meet or exceed applicable construction industry standards and practices. If equipment, materials, and/or products are designated by listing named manufacturers of particular equipment, materials, and/or products followed by the words "or equal," then the CONTRACTOR may furnish the named equipment, materials, and/or products or any equal equipment, materials, and/or products. The first-named manufacturer of particular equipment, materials, and/or products is the basis for the design shown on the Project Drawings. A subsequently named manufacturer or particular equipment, materials, and/or products has been determined to be an acceptable substitution but may require modifications in the Project's design and its ultimate construction to accommodate its use. If such subsequently named items are selected by the CONTRACTOR for incorporation into the work, the CONTRACTOR shall assume all costs required for modifications to the equipment, materials, and/or products, and Project design and construction as may be required for said items' use. Substitutions for an unnamed "equal" item of material shall be permitted upon compliance of the procedures set forth in Paragraph I of this article. If a CONTRACTOR makes use of an unnamed "equal" product as a substitute for a specifically named material or product, the CONTRACTOR shall assume all costs required to make the necessary revisions or modifications to accommodate the use of said unnamed product.

H. Before beginning the work and within thirty-five (35) calendar days after award of the Contract, the CONTRACTOR shall submit a List of Materials to the ENGINEER for review. The List shall include all items of equipment, materials, and/or products to be incorporated into the work and the names of suppliers with whom purchase orders have been placed. The names on the List shall be arranged in the same order as in the specifications, and shall contain sufficient data to identify precisely the items of equipment, materials, and/or products the CONTRACTOR proposes to furnish. The List shall include Specifications or Drawing references. Once the submission is determined to be acceptable to the ENGINEER, it shall be returned to the CONTRACTOR.

I. Substitution for those equipment, materials, and/or products specified shall only be permitted when the proposed unnamed "equal" product or material to be furnished is both equal in quality and utility and after the CONTRACTOR has

complied with the following provisions: (1) All substitutions shall be reviewed by the ENGINEER. (2) The ENGINEER must approve such substitution in writing prior to its incorporation into the work. (3) Unless otherwise authorized in writing by the CITY, the CONTRACTOR shall, within thirty-five (35) calendar days of award and prior to placing any purchase orders, but at least thirty (30) calendar days before it requires approval of any such alternative item, submit to the CITY sufficient data, drawings, samples, literature, or other detailed information as will demonstrate to the ENGINEER that the proposed substitute is equal in quality and utility to the equipment, materials and/or products specified.

1. Within thirty (30) calendar days following receipt of all requested information from the CONTRACTOR, the ENGINEER will determine whether the proposed alternative is equal in quality and utility and meets the requirements of the Contract and will inform the CONTRACTOR in writing of such determination. The burden of substantiating the quality and utility of alternatives shall be upon the CONTRACTOR, and the CONTRACTOR shall furnish all necessary information requested and required by the ENGINEER. The ENGINEER will be the sole judge as to the quality and utility of alternative equipment, materials, and/or products, and the ENGINEER's decision shall be final. An acceptance by the ENGINEER of a substitution shall not relieve the CONTRACTOR from complying with the requirements of the Drawings and Specifications. Acceptance by the ENGINEER shall not relieve the CONTRACTOR from full responsibility for the efficiency, sufficiency, and quality and performance of the substitute equipment, materials, and/or products, in the same manner and degree as the equipment, materials, and/or products specified by name.

2. Failure of the CONTRACTOR to submit proposed substitutions for review in the manner described above and within the time prescribed shall be sufficient cause for rejection by the CITY of any other proposed substitutions.

3. In determining whether a proposed product is equal in quality and utility, the ENGINEER is not restricted to such basic issues as performance and durability, but may consider any other issues that the ENGINEER, in the discretion of the ENGINEER, deems appropriate. Said issues may, but are not required to include, nor are they limited to, such additional factors as comparable performance, reliability, efficiency of operation, ease of operation, adaptability, ease of maintenance, capital costs, life-cycle costs, operational characteristics, costs of training personnel, maintenance history, warranties, problems created by the resulting overall warranty system, availability of qualified service, availability of parts, the history of any supplier and compatibility with existing facilities.

4. No one factor or group of factors, including such issues as savings on capital costs, shall be determinative of whether the proposed product or material is equal in quality and utility. The decision of the ENGINEER shall be based on those factors deemed by the ENGINEER to be relevant and any data, drawings, samples, literature, or other detailed information furnished by the CONTRACTOR with respect to the proposed substitution. Each decision as to whether a product or material is equal in quality and utility shall be made by the ENGINEER on a case-by-case basis.

5. The CONTRACTOR shall be responsible for any and all costs, including consultant costs, incurred by the CITY with respect to the proposed substitution that exceed the costs inherent in the normal and reasonable review of drawings and other standard data, information, and documents concerning any proposed substitution. The CONTRACTOR shall be responsible for this cost, regardless of whether or not the substitution is approved by the ENGINEER.

J. Unless otherwise provided in the Contract, the title and interest in the right to the use of all water, and the title to all soil, stone, gravel, sand, minerals, timber, and all other materials developed or obtained within the Project limits from operations by the CONTRACTOR or any of its subcontractors, of any of their representatives or employees, and the right to use or dispose of the same are hereby expressly reserved in the CITY; and neither the CONTRACTOR nor any of its subcontractors, nor any of their representatives or employees, shall have any right, title, or interest in or to any part thereof.

K. All material used under the Contract after it has been attached or affixed to the work or soil and after partial payment has been made therefore shall become the property of the CITY.

L In the event that any Indian relics or items possessing archaeological or historical value are discovered by the CONTRACTOR or any of its subcontractors or any of their representatives or employees, the CONTRACTOR shall immediately notify the ENGINEER and await the ENGINEER's decision before proceeding with any work. The CONTRACTOR shall have no property right in such relics and items.

M. The CONTRACTOR shall be satisfied as to the quantity of acceptable materials or products which may be produced or obtained at local sources, and the CITY will not assume any responsibility as to the quantities or quality of acceptable materials or products available.

N. The CONTRACTOR, with the permission of the ENGINEER, may use in the proposed construction such stone, gravel, sand, or other material suitable in the opinion of the ENGINEER as may be found in excavation.

O. Existing equipment, materials, and/or products to be salvaged shall remain the property of the CITY. Salvage to be reinstalled in the work shall be refurbished as required before reinstallation. Other work to be salvaged shall be carefully removed and handled in such a manner as to avoid damage and shall be delivered to storage at a location designated by the ENGINEER.

6.4 SCHEDULE

A. The CONTRACTOR shall comply with the schedule requirements in the Special Provisions or as otherwise provided in the Contract Documents.

6.5 SUBSTITUTES OR "OR EQUAL" ITEMS

A. The CONTRACTOR shall submit proposed substitutes or "or equal" items in accordance with the Bidding Requirements. No request for substitution of an "or equal" item will be considered by the ENGINEER after award of the Contract, except as provided in Paragraph 6.3I herein.

6.6 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS

A. The CONTRACTOR shall be responsible to the CITY for the acts and omissions of its Subcontractors, Suppliers, and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the CITY nor relieve the CONTRACTOR of any liability or obligation under the Contract Documents. The CONTRACTOR shall include these General Conditions and the Supplementary General Conditions as part of all its subcontract and supply agreements.

6.7 PERMITS

A. Unless otherwise provided in any Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all constructions permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements shall not be made the basis for claims for additional compensation by CONTRACTOR. When necessary, the CITY will assist the CONTRACTOR, in obtaining such permits and licenses. The CONTRACTOR shall pay all charges of utility owners for inspection or connections to the WORK.

6.8 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 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 will be disclosed by the ENGINEER in the Contract Documents. The CONTRACTOR's indemnification obligation under this Paragraph 6.8 A. for all claims and liabilities arising out of 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 shall be in accordance with Paragraph 6.16 of these General Conditions.

6.9 LAWS AND REGULATIONS

A. The CONTRACTOR shall observe and comply with all Laws and Regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK including, but not limited to, all applicable safety Laws and Regulations. If any discrepancy or inconsistency should be discovered between the Contract Documents and any such Laws or Regulations, the CONTRACTOR shall report the same in writing to the ENGINEER. Any particular Law or Regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with al other provisions of federal, state, and local laws and regulations. The CONTRACTOR's indemnification obligations for all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors or Suppliers shall be in accordance with Paragraph 6.16 of these General Conditions.

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 PREMISES

A. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site, the land and areas identified in and permitted by the Contract Documents, and the other land and areas permitted by Laws and Regulations, rights-of-way, permits, and easements. The CONTRACTOR shall assume full liability and responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the CITY by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall

promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation at the CONTRACTOR's sole liability expense. The CONTRACTOR's indemnification obligations for all claims and liability, arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the CITY, its consultants, subconsultants, and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK shall be in accordance with Paragraph 6.16 of these General Conditions.

6.12 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 be responsible for the direction and control of the work assigned and for assuring that all workers on the project understand the hazards of the work involved and the safe work procedures required for each job. The CONTRACTOR shall assure that its subcontractors of all tiers shall, without expense to the CITY, comply with this safety responsibility. No work shall proceed until each worker and subcontractor understands the scope of the work and all safety rules and work procedures to be followed. The CONTRACTOR shall not allow a new employee or new subcontractor to begin work on CITY projects without a full and proper safety orientation. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage to prevent damage, injury or loss to:

1. All persons at the Site and other persons and organizations who may be affected thereby;

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, and utilities not designated for removal, relocation, or replacement in the course of the performance of the WORK.

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 utilities when prosecution of the WORK may effect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. CONTRACTOR'S duties and responsibilities for safety and for protection of the WORK shall continue until such time as all the

WORK is completed and ENGINEER has issued a notice to the CONTRACTOR in accordance with Paragraph 14.7 B. that the WORK is acceptable.

C. 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.

D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be made available at the Site by the CONTRACTOR for every hazardous product used.

E. Material usage shall strictly conform to OSHA safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.

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

G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended use to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

H. Before starting work, the CONTRACTOR shall submit a written safety program to the CITY. The objective of the safety program shall be accident prevention. Such program shall include, but not be limited to, the following:

1. An organization chart and accompanying narrative which describes the responsibility for employee and public safety of those individuals who control each phase of operations and set forth in writing the policies and procedures to be followed by all personnel. The chart shall also show the CONTRACTOR's internal lines of communication (including subcontractors) for the program.

2. A specific program for communication between the CONTRACTOR and CITY on safety matters. The CONTRACTOR shall also designate one person with whom official contact can be made by the CITY on safety matters.

3. Evidence that the CONTRACTOR has become thoroughly familiar with the potential hazards of the work and applicable federal and state regulations.

4. Specific safety procedures and guidelines for conduct of the Work.

5. The CITY's review, comment upon, and/or acceptance of the CONTRACTOR's safety program and/or plan does not in any way negate the responsibilities of the CONTRACTOR for safety or place any responsibility upon the CITY for such safety. Such review comment and/or acceptance shall not be construed as limiting in any manner the CONTRACTOR's obligation to undertake any action which may be necessary or required to establish and maintain safe working conditions at the site.

6.13 EMERGENCIES

A. In emergencies affecting the safety or protection of persons or the WORK or property at the Site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER, is obligated to immediately act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the WORK or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Change Order will be issued to document the consequences of such action.

6.14 SUBMITTALS

A. After checking and verifying all field measurements and after complying with applicable procedures specified in the Special Provisions, the CONTRACTOR shall submit to the ENGINEER for review all Shop Drawings and details of all structural and reinforcing steel, equipment, electrical controls, structural fabrications, pipe, pipe joints, special pipe sections, and other appurtenances in accordance with the accepted schedule of Shop Drawing submittals specified in the Special Provisions or as otherwise provided in the Contract Documents.

B. The ENGINEER’S review will be only to determine if the items covered by the submittals will, after installation or incorporation in the WORK, generally conform to the Contract Documents and with the design concept of the completed Project. The ENGINEER's favorable review shall be obtained before any such items are manufactured or used in the work. The favorable review of Drawings by the ENGINEER shall apply in general design only and shall in no way relieve the CONTRACTOR from responsibility for errors or omissions contained therein. Favorable review by the ENGINEER shall not relieve the CONTRACTOR of its obligation to meet safety requirements and all other requirements of law. The ENGINEER will start reviewing the CONTRACTOR's submittals only after the

Notice to Proceed is issued by the CITY with the exception of some unusual long lead items which may require submittals prior to issuing the Notice to Proceed.

C. The CONTRACTOR shall also submit to the ENGINEER for review all Samples in accordance with the accepted schedule of Sample submittals specified in the Special Provisions or as otherwise provided in the Contract Documents.

D. Before submittal of each Shop Drawing or Sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the WORK and the Contract Documents. The CONTRACTOR shall provide submittals in accordance with the requirements of the Special Provisions or as otherwise provided in the Contract Documents.

E. Shop-drawing submittal and coordination are the responsibility of the prime contractor; this responsibility shall not be delegated in whole or in part to subcontractors or suppliers. Any designation of work "by others," shown on Shop Drawings, shall mean that the work will be the responsibility of the CONTRACTOR rather than the subcontractor or supplier who has prepared the Shop Drawings.

Submittals shall be prepared in such form that data can be identified with the applicable Specification paragraph. The data shall demonstrate clearly compliance with the Drawings and Specifications and shall relate to the specific equipment to be furnished. Where manufacturer's standard drawings are employed, they shall be marked clearly to show what portions of the data are applicable to this Project.

F. Review of shop-drawing submittals by the ENGINEER has as its primary objective the completion for the CITY of a Project in full conformance with the Drawings and Specifications, unmarred by field corrections, and within the time provided. In addition to this primary objective, shop-drawing review as a secondary objective will assist the CONTRACTOR in its procurement of equipment that will meet all requirements of the Drawings and Specifications, will fit the structures detailed on the Drawings, will be complete with respect to piping, electrical, and control connections, will have the proper functional characteristics, and will become an integral part of a complete operating facility. Acceptance of Shop Drawings and submittals does not constitute a change order to the Contract requirements.

G. Where the CONTRACTOR is required by these Specifications to make submittals, they shall be submitted to the ENGINEER with a letter of transmittal and in sufficient number of copies to allow a distribution of at least one (1) copy to all parties needing a copy to carry out the provisions of the Specifications, including three (3) copies to be retained by the ENGINEER. The ENGINEER

shall determine the appropriate number of such copies required at the time of the preconstruction conference.

H. Within twenty-five (25) calendar days of receipt by the ENGINEER of each of the CONTRACTOR's submissions and all appurtenant data required for their review, the appropriate number of copies will be returned to the CONTRACTOR with one of the following notations:

1. Resubmittal not required; correction, if any, noted.

2. Correct and resubmit; corrections noted.

Returned copies of Drawings marked with Notation "1" authorize the CONTRACTOR to proceed with the operations covered by such returned copies, provided that such operations be subject to the comments, if any, shown on such returned copies. Returned copies of Drawings marked with Notation "2" shall be corrected, as necessary and required, and shall be submitted in the same manner as before.

I. When submittals are favorably reviewed, the ENGINEER will retain three (3) copies and will return all other copies to the CONTRACTOR. When submittals are not favorably reviewed, the ENGINEER will retain only two (2) copies and will return all others to the CONTRACTOR. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submission to the ENGINEER at least by the second submission of data. The CITY reserves the right to deduct monies from payments due the CONTRACTOR to cover additional costs of the ENGINEER's review beyond the second submission.

J. Favorable review by the ENGINEER will not constitute acceptance by the ENGINEER of any responsibility for the accuracy, coordination, and completeness of the Shop Drawings or the items of equipment represented on the Drawings. Accuracy, coordination, and completeness of Shop Drawings shall be the sole responsibility of the CONTRACTOR, including responsibility to back check comments, corrections, and modifications from the ENGINEER's review before fabrication. Supplemental, specific requirements for Shop Drawings and details are contained in the applicable technical sections of these Specifications.

K. Copies of schedules and Shop Drawings submitted to the ENGINEER for review shall be such as to provide three (3) copies for the ENGINEER's files, and such additional copies as the CONTRACTOR may desire for its own office files and/or for distribution by it to subcontractors or vendors. Exceptions will be noted in specific sections of Specifications. All Shop Drawings and supporting data, catalogs, and schedules shall be submitted as the instruments of the CONTRACTOR, who shall be responsible for their accuracy and completeness. These submittals may be prepared by the CONTRACTOR, subcontractors, or suppliers, but the CONTRACTOR shall ascertain that submittals meet all of the

requirements of the Contract, while conforming to structural, space, and access conditions at the point of installation. The CONTRACTOR shall check all submittals before submitting them to the ENGINEER.

L. The ENGINEER shall check and review schedules, drawings, etc., submitted by the CONTRACTOR only for general design conformance with the concept of the Project and compliance with the Contract. Shop Drawings shall not be used to order products' fabrication or delivery for construction or installation unless submitted to and favorably reviewed by the ENGINEER. Acceptance by the ENGINEER of any drawings, method of work, or any information regarding materials and equipment the CONTRACTOR proposes to furnish shall not relieve the CONTRACTOR of its responsibility for any errors therein and shall not be regarded as an assumption of risks or liability by the Design ENGINEER or the CITY, or any officer or employee thereof, and the CONTRACTOR shall have no recourse against the CITY under the Contract on account of the failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so accepted. Such acceptance shall be considered to mean merely that the ENGINEER has no objection to the CONTRACTOR using, upon its own full responsibility, the plan or method of work proposed or furnishing the materials and equipment proposed.

6.15 CONTINUING THE WORK

A. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the CITY. No WORK shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the CITY may otherwise agree in writing.

6.16 CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE

A. CONTRACTOR warrants and guarantees that all WORK will be in accordance with the Contract Documents and will not be defective. The CONTRACTOR represents that the WORK performed pursuant to the Contract shall be of the quality specified or of the highest quality if no quality is specified, and shall conform to the Contract Documents. The CONTRACTOR warrants all equipment, material, products, and workmanship furnished and all work performed under the Contract against defects for a period of one (1) year after final acceptance regardless of whether the same were furnished or performed by the CONTRACTOR or by any of its subcontractors or suppliers of any tier.

B. The CONTRACTOR shall make, at its own expense, all repairs and/or replacements necessitated by defects in the equipment, materials, and/or products and in the workmanship provided by the CONTRACTOR or any of its subcontractors that become evident within the warranty period.

C. Upon receipt of written notice from the CITY of any breach of warranty during the applicable warranty period, the affected item shall be redesigned, repaired, or replaced by the CONTRACTOR and the CONTRACTOR shall perform such tests as the CITY may require to verify that such redesign, repair, and replacement comply with the requirements of the Contract. The CITY shall have the right to operate and use such equipment, materials, and/or products until they can, without damage to the CITY, be taken out of service for correction or replacement by the CONTRACTOR. As to the redesigned, repaired, or replaced work, the CONTRACTOR warrants such redesigned, repaired, or replaced work against defective design, equipment, materials, products, and workmanship for a period of one (1) year from and after the date of satisfactory completion of such redesigned, repaired, or replaced work. The CITY reserves the right to require that the CONTRACTOR performs such repair or replacement work.

D. The CITY also reserves the right to make such repairs or replacements, if, within seven (7) calendar days after the mailing of a notice in writing to the CONTRACTOR and Surety, the CONTRACTOR shall neglect to make or undertake with due diligence the aforesaid repairs or replacements and that Surety within seven (7) calendar days after mailing of a notice in writing of such negligence of the CONTRACTOR shall neglect to make or undertake with due diligence the aforesaid repairs or replacements itself, provided, however, that in the case of an emergency where in the opinion of the CITY delay would cause hazard to health or serious loss or damage, repair may be made without notice being sent to the CONTRACTOR or Surety, and the CONTRACTOR shall pay the cost thereof.

E. All costs including workforce and materials incidental to such redesign, repair, replacement, and testing, including the removal, replacement, and reinstallation of equipment necessary to gain access and all other costs incurred as the result of a breach of warranty shall be borne by the CONTRACTOR whether performed by the CITY or the CONTRACTOR.

F. Nothing in this section shall be construed to limit, relieve, or release the CONTRACTOR, subcontractor's, and equipment, materials, and/or products suppliers, and other service providers' liability to the CITY for damages sustained as the result of latent defects in the workmanship, equipment, materials, and/or products done and/or furnished by the CONTRACTOR, its subcontractors, suppliers and/or other service providers.

G. The Performance Bond shall extend for a period of one (1) year after acceptance of the Contract by the CITY and shall cover the CONTRACTOR’s obligations resulting from the warranty requirements herein specified.

H. 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, or Suppliers, or other individual or entity for whom CONTRACTOR is responsible;

2. Normal wear and tear under normal usage.

I. CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of WORK that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents:

1. Observations by ENGINEER;

2. Recommendation by ENGINEER or payment by CITY of any progress or final payment;

3. The issuance of a Certificate of Completion by the CITY;

4. Use or occupancy of the WORK or any part thereof by the CITY;

5. Any acceptance by CITY or any failure to do so;

6. Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice or acceptability by ENGINEER pursuant to Paragraph 14.7 B.;

7. Any inspection, test, or approval by others; or

8. Any correction of Defective Work by CITY.

6.17 INDEMNIFICATION

A. Contractor shall indemnify, defend with counsel acceptable to City, and hold harmless to the full extent permitted by law, City and its officers, officials, employees, agents and volunteers from and against any and all liability, loss, damage, claims, expenses and costs (including, without limitation, attorney fees and costs and fees of litigation) (collectively, "Liability") of every nature arising out of or in connection with Contractor's performance of the WORK or its failure to comply with any of its obligations contained in this Agreement, except such Liability caused by the active negligence, sole negligence or willful misconduct of the City. Such indemnification by the CONTRACTOR shall include, but not be limited to, the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its subcontractors, employees, or

agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, or agents;

2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's, or Supplier's own employees, or agents engaged in the WORK resulting in actions brought by or on behalf of such employees against the CITY and/or the ENGINEER;

3. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the CONTRACTOR, its subcontractors, employees, or agents;

4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its subcontractors, employees, or agents in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specified stipulated in this Agreement;

5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the CITY or any other parties by the CONTRACTOR, its subcontractors, employees, or agents;

6. Liability or claims arising directly or indirectly from the willful misconduct of the CONTRACTOR, its subcontractors, employees, or agents;

7. Liability or claims arising directly or indirectly from any breach of the obligations assumed in this Agreement by the CONTRACTOR;

8. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the CONTRACTOR, Subcontractors, Suppliers, or any of their employees or agents, and;

9. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the CITY, the ENGINEER, their consultants, subconsultants, and the officers, directors, employees and agents of each or any of them, to the extent caused by the CONTRACTOR's use of any premises acquired by permits, rights of way, or easements, the Site, or any land or area contiguous thereto or its performance of the WORK thereon.

B. The CONTRACTOR shall reimburse the CITY for all costs and expenses, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court costs of appeal) incurred by said CITY in enforcing the provisions of this Paragraph.

C. The indemnification obligation under this Article 11 shall not be limited in any way by any limitation on the amount or type of insurance carried by CONTRACTOR or by the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

D. Pursuant to California Public Contract Code Section 9201, City shall timely notify Contractor of receipt of any third-party claim relating to this Agreement.

6.18 CONTRACTOR'S DAILY REPORTS

A. The CONTRACTOR shall complete a daily report indicating location worked, total manpower for each construction trade, major equipment on Site, each Subcontractor's manpower and equipment, weather conditions, and other related information involved in the performance of the WORK. These components will be decided by the ENGINEER.

6.19 CONTRACT DOCUMENTS AND RECORD DRAWINGS

A. The CONTRACTOR shall keep on the work site a copy of the Contract Documents and shall at all times give the ENGINEER access thereto. Any drawings included in the Specifications shall be regarded as part thereto and of the Contract. Anything mentioned in these Specifications and not shown on the Project Drawings, or shown on the Project Drawings and not mentioned in these Specifications, shall be of like effect as though shown or mentioned in both. The ENGINEER will furnish from time to time such detail drawings, plans, profiles, and information as he may consider necessary for the CONTRACTOR's guidance. It shall be the duty of the CONTRACTOR to see that the provisions of the Contract Documents are complied with in detail irrespective of the inspection given the work during its progress by the ENGINEER. Any failure on the part of the CONTRACTOR to observe the requirements contained in the Contract Documents will be sufficient cause for the rejection of the work at any time before its acceptance.

B. The CONTRACTOR shall maintain, at the jobsite, one record set of Drawings in good order and clearly marked to show any deviations which have been made from the Drawings, including concealed construction and utility features which are revealed during the course of construction. Marked prints shall be updated at least once each week and shall be available to the ENGINEER for review as to

currency prior to developing partial payment estimates. Upon completion of the work, the marked set of prints shall be delivered to the ENGINEER.

C. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the Record Drawings shall be updated by indicating those portions which are superseded by change order drawings or final shop drawings, and by including appropriate reference information describing the change orders by number and the shop drawings by manufacturer, drawing, and revision numbers.

D. Requests for partial payments will not be approved if the updated set of Drawings is not in good order or is not kept current. Request for final payment will not be approved until the complete and correct Record Drawings are delivered to the ENGINEER.

6.20 CLEAN UP

The CONTRACTOR shall, at all times, keep the premises, occupied by it in relation to this Contract, in a neat, clean, and safe condition and at all times provide reasonable access thereto. The CONTRACTOR shall, as a minimum, conduct daily inspections to verify that requirements of this Article are being met.

A. During the progress of the WORK, the CONTRACTOR shall:

1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of material.

2. Provide adequate storage of all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the environment.

3. Remove any accumulation of scrap, debris, waste material, and other items not required for construction of this work.

4. Dispose of existing materials and equipment to be demolished and removed and all trash such as broken concrete, wood blocking, shipping containers, etc., resulting from the contract work off the premises occupied by the CONTRACTOR, including CITY property, at the CONTRACTOR's expense. CITY-leased dumpsters and other disposal containers on CITY’s property, unless specifically provided by the CONTRACTOR, shall not be used by the CONTRACTOR.

5. Maintain all excavation, embankments, haul roads, permanent access roads, Plant site, waste disposal areas, borrow areas, and all other work areas within contract work limits free from dust, as determined by the

ENGINEER. Industry-accepted methods of dust control suitable for the area involved, such as sprinkling, chemical treatment, light bituminous treatment, or similar methods, will be permitted. No separate payment will be made to the CONTRACTOR for dust control.

B. If the CONTRACTOR fails to comply with any of the foregoing, the CITY will transmit written notification of noncompliance. If, within five (5) calendar days of the written notification, the CONTRACTOR fails to comply, cleanup may be undertaken by the CITY at the expense of the CONTRACTOR.

C. Upon completion of any portion of any WORK, the CONTRACTOR shall promptly remove all of its equipment, temporary structures, and surplus construction and other materials not to be used at or near the same location during later stages of work. Upon completion of any WORK and before final inspection is made, the CONTRACTOR shall unless otherwise specifically directed by the ENGINEER:

1. Remove from the job site all plant, buildings, tools, surplus materials, equipment, forms, rubbish, scrap, debris, and waste.

2. Clean all paved areas on the site. Completely remove all resultant debris.

3. Visually inspect all interior surfaces, and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only approved cleaning materials and equipment.

4. Restore any improved area used for the CONTRACTOR's work or material storage to its condition at the time the CONTRACTOR moved onto the site or to the satisfaction of the ENGINEER.

5. Schedule final cleaning and improvement restoration to enable the CITY to accept a completely clean and restored project.

6.21 STORM WATER POLLUTION PREVENTION

A. <u>General</u>

1. Prevention - The CONTRACTOR shall prevent the pollution of storm drain systems and creeks on or near the construction project site(s) resulting from the construction operation. The CONTRACTOR shall keep pollution out of storm drains by reducing the possibility of accidental discharge of materials and wastes, by reducing erosion and sedimentation, and by any action as required. The CONTRACTOR shall train all employees and subcontractors on the storm water pollution prevention

requirements contained in these Specifications and ensure that all employees and subcontractors are aware of the consequences as described in subsection A.3. below. The CONTRACTOR shall include appropriate subcontract provisions to ensure that these requirements are met by all subcontractors.

2. Notification - If the CONTRACTOR causes or permits the spillage or overflow of any sewage, oil, or petroleum product, hazardous substance, contaminant, or waste that may result in the fluid or substance being discharged directly or indirectly into any storm drains, creeks, wetlands, or other manmade or natural waterways the CONTRACTOR shall notify the CITY as soon as possible to the extent notification can be provided without substantially impeding cleanup or other emergency measures. In no event shall such notification be later than one hour after knowledge of the occurrence.

3. Cleanup - Immediately upon gaining knowledge of such spillage, overflow, or discharge, the CONTRACTOR shall eliminate the cause of the spillage, overflow, or discharge and take action to minimize any damages. The CONTRACTOR shall also immediately implement a cleanup program. The cleanup, including sampling and testing required by regulatory agencies to determine the nature and level of contamination shall be performed and completed to the satisfaction of the various regulatory agencies involved and the CITY, at the expense of the CONTRACTOR. Any fines, penalties, and/or subsequent actions imposed upon the CITY and/or the CONTRACTOR by regulatory agencies related to the spillage, overflow, or discharge and any subsequent monitoring, testing, and reporting, as required by regulatory agencies, shall also be at the expense of the CONTRACTOR. The CONTRACTOR shall keep a stockpile of spill cleanup materials, such as rags or absorbents, readily accessible on site. The quantity of cleanup materials shall be appropriate in consideration of the risk of an occurrence of a spill, overflow or discharge.

B. Management of Nonhazardous Material and/or Waste

1. Designated Area - The CONTRACTOR shall propose designated areas of the project site, for approval by the ENGINEER, suitable for material delivery, storage, and waste collection that to the maximum extent practicable are near construction entrances and away from catch basins, gutters, drainage courses, and creeks.

2. Backfill or Excavated Material - The CONTRACTOR shall not allow backfill or excavated material to enter the storm drains or creeks. When rain is forecast within 24 hours or during wet weather, the

CONTRACTOR may be required to cover such material with a tarpaulin and to surround the material with sand bags.

3. Street Sweeping - At least once per week or more frequently as directed by the ENGINEER, the CONTRACTOR shall clean and sweep roadways and on-site paved areas of all materials attributed to or involved in the work. The CONTRACTOR shall not use water to flush down streets in place of street sweeping.

4. Disposal - At the end of each working day, the CONTRACTOR shall collect all scrap, debris, and waste material, and dispose of such materials properly. The materials may be stored in the CONTRACTOR's yard in stockpiles or placed in dumpsters. The CONTRACTOR shall inspect dumpsters for leaks and replace or repair dumpsters that leak. The CONTRACTOR shall not discharge water from cleaning dumpsters on site. The CONTRACTOR shall arrange for regular waste collection before dumpsters overflow.

C. Management of Hazardous Material and/or Waste

1. Storage - The CONTRACTOR shall label and store all hazardous materials, such as pesticides, paints, thinners, solvents, and fuels, and all hazardous wastes, such as waste oil and antifreeze in accordance with all applicable state and federal regulations. The CONTRACTOR shall store all hazardous materials and all hazardous wastes in accordance with secondary containment regulations. All such materials and wastes shall be covered, as needed, to avoid rainwater becoming polluted with hazardous constituents which could result in potential management of collected rain water as a hazardous waste. The CONTRACTOR shall keep an accurate, up-to-date inventory, including Material Safety Data Sheets (MSDSs), of hazardous materials and hazardous wastes stored on site.

2. Usage - When rain is forecast within 24 hours or during wet weather, the CONTRACTOR shall refrain from applying chemicals in outside areas. The CONTRACTOR shall follow material manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals. The CONTRACTOR shall post warning signs in areas treated with chemicals.

3. Disposal - The CONTRACTOR shall arrange for regular hazardous waste collection to comply with time limits on storage of hazardous wastes. The CONTRACTOR shall dispose of hazardous waste in accordance with all applicable local, state and federal regulations. The CONTRACTOR shall not wash any spilled material into streets, gutters, storm drains, or creeks and shall not bury spilled hazardous materials. The CONTRACTOR shall

report any hazardous materials spill to the CITY in accordance with Section A.2 above.

D. Vehicle/Equipment Cleaning, Maintenance, and Fueling

1. General - The CONTRACTOR shall inspect vehicles and equipment arriving on site for leaking fluids and shall promptly repair leaking vehicles and equipment. Drip pans shall be used to catch leaks until repairs are made.

   The CONTRACTOR shall comply with federal, state, and city requirements for aboveground storage tanks.

2. Cleaning - The CONTRACTOR shall perform vehicle or equipment cleaning with water only in a designated, bermed area that will not allow rinse water to run off site into streets, gutters, storm drains, or creeks. Soaps, solvents, degreasers, steam-cleaning equipment, or equivalent methods shall not be allowed.

3. Maintenance and Fueling - The CONTRACTOR shall perform maintenance and fueling of vehicles or equipment in areas that will not allow run-on of storm water or runoff of spills to storm drains and provide for confined clean-up. Examples are working in bermed areas or utilizing drip pans. The CONTRACTOR shall not contaminate the soils or groundwater with such maintenance and fueling activities.

   The CONTRACTOR shall use secondary containment, such as a drip pan, to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured, and shall clean up leaks and spills of vehicle or equipment fluids immediately and dispose of the waste and cleanup materials as hazardous waste, as described in Section C.3 above.

E. Dewatering Operations

1. Sediment Control - The CONTRACTOR shall route water through a control measure, such as a sediment trap, sediment basin, or Baker tank, to remove settleable solids prior to discharge to the storm drain system. Straw bales shall be placed in front of storm drain inlets as required. Filtration of the water following the control measure may be required on a case-by-case basis. Approval of the control measure shall be obtained in advance from the ENGINEER. If the ENGINEER determines that the dewatering operation would not generate an appreciable amount of settleable solids, the control measure requirement above may be waived.

2. Contaminated Groundwater - If the project is within an area of known groundwater contamination or if contamination is found, water from

dewatering operations shall be tested prior to discharge. If the water quality meets Regional Water Quality Control Board (RWQCB) standards, it may be discharged to a storm drain or creek. Otherwise, the water shall be hauled off site for proper disposal.

F. Paving or Oiling Operations

1. When rain is forecast within 24 hours or during wet weather, the ENGINEER may prevent the CONTRACTOR from paving or oiling the street. The ENGINEER may direct the CONTRACTOR to protect drainage courses by using control measures, such as earth dike, straw bale, and sand bag, to divert runoff or trap and filter sediment.

2. The CONTRACTOR shall prevent saw-cut slurry from entering catch basins and storm drains by limiting the area over which the slurry may spread.

3. The CONTRACTOR shall cover catch basins and manholes when paving or applying seal coat, tack coat, slurry seal, or fog seal.

4. The CONTRACTOR shall not sweep or wash down excess sand (placed as part of a sand seal or to absorb excess oil) into gutters, storm drains, or creeks. The CONTRACTOR shall either collect the sand and return it to the stockpile or dispose of it in a trash container.

G. Concrete, Grout, and Mortar Waste Management

1. Concrete Truck/Equipment Washout - The CONTRACTOR shall not wash out concrete trucks or equipment into streets, gutters, storm drains, or creeks. The CONTRACTOR shall perform washout of concrete trucks or equipment off site or in a designated area on site where the water will flow onto dirt or into a temporary pit in a dirt area. The CONTRACTOR shall let the water percolate into the soil and dispose of the hardened concrete in a trash container. If a suitable dirt area is not available, the CONTRACTOR shall collect the wash water and remove it off site.

2. Exposed Aggregate Concrete Wash Water - The CONTRACTOR shall avoid creating runoff by draining water from washing of exposed aggregate concrete to a dirt area. If a suitable dirt area is not available, the CONTRACTOR shall filter the wash water through straw bales or equivalent material before discharging to a storm drain. The CONTRACTOR shall collect sweepings from exposed aggregate concrete for disposal.

H. Paint Disposal and Clean-up

1. Disposal of Unused Paint - The CONTRACTOR shall carefully use, store and dispose of paint, solvents, chemicals, and waste materials in compliance with all applicable state and federal regulations. The CONTRACTOR shall not dispose of paint to sanitary sewer systems or storm drains. The CONTRACTOR shall utilize other recycling and disposal services as follows:

   a. "Recycling Centers" and "Waste Disposals" as may be listed in the yellow pages.

   b. Local household hazardous waste facility if appropriate.

   The CONTRACTOR may dispose of small amounts of leftover latex (water-based) paint by applying the paint to the surface of an item to be discarded and allowing it to dry thoroughly, then disposing of it in a dumpster.

   The CONTRACTOR shall store these materials and conduct cleaning of painting equipment and tools in a designated area that will not allow run-on of storm water or runoff of spills. The CONTRACTOR shall not allow wash water from cleaning of painting equipment and tools into streets, gutters, storm drains, or creeks.

2. Disposal of Paint Clean-up Waste - The CONTRACTOR shall remove as much excess paint as possible from brushes, rollers, and equipment before starting cleanup.

   a. The CONTRACTOR shall not discharge cleaning wastes from oil-based paints, buckets, brushes or tools to the sanitary sewer system. The CONTRACTOR shall retain a certified waste hauler to recycle or to dispose of cleaning wastes from oil-based paints at the CONTRACTOR's expense.

   b. The CONTRACTOR may discharge very small amounts of cleaning wastes from brushes, rollers, buckets, and tools contaminated with latex (water-based) paints to the sanitary sewer system provided they do not contain additives with pollutants of concern (e.g., mercury, tributyltin). Brushes, rollers, and tools containing latex paints may be washed over a sink with plenty of water. Buckets containing latex paints shall first be emptied into the original can or discarded as specified in paragraph 1 above. Should excessive amounts of paint or solvent be found in the wastewater discharged, the CONTRACTOR may be subject to

enforcement action by the CITY in accordance with the City Codes.

c. The CONTRACTOR shall not discharge any of these paint clean-up wastes to storm drains, streets, gutters, or creeks.

d. Waste Disposal - The CONTRACTOR shall dispose of waste thinner, solvent, and sludge from cleaning of equipment and tools as hazardous waste, as described in Section C.3 above. The CONTRACTOR shall dispose of excess thinners, solvents, and oil- and water-based paint as hazardous waste.

I. Contaminated Soil - If the project is within an area of known soil contamination or evidence of soil contamination is found, the CONTRACTOR shall comply with the requirements of all applicable local, state and federal regulations.

ARTICLE 7 – OTHER WORK

7.1 RELATED WORK AT SITE

A. The CITY may perform other work related to the Project at the Site by the CITY's own forces, have other work performed by utility owners, or let other direct contracts for such other work. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.

B. The CONTRACTOR shall afford each person who is performing the other work (including the CITY's employees) proper and safe access to the Site and 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. The 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 not only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.

C. If the proper execution or results of any part of the CONTRACTOR's work depends upon such other work by another, the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION

A. If the CITY contracts with others for the performance of other work at the Site, CITY will have sole authority and responsibility in respect of such coordination, unless otherwise provided in the Supplementary General Conditions.

ARTICLE 8 – CITY'S RESPONSIBILITIES

8.1 COMMUNICATIONS

A. Except as may be otherwise provided in these General Conditions or the Supplementary General Conditions, the CITY will issue all its communications to the CONTRACTOR through the ENGINEER.

8.2 PAYMENTS

A. The CITY will make payments to the CONTRACTOR as provided in Article 14.

8.3 LANDS, EASEMENTS, AND SURVEYS

A. The CITY's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.1 and 4.6.

8.4 REPORTS AND DRAWINGS

A. The CITY will identify and make available to the CONTRACTOR copies of reports of physical conditions at the Site and drawings of existing structures which have been utilized in preparing the Contract Documents as set forth in Paragraph 4.2.

8.5 CHANGE ORDERS

A. The CITY will execute Change Orders as indicated in Article 10.

8.6 INSPECTIONS AND TESTS

A. The CITY'S responsibility for inspections and tests is set forth in Paragraph 13.3.

8.7 SUSPENSION OF WORK

A. The CITY's right to stop work or suspend work is set forth in Paragraphs 13.4 and 15.1.

8.8 TERMINATION OF AGREEMENT

A. The CITY's right to terminate services of the CONTRACTOR is set forth in Paragraphs 15.2 and 15.3.

8.9 LIMITATION ON CITY'S RESPONSIBILITIES

A. The CITY shall not supervise, direct or have control or authority over, nor be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the WORK. CITY will not be responsible for CONTRACTOR's failure to perform or furnish the WORK in accordance with the Contract Documents.

8.10 UNDISCLOSED HAZARDOUS ENVIRONMENTAL CONDITIONS

A. CITY's responsibility in respect to an undisclosed hazardous environmental condition is set forth in Paragraph 4.5.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.1 CITY'S REPRESENTATIVE

A. The ENGINEER will be the CITY'S representative during the construction period. The ENGINEER shall decide any and all questions which may arise as to the quality or acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work; all questions which arise as to the interpretation of the plans and specifications, the proposal and the contract documents therefor; all questions as to the acceptable fulfillment of the contract on the part of the CONTRACTOR; and all questions as to claim and compensation.

9.2 OBSERVATIONS ON THE SITE

A. The ENGINEER will make observations on the Site during construction to monitor the progress and quality of the WORK and to 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 to check the quality or quantity of the WORK.

9.3 PROJECT REPRESENTATION

A. The ENGINEER may furnish a Resident Project Representative to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority of any such Resident Project Representative will be as provided in the Supplementary General Conditions.

9.4 CLARIFICATIONS

A. The ENGINEER will issue with reasonable promptness such written Clarifications of the requirements of the Contract Documents as the ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.5 AUTHORIZED VARIATIONS IN WORK

A. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the Contract Times. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Times, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.6 REJECTING DEFECTIVE WORK

A. The ENGINEER will have authority to reject Defective Work and will also have authority to require special inspection or testing of the WORK as provided in Article 13.

9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals.

B. The ENGINEER's responsibilities for Change Orders are set forth in Articles 10, 11, and 12.

C. The ENGINEER's responsibilities for Applications for payment are set forth in Article 14.

9.8 DECISIONS ON DISPUTES

A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK and interpretation of the requirements of the Contract Document pertaining to the performance of the work shall be determined by the ENGINEER. Any claims in respect to changes in the Contract Price or Contract Times shall be resolved in accordance with the requirements set forth in Articles 10, 11, and 12.

9.9 LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

A. Neither the ENGINEER's authority to act under this Article 9 or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.

B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory," or adjectives of like effect or import are used to describe a requirement, direction, review, or direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective 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 9.9 C.

C. 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. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, Supplier, or any other person or organization performing any of the WORK.

ARTICLE 10 – CHANGES IN THE WORK

10.1 GENERAL

A. Without invalidating the Agreement and without notice to any surety, the CITY may at any time or from time to time, order additions, deletions, or revisions in the WORK. Such additions, deletions or revisions will be authorized by a Change Order or Field Order. Upon receipt of any such document, CONTRACTOR shall promptly proceed to implement the additions, deletions, or revisions in the WORK in accordance with the applicable conditions of the Contract Documents.

B. The CONTRACTOR shall not be entitled to an increase in the contract Price nor an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3.F and G.

C. The CITY and the CONTRACTOR shall execute appropriate Change Orders covering:

1. Changes in the WORK which are ordered by the CITY pursuant to Paragraph 10.1 A.;

2. Changes required because of acceptance of Defective Work under Paragraph 13.6; and

3. Changes in the Contract Price or Contract Times which are agreed to by the parties under Articles 11 and/or 12, respectively.

D. If notice of any change in the WORK is required to be given to a surety, the giving of any such notice shall be the CONTRACTOR's responsibility. If the change in the WORK affects the Contract Price, the CITY may require an

adjustment to the amount of any applicable Bond and the amount of each applicable Bond shall be adjusted accordingly.

E. If the CITY and CONTRACTOR agree as to the extent, if any, of an increase in the Contract Price or an extension or shortening of the Contract Times that should be allowed as a result of a Field Order, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the WORK pending the issuance of a Change Order.

F. If the CITY and the CONTRACTOR are unable to agree as to the extent, if any, of an increase in the Contract Price or an extension or shortening of the Contract Times that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of time and materials so as to minimize the impact on and delays to the WORK, and the CONTRACTOR may make a claim as provided in Articles 11 and 12.

10.2 ALLOWABLE QUANTITY VARIATIONS

A. In the event of an increase or decrease in the quantity of any bid item under a unit price contract, the total amount of work actually done or materials or equipment furnished will be paid for according to the unit price established for such work under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25 percent of the estimated quantity of any unit price bid item of the WORK.

B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon by the CITY and the CONTRACTOR by Change Order.

ARTICLE 11 – CHANGE OF CONTRACT PRICE

11.1 GENERAL

A. The Contract Price constitutes the total compensation payable to the CONTRACTOR FOR PERFORMING THE work. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.

B. The Contract Price may only be changed by a Change Order. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the qualities o the items involved.

2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4; or

3. On the basis of the cost of work (determined as provided in Paragraph 11.3) plus the CONTRACTOR's overhead and profit (determined as provided in Paragraph 11.4).

C. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 10 days) after the start of the event giving rise to the claim and shall state the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 60 days after the start of such event (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of such event. All claims for adjustment in the Contract Price will be determined by the ENGINEER. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1 C.

11.2 COSTS RELATING TO WEATHER

A. The CONTRACTOR shall have no claims against the CITY for damages for any injury to work, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment, and work, the CONTRACTOR may be granted a reasonable extension of Contract Times to make proper repairs, renewals, and replacements of the work, materials, or equipment.

11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

A. **General**: The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the CITY, 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 11.5.

B. **Labor**: The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is

done, plus employer payments of payroll taxes, workers compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from federal, state or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers will be paid only when such costs are not included in the invoice for equipment rental. The labor costs for foremen shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Nondirect labor costs including superintendence shall be considered part of the markup set out in Paragraph 11.4.

C. **Materials**: Materials must be specifically authorized by the ENGINEER. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the Site in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:

1. All trade discounts and rebaters shall accrue to the CITY, and the CONTRACTOR shall make provisions so that they may be obtained;

2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Except for actual costs incurred in the handling of such materials, markup will not be allowed;

3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the Site, whichever price is lower; and

4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the Site less trade discount. The CITY reserves the right to furnish materials for the extra work and no claim will be allowed by the CONTRACTOR for costs and profit on such materials.

D. **Equipment**: The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current California Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates." Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment will be the rate resulting in the least total cost to the CITY for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the above-

referenced publication, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate. Payment for equipment shall be subject to the following:

1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used;

2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number;

3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer;

4. Individual pieces of equipment or tools having a replacement value of $500 or less, whether or not consumed by use, will be considered to be small tools and no payment will be made therefore.

E. **Equipment Rental Time**: The rental time to be paid for equipment on the Site will be the time the equipment is in productive operation on the extra work being performed and, in addition, will include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the Site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the Site of the extra work on other than the extra work. Rental time will not be allowed while equipment is inoperative due to breakdowns. The rental time of equipment on the work Site will be computed subject to the following:

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation will be considered to be half-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation;

2. When daily rates are listed, any part of a day less than 4 hours operation will be considered to be half-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and

materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs 3, 4, and 5, following;

3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3 D., herein;

4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the Site, or in the absence of such labor, established by collective bargaining agreements for the type of workmen and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein accordance with the provisions of Paragraph 11.3 B., herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages; and

5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.

F. **Special Services**: Special work or services are defined as that work characterized by extraordinary complexity, sophistication, innovation, or a combination of the foregoing attributes which are unique to the construction industry. The ENGINEER will make estimates for payment for special services and may consider the following:

1. When the ENGINEER and the CONTRACTOR, determine that a special service or work is required which cannot be performed by the forces of the CONTRACTOR or those of any of its Subcontractors, the special service or work may be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for special services or work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs;

2. When the CONTRACTOR is required to perform work necessitating special fabrication or matching process in a fabrication or a machine shop facility away from the Site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as a special service and accordingly, the invoices for the work may be accepted without detailed itemization; and

3. All invoices for special services will be adjusted by deducting all trade discounts. In lieu of the allowances for overhead and profit specified in

Paragraph 11.4, herein, an allowance of 15 percent will be added to invoices for special services.

G. **Sureties**; All work performed hereunder shall be subject to all provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to Bonds or supplemental Bonds shall be submitted to the CITY for review prior to the performance of any work hereunder.

11.4 CONTRACTOR'S OVERHEAD AND PROFIT

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. No additional mark-ups and/or surcharges will be added to the cost. The allowance for overhead and profit will include full compensation for superintendence, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Overhead and Profit Allowance

Labor ..... 20 percent
Materials ..... 15 percent
Equipment ... 15 percent

To the sum of the costs and markups provided for in this Article, an additional 2 percent of the sum will be added as compensation for Bonds and insurance.

B. It is understood that labor, materials, and equipment for extra work may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein will be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

11.5 EXCLUDED COSTS

A. The term "cost of the work" shall not include any of the following:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, proprietors, partners, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and

contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR whether at the Site or in CONTRACTOR's principal or a branch office for general administration of the WORK all of which are to be considered administrative costs covered by the CONTRACTOR's allowance for overhead and profit;

2. Non-direct labor costs, including superintendence, shall be considered part of the markup for overhead and profit, and no additional payment will be allowed for such;

3. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site;

4. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments;

5. Cost of premiums for all Bonds and for all insurance whether or no CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except as provided by Paragraph 11.4 above);

6. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective Work, disposal of materials or equipment wrongly supplied, and making good any damages to property; and

7. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in Paragraph 11.4.

11.6 CONTRACTOR'S EXTRA WORK REPORT

A. In order to be paid for extra work, the CONTRACTOR must submit a daily extra work report on the form furnished by the ENGINEER. The form must be completely filled out based on the provisions of Paragraphs 11.3 through 11.5 and signed by the CONTRACTOR and ENGINEER at the end of each work day. Failure to complete the form and obtain appropriate signatures by the next working day after the extra work of the previous day was completed will result in CONTRACTOR's costs for extra work being disallowed.

ARTICLE 12 – CHANGE OF CONTRACT TIMES

12.1 GENERAL

A. The Contract Times may only be changed by a Change Order. Any claim for an extension of the Contract Times shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 10 days) after the start of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 30 days after the start of such event (unless the ENGINEER allows an additional period of time for the submission of additional or more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR is entitled as a result of said event. All claims for adjustment in the Contract Times will be determined by the ENGINEER. No claim for an adjustment in the Contract Times will be valid if not submitted in accordance with the requirements of this Paragraph 12.1 A. An increase in Contract Times does not mean that the CONTRACTOR is due an increase in Contract Price. Only compensable time extensions will result in an increase in Contract Price.

B. All time limits stated in the Contract Documents are of the essence of the Agreement.

C. When CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the WORK due to such delay, if a claim is made therefor as provided in Paragraph 12.1.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by CITY; acts or neglect of those performing other work as contemplated by Article 7; and fires, floods, epidemics, abnormal weather conditions, or acts of God. Delays attributable to and within the control of any Subcontractor or Supplier shall be deemed to be delays within the control of the CONTRACTOR.

D. In no event will CITY be liable to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for any increase in the Contract Price or other damages arising out of or resulting from the following:

1. Delays caused by or within the control of CONTRACTOR; or

2. Delays beyond the control of both CITY and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by those performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF CONTRACT TIMES FOR DELAY DUE TO WEATHER

A. The CONTRACTOR's construction schedule shall anticipate delay due to unusually severe weather. The number of days of anticipated delay is set forth in the Supplementary General Conditions.

B. Contract Times may be extended by the ENGINEER because of delays in excess of the anticipated delay. The CONTRACTOR shall , within 10 days of the beginning of any such delay, notify the ENGINEER in writing and request an extension of Contract Times. The ENGINEER will ascertain the facts and the extent of the delay and extend the Contract Times when, in its judgment, the findings of the fact justify such an extension.

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

13.1 NOTICE OF DEFECTIVE WORK

A. Prompt notice of Defective Work known to the ENGINEER will be given to the CONTRACTOR. All Defective Work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13. Defective Work may be rejected even if approved by prior inspection.

13.2 ACCESS TO WORK

A. ENGINEER and other representatives and personnel of CITY, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the WORK at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.3 INSPECTIONS AND TESTS

A. The CONTRACTOR shall give the ENGINEER not less than 24 hours 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 CITY 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 inspection, tests, or approvals covered by Paragraphs 13.3C. and 13.3D. below;

2. That costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.3G. shall be paid as provided in said Paragraph 13.3G.; and

3. As otherwise provided in the Contract Documents.

C. If Laws and Regulations of any public body having jurisdiction require any WORK (or any part thereof) to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals; pay all costs in connection therewith; and furnish 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 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 ENGINEER.

E. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in any Supplementary General Conditions, the cost of such inspection and testing will be borne by the CITY. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

F. If any WORK (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER not less than 24 hours notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.

G. 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 recovered at the CONTRACTOR's expense.

H. 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. If it is found that such work is Defective Work, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to, fees and charges of engineers, architects, attorneys, and other professionals. However, if such work is not found to be Defective Work, the CONTRACTOR will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

I. No acceptance of equipment, materials, or work shall be construed to result from such inspections by the ENGINEER. Any inspections or tests or waivers thereof shall not relieve the CONTRACTOR of its responsibility for meeting the requirement of the Contract.

13.4 CITY MAY STOP THE WORK

A. If Defective Work is identified, the ENGINEER may order the CONTRACTOR to stop performance of the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the ENGINEER to stop the WORK shall not give rise to any duty on the part of the ENGINEER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK

A. If required by the ENGINEER, the CONTRACTOR shall promptly either 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 Site and replace it with non-defective WORK. The CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, architects, attorneys, and other professionals made necessary thereby.

13.6 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of Defective Work, the CITY prefers to accept the Defective Work, the CITY may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the CITY's evaluation of and determination to accept such Defective Work. If

any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the CITY shall be entitled to an appropriate decrease in the Contract Price.

13.7 CITY 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 Defective Work as required by the ENGINEER in accordance with Paragraph 13.5A., 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 CITY may, after seven days written notice to the CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, the CITY shall proceed with corrective and remedial action. In connection with such corrective and remedial action, the CITY 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 and incorporate in the WORK all materials and equipment for which the CITY has paid the CONTRACTOR whether stored at the Site or elsewhere. The CONTRACTOR shall provide the CITY and its ENGINEER, access to the Site to enable CITY to exercise the rights and remedies under this paragraph.

C. All direct, indirect, and consequential cost and damages incurred by the CITY in exercising the rights and remedies under this paragraph 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 CITY 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 CITY may make a claim therefor as provided in Article 11. Such claim will include, but not be limited to, all costs of repair or replacement of work of others, destroyed or damaged by correction, removal, or replacement of CONTRACTOR's Defective Work and all direct, indirect, and consequential damages associated therewith.

D. The CONTRACTOR shall not be allowed an extension of Contract Times (or Milestones) because of any delay in the performance of the WORK attributable to the exercise by CITY of CITY's rights and remedies under this paragraph.

13.8 CORRECTION PERIOD

A. The correction period for Defective Work shall be the longer of:

1. One year after the date of final acceptance;

2. Such time as may be prescribed by Laws and Regulations;

3. Such time as specified by the terms of any applicable special guarantee required by the Contract Documents; or

4. Such time as specified by any specific provision of the Contract Documents.

B. If, during the correction period as defined in Paragraph 13.8A above, any work is found to be Defective Work, the CITY shall have the same remedies as set forth in Paragraphs 13.5, 13.6, and 3.7 above.

C. Where Defective Work (and damage to other work resulting therefrom) has been corrected, removed, or replaced under this paragraph, the correction period hereunder with respect to such work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN)

A. The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and shall be incorporated into a form of "Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE

A. Progress payments on account of unit price work will be based on the number of units completed.

14.3 APPLICATION FOR PROGRESS PAYMENT

A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, the Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the Application for Payment and accompanied by such supporting documentation as is required by the Contract Documents.

B. The Application for Payment shall identify, as a subtotal, the amount of the CONTRACTOR total earnings to date; plus the value of materials stored at the Site which have not yet been incorporated in the WORK; and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for materials stored at the Site, but not yet incorporated in the WORK.

C. The net payment due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the amount of retainage specified in the Supplementary General Conditions and the total amount of all previous payments made to the CONTRACTOR.

D. The value of materials stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in any Supplementary General Conditions. Said amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the Site or at another location agreed to in writing; provided, each such individual item has a value of more than $5,000 and will become a permanent part of he WORK. The Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that the CONTRACTOR 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 and other arrangements to protect the CITY's interest therein, all of which will be satisfactory to the CITY.

E. A ten percent (10%) retention of payment amount shall be held by the CITY from the amount of each Application for Payment.

F. **OPTIONAL:** Partial payments for mobilization/demobilization costs shall be as follows:

1. Thirty-five percent (35%) of the amount bid for mobilization/ demobilization or 1.75 percent of the original Contract Price, whichever is less, shall be paid in each of the first two progress payments.

2. The balance of the amount bid for mobilization/demobilization shall be paid upon completion of all WORK on the project.

14.4 CONTRACTOR'S WARRANTY OF TITLE

A. The CONTRACTOR warrants and guarantees that title to all WORK, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the CITY no later than the time of payment, free and clear of all Liens.

14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the application to the CITY, 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. If the ENGINEER still disagrees with a portion of the application, it will submit the application recommending the undisputed portion of the application to the CITY for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER'S recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B.) become due and when due will be paid by the CITY to the CONTRACTOR.

B. The ENGINEER, in its discretion, may refuse to recommend the whole or any part of any payment. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect CITY from loss because:

1. The work is Defective Work or the completed WORK has been damaged requiring correction or replacement.

2. The Contract Price has been reduced by written amendment or Change Order.

3. The CITY has been required to correct Defective Work or complete WORK in accordance with Paragraph 13.7.

4. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.1 through 15.4 inclusive.

5. Third party claims filed or reasonable evidence indicating probable filing of such claims; or

6. Failure of the Contractor to make payments properly to subcontractors or for labor, materials, or equipment; or

7. Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum; or

8. Failure of the Contractor to submit an acceptable construction schedule or failure to update the schedule; or

9. Damage to the City or another contractor; or

10. Reasonable evidence that the work will not be completed within the time provided for in the Contract; or

11. Contractor's failure or inability to obtain or maintain insurance coverage and bonds as required by the Contract throughout the course of the job; or

12. Persistent failure to carry out the work in accordance with the Contract; or

13. Failure to deliver copies of certified payrolls, as specified in Section 17.11, General Conditions.

14. In addition, the City may deduct from any such payments due the Contractor any amounts the City may be currently or in the future authorized to retain pursuant to federal, state, or local laws or regulations, any amounts due the City from the Contractor, and any other amounts which the City is otherwise authorized to retain as specified in Special Provisions.

C. The CITY may refuse to make payment of the full amount recommended by the ENGINEER because:

1. Claims have been made against CITY on account of CONTRACTOR's performance or furnishing of the WORK.

2. Liens have been filed in connection with the WORK, except where CONTRACTOR has delivered a specific Bond satisfactory to CITY to secure the satisfaction and discharge of such Liens.

3. There are other items entitling CITY to set-off against the amount recommended, or

4. CITY has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.5B. through 14.5C and 15.1 through 15.4 inclusive.

The CITY must give the CONTRACTOR immediate written notice stating the reasons for such action and promptly pay the CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by CITY and CONTRACTOR, when CONTRACTOR corrects to CITY's satisfaction the reasons for such action.

14.6 COMPLETION

A. When the CONTRACTOR considers the WORK ready for its intended use, the CONTRACTOR shall notify the ENGINEER in writing that the WORK is complete. The CONTRACTOR shall attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER considers the WORK complete, the ENGINEER

will prepare and execute and deliver for City Council approval and recordation the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of completion.

14.7 PARTIAL UTILIZATION

A. The CITY shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the CITY plans to exercise said right, the CONTRACTOR will be notified in writing by the ENGINEER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.

B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of Partial Utilization, the CITY will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.

C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the CITY prior to completion of the WORK.

14.8 FINAL APPLICATION FOR PAYMENT

A. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.6 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in the General Requirements), and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the CITY) of all Liens arising out of or filed in connection with the WORK.

14.9 FINAL PAYMENT AND ACCEPTANCE

A. 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, all 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 14 days after receipt

of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the application to the CITY for payment.

B. After acceptance of the WORK by the City Council, the CITY will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:

1. Liquidated damages, as applicable;

2. Amounts withheld by CITY under Paragraph 14.5B. and C. which have not been released; and

3. In accordance with Section 17.6, one-and-one-half times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the ENGINEER as required by the Contract Documents, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the CITY to cover the value of all such uncompleted or uncorrected items.

C. Prior to final payment by the CITY, the CONTRACTOR must provide the CITY a fully-executed Conditional Waiver and Release Upon Final Payment in accordance with California Civil Code Section 3262.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.1 SUSPENSION OF WORK BY CITY

A. The CITY may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt of a notice of resumption of work. The CONTRACTOR will be allowed an increase in the Contract Price or an extension of the Contract Time, or both directly attributable to any suspension if the CONTRACTOR makes an approval claim therefor as provided in Articles 11 and 12.

15.2 TERMINATION OF AGREEMENT BY ENGINEER FOR DEFAULT

A. In the event of default by the CONTRACTOR, the ENGINEER may give seven days written notice to the CONTRACTOR and the CONTRACTOR's surety of CITY's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default within a specified period of time. It will be considered a default by the CONTRACTOR whenever CONTRACTOR shall:

1. Declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors;

2. Disregard or violate the Laws or Regulations of any public body having jurisdiction;

3. Fail to provide materials or workmanship meeting the requirements of the Contract Documents;

4. Disregard or violate provisions of the Contract Documents or ENGINEER's instructions;

5. Fail to prosecute the WORK according to the approved progress schedule;

6. Fail to provide a qualified superintendent, competent workmen, or materials or equipment meeting the requirements of the Contract Documents;

7. Disregard the authority of the ENGINEER; or

8. Assign or subcontract any part of the work without the ENGINEER's consent.

B. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the ENGINEER may then issue the notice of termination.

C. In the event the Agreement is terminated in accordance with Paragraph 15.2A., herein, the CITY may take possession of the WORK and may complete the WORK by whatever method or means the CITY may select. The cost of completing the WORK will be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the CITY. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.

15.3 TERMINATION OF AGREEMENT BY CITY FOR CONVENIENCE

A. Upon seven days' written notice to the CONTRACTOR, the CITY may, without cause and without prejudice to any other right or remedy of the CITY, elect to terminate the Agreement. In such case, the CONTRACTOR shall be paid (without duplication of any items):

1. For 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 of such WORK;

2. For 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 or overhead and profit on such expenses;

3. For all reasonable claims, costs, losses, and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. For reasonable expenses directly attributable to termination.

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.

15.4 TERMINATION OF AGREEMENT BY CONTRACTOR

A. The CONTRACTOR may terminate the Agreement upon 14 days written notice to the ENGINEER whenever:

1. The WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the

Agreement has not been received from the ENGINEER within this time period; or

2. The CITY should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the ENGINEER by the CONTRACTOR of a request therefor, unless within said 14-day period the CITY shall have remedied the condition upon which the payment delay was based.

B. In the event of such termination, the CONTRACTOR shall have no claims against the CITY except for those claims specifically enumerated n Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

ARTICLE 16 – GENERAL TERMS

16.1 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 delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2 TITLE TO MATERIALS FOUND ON THE WORK

A. The CITY reserves the right to retain title to all soils, stone, sand, gravel, and other materials developed and obtained from excavations and other operations connected with the WORK. Unless otherwise specified in the Contract Documents, neither the CONTRACTOR nor any Subcontractor shall have any right, title, or interest in or to any such materials. The CONTRACTOR will be permitted to use in the WORK, without charge, any such materials which meet the requirements of the Contract Documents.

16.3 RIGHT TO AUDIT

A. If the CONTRACTOR submits a claim to the ENGINEER for additional compensation, the CITY shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discovery and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plant or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses

all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the CITY deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the ENGINEER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the ENGINEER.

16.4 SURVIVAL OF OBLIGATIONS

A. All representations, indemnifications, warranties, and guaranties 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 Agreement.

16.5 CONTROLLING LAW

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

16.6 SEVERABILITY

A. If any term or provision of this Agreement is declared invalid or unenforceable by any court of lawful jurisdiction, the remaining terms and provisions of the Agreement shall not be affected thereby and shall remain in full force and effect.

16.7 WAIVER

A. The waiver by the CITY of any breach or violation of any term, covenant or condition of this Agreement or of any provision, ordinance, or law shall not be deemed to be a waiver of any other term, covenant, condition, ordinance, or law or of any subsequent breach or violation of the same or of any other term, covenant, condition, ordinance, or law. The subsequent payment of any monies or fee by the CITY which may become due hereunder shall not be deemed to be a waiver of any preceding breach or violation by CONTRACTOR or any term, covenant, condition of this Agreement or of any applicable law or ordinance.

ARTICLE 17 – CALIFORNIA STATE REQUIREMENTS

17.1 STATE WAGE DETERMINATIONS

A. As required by Section 1770 and following, of the California Labor Code, the CONTRACTOR shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages available file at the office of the City Clerk, which copies shall be made available to any interested party on request. The CONTRACTOR shall post a copy of such determination at each job site.

B. In accordance with Section 1775 of the California Labor Code, the CONTRACTOR shall, as a penalty to the CITY, forfeit not more than **$200.00** for each calendar day or portion thereof, for each worker paid less than the prevailing 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 him or her or by any subcontractor under him or her.

17.2 WORKERS' COMPENSATION

A. In accordance with the provisions of Section 3700 of the California Labor Code, the CONTRACTOR shall secure the payment of compensation to its employees.

B. Prior to beginning work under the Contract, the CONTRACTOR shall sign and file with the ENGINEER the following certification:

> "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."

C. Notwithstanding the foregoing provisions, before the Contract is executed on behalf of the CITY, a bidder to whom a contract has been awarded shall furnish satisfactory evidence that it has secured in the manner required and provided by law the payment of workers' compensation.

17.3 APPRENTICES ON PUBLIC WORKS

A. The CONTRACTOR shall comply with all applicable provisions of Section 1777.5 of the California Labor Code relating to employment of apprentices on public works.

17.4 WORKING HOURS

A. The CONTRACTOR shall comply with all applicable provisions of Section 1810 to 1815, inclusive, of the California Labor Code relating to working hours. The CONTRACTOR shall, as a penalty to the CITY, forfeit $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 such worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week, unless such worker receives compensation for all hours worked in excess of 8 hours at not less than 1-1/2 times the basic rate of pay.

17.5 CONTRACTOR NOT RESPONSIBLE FOR DAMAGE RESULTING FROM CERTAIN ACTS OF GOD

A. As provided in Section 7105 of the California Public Contract Code, the CONTRACTOR shall not be responsible for the cost of repairing or restoring damage to the WORK which damage is determined to have been proximately caused by an act of God, in excess of 5 percent of the contracted amount, provided, that the WORK damaged was built in accordance with accepted and applicable building standards and the plans and specifications of the CITY. The CONTRACTOR shall obtain insurance to indemnify the CITY for any damage to the WORK caused by an act of God if the insurance premium is a separate bid item in the bidding schedule for the WORK. For purposes of this Section, the term “acts of God” shall include only the following occurrences or conditions and effects: earthquakes in excess of a magnitude of 3.5 on the Richter Scale and tidal waves.

17.6 NOTICE OF COMPLETION

A. In accordance with the Sections 3086 and 3093 of the California Civil Code, within 10 days after date of acceptance of the WORK BY THE City Council the ENGINEER will file, in the County Recorder’s office, a Notice of Completion of the WORK.

17.7 UNPAID CLAIMS

A. If, at any time prior to the expiration of the period for service of a stop notice, there is served upon the CITY a stop notice as provided in Sections 3179 and 3210 of the California Civil Code, the CITY shall, until the discharge thereof, withhold from the monies under its control so much of said monies due or to become due to the CONTRACTOR under this Contract as shall be sufficient to answer the claim stated in such stop notice and to provide for the reasonable cost of any litigation thereunder; provided, that if the ENGINEER shall, in its discretion, permit CONTRACTOR to file with the ENGINEER the bond referred to in Section 3196 of the Civil Code of the State of California, said monies shall not thereafter be withheld on account of such stop notice.

17.8 RETAINAGE FROM MONTHLY PAYMENTS

A. Pursuant to Section 22300 of the California Public Contract Code, the CONTRACTOR may substitute securities for any money withheld by the CITY to insure performance under the Contract. At the request and expense of the CONTRACTOR, securities equivalent to the amount withheld shall be deposited with the CITY or with a state or federally chartered bank in California as to the escrow agent, who shall return such securities to the CONTRACTOR upon satisfactory completion of the Contract.

B. Alternatively, the CONTRACTOR may request and the CITY shall make payment of retentions earned directly to the escrow agent at the expense of the CONTRACTOR. At the expense of the CONTRACTOR, the CONTRACTOR may direct the investment of the payments into securities and the CONTRACTOR shall receive the interest earned on the investments upon the same terms provided in Section 22300 of the Public Contract Code securities deposited by the CONTRACTOR. The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the escrow agent in administering the escrow account and all expenses of the CITY. These expenses and payment terms shall be determined by the CITY's Finance Director or his/her designee and the escrow agent. Upon satisfactory completion of the Contract, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of Section 22300 of the Public Contract Code. The CONTRACTOR shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the CONTRACTOR.

C. Securities eligible for investment under Section 22300 shall be limited to those listed in Section 16430 of the Government Code and to bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR and the CITY.

17.9 PUBLIC WORKS CONTRACTS; ASSIGNMENT TO AWARDING BODY

A. In accordance with Section 7103.5 of the California Public Contract Code, the CONTRACTOR and Subcontractors shall conform to the following requirements. 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 CITY 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. 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.

17.10 PAYROLL RECORDS; RETENTION; INSPECTION; NONCOMPLIANCE PENALTIES; RULES AND REGULATIONS

A. In accordance with Section 1776 of the California Labor Code the CONTRACTOR and each Subcontractor shall keep an accurate payroll record, 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:

1. The information contained in the payroll record is true and correct.

2. The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

B. The payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the CONTRACTOR on the following basis:

1. A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request as well as submitted electronically online to the Department of Industrial Relations Labor Commissioner: https://apps.dir.ca.gov/ecpr/DAS/AltLogin.

2. A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

3. A certified copy of all payroll records shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the

CONTRACTOR, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the CONTRACTOR.

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

D. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the CONTRACTOR awarded the contract or performing the contract shall not be marked or obliterated.

E. The CONTRACTOR shall inform the ENGINEER of the location of the records including the street address, city and county, and shall, within 5 working days, provide a notice of change of location and address.

F. The CONTRACTOR shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the CONTRACTOR must comply with this Section. In the event that the CONTRACTOR fails to comply within the 10-day period, he or she 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 calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

17.11 CULTURAL RESOURCES

A. The CONTRACTOR's attention is directed to the provisions of the Clean Water Grant Program Bulletin 76A which augments the National Historic Preservation Act of 1966 (16 U.S.C. 470) as specified under Section 01560 - Temporary Environmental Controls, of the General Requirements.

17.12 PROTECTION OF WORKERS IN TRENCH EXCAVATIONS

A. As required by Section 6705 of the California Labor Code and in addition thereto, whenever work under the Contract involves the excavation of any trench or trenches 5 feet or more in depth, the CONTRACTOR shall submit for acceptance by the ENGINEER, to whom authority to accept has been delegated, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or

other provisions to be made for worker protection from the hazard of caving ground during the excavation, of such trench or trenches. If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Occupational Safety and Health, the plan shall be prepared by a registered civil or structural engineer employed by the CONTRACTOR, and all costs therefore shall be included in the price named in the Contract for completion of the WORK as set forth in the Contract Documents. Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on the CITY or any of its officers, agents, representatives, or employees.

B. Excavation shall not start until the CONTRACTOR has obtained a permit from the California Division of Industrial Safety and has posted it at the site.

17.13 CONCRETE FORMS, FALSEWORK, AND SHORING

A. The CONTRACTOR shall comply fully with the requirements of Section 1717 of the Construction Safety Orders, State of California, Department of Industrial Relations, regarding the design of concrete forms, falsework and shoring, and the inspection of same prior to placement of concrete. Where the said Section 1717 requires the services of a civil engineer registered in the State of California to approve design calculations and working drawings of the falsework or shoring system, or to inspect such system prior to placement of concrete, the CONTRACTOR shall employ a registered civil engineer for these purposes, and all costs therefore shall be included in the price named in the Contract for completion of the WORK as set forth in the Contract Documents.

17.14 REMOVAL, RELOCATION, OR PROTECTION OF EXISTING UTILITIES

A. In accordance with the provisions with the provisions of Section 4215 of the California Government Code, the CITY shall assume the responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the site of any construction project that is a subject of the Contract, if such utilities are not identified by the CITY in the plans and specifications made a part of the invitation for bids. The CITY will compensate CONTRACTOR for the costs of locating, repairing damage not due to the failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work.

B. The CONTRACTOR shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or the owner of the utility to provide for removal or relocation of such utility facilities.

C. Nothing herein shall be deemed to require the public agency to indicate the presence of existing service laterals or appurtenances when the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of construction; provided however, nothing herein shall relieve the public agency from identifying main or trunklines in the plans and specifications.

D. If the CONTRACTOR while performing the Contract discovers utility facilities not identified by the public agency in the Contract Documents it shall immediately notify the public agency and utility in writing.

E. The public utility, where they are the owner, shall have the sole discretion to perform such repairs or relocation work or permit the CONTRACTOR to do such repairs or relocation work at a reasonable price.

17.15 CONTRACTOR LICENSE REQUIREMENTS

A. In accordance with Section 7028.15 of the California Business and Professions Code:

B. It is a misdemeanor for any person to submit a bid to a public agency in order to engage in the business or act in the capacity of a contractor within this state without having a license therefor, except in any of the following cases:

1. The person is particularly exempted from this chapter.

2. The bid is submitted on a state project governed by Section 10164 of the Public Contract Code or any local agency project governed by Section 20103.5 of the Public Contract Code.

C. If a person has previously been convicted of the offense described in this section, the court shall impose a fine of 20 percent of the price of the contract under which the unlicensed person performed contract work, or four thousand five hundred dollars ($4,500), whichever is greater, or imprisonment in the county jail for not less than 10 days nor more than six months, or both.

D. In the event the person performing the contracting work has agreed to furnish materials and labor on an hourly basis, “the price of the contract” for the purpose of this subdivision means the aggregate sum of the cost of materials and labor furnished and the cost of completing the work to be performed.

E. This section shall not apply to a joint venture license, as required by Section 7029.1 of the California Business and Professions Code. However, at the time of making a bid as a joint venture, each person submitting the bid shall be subject to this section with respect to his or her individual licensure.

F. This section shall not affect the right or ability of a licensed architect, land surveyor, or registered professional engineer to form joint ventures with licensed contractors to render services within the scope of their respective practices.

G. Unless one of the foregoing exceptions applies, a bid submitted to a public agency by a contractor who is not licensed in accordance with this chapter shall be considered nonresponsive and shall be rejected by the public agency. Unless one of the foregoing exceptions applies, a local public agency shall, before awarding a contract or issuing a purchase order, verify that the contractor was properly licensed when the contractor submitted the bid. Notwithstanding any other provision of law, unless one of the foregoing exceptions applies, the registrar may issue a citation to any public officer or employee of a public entity who knowingly awards a contract or issues a purchase order to a contractor who is not licensed pursuant to this chapter. The amount of civil penalties, appeal, and finality of such citations shall be subject to Sections 7028.7 and 7028.13 inclusive of the California Business and Professions Code. Any contract awarded to, or any purchase order issued to, a contractor who is not licensed pursuant to this chapter is void.

H. Any compliance or noncompliance with subdivision (G) of this paragraph shall not invalidate any contract or bid awarded by a public agency during which time that subdivision was in effect.

I. A public employee or officer shall not be subject to a citation pursuant to this section if the public employee, officer, or employing agency mad an inquiry to the board for the purposes of verifying the license status of any person or contractor and the board failed to respond to the inquiry within three business days. For the purposes of this section, a telephone response by the board s hall be deemed sufficient.

17.16 DIGGING TRENCHES OR EXCAVATIONS; NOTICE ON DISCOVERY OF HAZARDOUS WASTE OR OTHER UNUSUAL CONDITIONS; INVESTIGATIONS; CHANGE ORDERS; EFFECT ON CONTRACT

A. If this Contract involves digging trenches or other excavations that extend deeper than four feet below the surface, the following shall apply:

1. The CONTRACTOR shall promptly, and before the following conditions are disturbed, notify the ENGINEER in writing, of any:

a. 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.

b. Subsurface or latent physical conditions at the site differing from those indicated.

c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

d. The ENGINEER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR'S cost of, or the time required for, performance of any part of the work shall issue a change order the procedures described in the Contract.

e. In the event that a dispute arises between the ENGINEER and the CONTRACTOR whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the CONTRACTOR'S cost of, or time required for, performance of any part of the work, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The CONTRACTOR shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

17.17 RETENTION PROCEEDS; WITHHOLDING; DISBURSEMENT

A. In accordance with Section 7107 of the Public Contract Code with respects to all contracts entered into on or after January 1, 1993 relating to the construction of any public work of improvement the following shall apply:

1. The retention proceeds withheld from any payment by the CITY from the original CONTRACTOR, or by the original CONTRACTOR from any subcontractor, shall be subject to this paragraph 17.18.

2. Within 60 days after the date of completion of the WORK, including any punch-list WORK, the retention withheld by the CITY shall be released. In the event of a dispute between the ENGINEER and the original CONTRACTOR, the CITY may withhold from the final payment an amount not to exceed 150 percent of the disputed amount. For the purposes of this paragraph, "completion" means any of the following:

a. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or

commissioning, by the CITY, accompanied by cessation of labor on the work of improvement.

b. The acceptance by the City Council of the work of improvement.

c. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 days or more, due to factors beyond the control of the CONTRACTOR.

d. After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 days or more, if the ENGINEER files for record a notice of cessation or a notice of completion.

3. Subject to subparagraph 17.18 A.4, within 10 days from the time that all or any portion of the retention proceeds are received by the original CONTRACTOR, the original CONTRACTOR shall pay each of its subcontractors from whom retention has been withheld, each subcontractor's share of the retention received. However, if a retention payment received by the original CONTRACTOR is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor, if the payment is consistent with the terms of the subcontract.

4. The original CONTRACTOR may withhold from a subcontractor its portion of the retention proceeds if a bona fide dispute exists between the subcontractor and the original CONTRACTOR. The amount withheld from the retention payment shall not exceed 150 percent of the estimated value of the disputed amount.

5. In the event that retention payments are not made within the time periods required by this paragraph 17.18, the CITY or original CONTRACTOR shall be subject to a charge of 2 percent per month on the improperly withheld amount, in lieu of any interest otherwise due. Additionally, in any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to attorney's fees and costs.

6. Any attempted waiver of the provisions of this section shall be void as against the public policy of this state.

17.18 TIMELY PROGRESS PAYMENTS; INTEREST; PAYMENT REQUESTS

A. If the CITY fails to make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from the CONTRACTOR, the CITY shall pay interest to the CONTRACTOR equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

B. Upon receipt of a payment request, the ENGINEER shall act in accordance with both of the following:

1. Each payment request shall be reviewed by the ENGINEER as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.

2. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the CONTRACTOR as soon as practicable, but not later than seven days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.

C. The number of days available to the CITY to make a payment without incurring interest pursuant to this paragraph shall be reduced by the number of days by which the CITY exceeds the seven-day requirement set forth above.

D. For purposes of this paragraph:

1. A "progress payment" includes all payments due the CONTRACTOR, except that portion of the final payment designated by the contract as retention earnings.

2. A payment request shall be considered properly executed if funds are available for payment of the payment request, and payments is not delayed due to an audit inquiry by the financial officer of the CITY.

17.19 PREFERENCE FOR MATERIAL

A. In accordance with Section 3400 of the California Public Contract Code, the CONTRACTOR will be provided a period prior to award of the contract for submission of data substantiating a request for a substitution of "as equal" item.

17.20 RESOLUTION OF CONSTRUCTION CLAIMS

A. In accordance with Section 20104 et Seq. of the California Public Contract Code. This paragraph applies to all claims of $375,000 or less which arise between the CONTRACTOR and the CITY under this Contract for:

1. A time extension;

2. Payment of money or damages arising from work done by or on behalf of, the CONTRACTOR pursuant to this CONTRACT and payment of which is not otherwise expressly provided for or the CONTRACTOR is not otherwise entitled to; or

3. An amount the payment of which is disputed by the ENGINEER.

B. For any claim set out in Paragraphs A.1, 2, or 3 above, the following requirements apply:

1. The claim shall be in writing and include the documents necessary to substantiate the claim and be accompanied by the following certification:

> "CONTRACT PROVISION REQUIRING PERSONAL CERTIFICATION OF ALL CLAIMS:
>
> I, _____, BEING THE _____ (MUST BE AN OFFICER) OF _____ (GENERAL CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT: I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM FOR ADDITIONAL COMPENSATION AND/OR EXTENSION OF TIME, AND KNOW ITS CONTENTS, AND SAID CLAIM IS MADE IN GOOD FAITH; THE SUPPORTING DATA IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE CONTRACTOR BELIEVES THE CITY IS LIABLE; AND, FURTHER THAT I AM FAMILIAR WITH CALIFORNIA PENAL CODE SECTION 12650, ET SEQ. PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT AND/OR OTHER SEVERE LEGAL CONSEQUENCES."

Claims must be filed on or before the date of final payment. Nothing herein is intended to extend the time limit or supersede notice requirements otherwise provided by Contract for the filing of claims.

The claim must include an actual cost documentation, including hours of work performed, equipment operation costs, and labor and overhead costs, which should be established at a standard percentage. Any overhead costs listed when paid, shall provide full and complete payment for any and all overhead, including jobsite overhead, home office overhead, as well as additional costs arising from disruption, resequencing or acceleration. A notice of POTENTIAL CLAIM shall be submitted in advance of the performance of any work, regardless of type, in which the CONTRACTOR may claim an additional cost. CONTRACTOR shall provide prompt notification of any disagreement in quantities of work performed along with a detailed accounting by means of a schedule update demonstrating any delays incurred.

2. For claims of less than fifty thousand dollars ($50,000), the ENGINEER shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the CITY may have against the CONTRACTOR.

   If additional information is thereafter required, it shall be requested and provided upon mutual agreement of the ENGINEER and the CONTRACTOR.

   The ENGINEER's written response to the claim, as further documented, shall be submitted to the CONTRACTOR within 15 days after receipt of further documentation or within a period of time no greater than that taken by the CONTRACTOR in producing the additional information, whichever is greater.

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

   If additional information is thereafter required, it shall be requested and provided upon mutual agreement of the ENGINEER and the CONTRACTOR.

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

4. If the CONTRACTOR disputes the ENGINEER's written response, or the ENGINEER fails to respond within the time prescribed, the CONTRACTOR may notify the ENGINEER, in writing, either within 15 days of receipt of the ENGINEER's response or within 15 days of the ENGINEER's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the ENGINEER shall schedule a meet and confer conference within 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 Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time CONTRACTOR submits its written claim pursuant to subdivision (a) until the time the claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

C. The following procedures are established for all civil actions filed to resolve claims subject to this article:

1. Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

2. If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of Article 1.5 of Chapter 1 of Part 3 of Division 2 of the California Public Contract Code shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

In addition to Chapter 2.5 (commencing with Section 1141.10 of Title 3 of Part 3 of the Code of Civil Procedure any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees of the other party arising out of the trial de novo .

3. The CITY shall not fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in this Contract.

4. In any suit filed under Section 20104.4 of the California Public Contract Code, the CITY shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

END OF GENERAL CONDITIONS

file name:

SECTION III

SPECIAL PROVISIONS

SECTION III.

SPECIAL PROVISIONS

3-1. DESCRIPTION OF WORK – The Water Services Replacement project includes the replacement of polybutylene "blue tube" water services with materials meeting current CITY standards and requirements.

3-2. ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS – If the CONTRACTOR discovers any errors, omissions, discrepancies, or conflicts in the Contract, he/she shall immediately inform the ENGINEER in writing. The ENGINEER will promptly resolve such matters by issuing addenda or change orders. Failure to act or delay on the part of the ENGINEER shall not constitute a waiver of any right afforded the CITY or the ENGINEER by the Contract or constitute an implied approval. Any work affected by such discoveries that is performed by the CONTRACTOR prior to authorization by the CITY shall be at the CONTRACTOR'S risk.

Unless otherwise noted below, conflicts or inconsistencies between parts of the Contract will be resolved by the ENGINEER with a change order or an addendum, if required. Addenda and change orders bearing the most recent date shall prevail over addenda or change orders bearing earlier dates. Any reference to addenda-changed specifications or drawings shall be considered to have been changed accordingly.

In resolving conflicts, errors, or discrepancies, the order of precedence shall be as follows:

1) Change Orders/Addenda (most recent in time takes precedence)
2) Agreement and Bond Forms
3) Special Provisions
4) Technical Specifications
5) Standard Specifications (Current Caltrans Standard Specifications)
6) Drawings
7) General Conditions
8) Instructions to Bidders
9) CONTRACTOR'S Bid (Bid Form)
10) Notice Inviting Bids
11) Permits from other agencies as may be required by law.

3-3. COOPERATION - Attention is directed to Sections 5-1.20, "Coordination with Other Entities", and 5-1.36D, "Nonhighway Facilities", of the Standard Specifications and these special provisions.

The CONTRACTOR shall not adjust gas, electric, television cable, telephone, and Sonoma County structures. The CONTRACTOR will notify each agency who will be in turn adjust their own structures at least seven (7) working days prior to covering/burying these facilities at no cost to the CITY. Failure to do so shall result in the CONTRACTOR being liable for the utility agencies' claims.

3-4. OBSTRUCTIONS - Attention is directed to Sections 5-1.36D, "Non-highway Facilities", and 15, "Existing Facilities", of the Standard Specifications and these special provisions.

The CONTRACTOR's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the CONTRACTOR to protect the health, safety, and welfare of workmen and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine and toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter or pipelines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors with potential to ground of more than 300 volts.

The CONTRACTOR shall notify the ENGINEER and the appropriate regional notification center for operators of subsurface installations at least 5 working days prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire, or other structure. Regional notification centers include but are not limited to the following:

Underground Service Alert
Northern California (USA)
Telephone: 811

If the CONTRACTOR's certain operation is delayed, in the opinion of the ENGINEER, by the discovery of an underground utility not indicated on the plans or not marked by USA, the CONTRACTOR shall be paid a fair and reasonable compensation for the actual loss. Actual loss shall be understood to include no items of expense other than idle time of equipment exclusively used in such operation and necessary payments for idle time of labor exclusively required for such operation only, determined as follows:

1) Compensation for idle equipment shall be applied at the reduced Caltrans' Equipment Rental Rates where the right of way delay factor for each classification of equipment shall be applied to such equipment rental rate. No markup shall be applied for overhead or profit.

2) Compensation for idle time of labor shall be actual wages paid to the workers. No markup shall be added for overhead and profit.

3) The time for which such compensation will be paid will not exceed eight (8) hours for each incident.

4) The CONTRACTOR shall be granted an extension of time for the delay.

5) No monetary compensation will be allowed for delays due to utilities indicated on the plans or marked by USA.

3-5. ORDER OF WORK – The CONTRACTOR shall submit a work plan to the City for review and shall identify proposed order of work to maximize efficiency of construction, minimize impact to the community and maintain safety.

3-6. PROJECT AND CONSTRUCTION AREA SIGNS – Project sign and construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices", of the Standard Specifications.

Two (2) project signs with a minimum dimension of 3/4" x 3'x 4' plywood bolted to an A-frame barricade shall be furnished, installed and moved from site to site by the Contractor. Letters and numbers shall be black on a white background. The sign information shall be as shown below:

CITY OF PETALUMA (4" LETTERS)

PROJECT: MANOR LANE TANK REHABILITATION

FUNDING: CITY FUNDS (3" LETTERS)

PROJECT MANAGER: DAN HERRERA (3" LETERS)

PHONE: 707-778-4589

The signs shall be approved prior to fabrication and posted as directed by the Engineer.

Construction area signs will be installed prior to start of construction and maintained in place for the duration of the project by the CONTRACTOR. When installed, the signs shall not extend beyond the street curb alignment into the travel way. Signs shall be repaired or replaced at no cost to the City of Petaluma, if damaged or stolen. The CONTRACTOR shall remove the signs and posts at the completion of the project and with prior approval of the ENGINEER.

All costs involved in purchasing and installing construction area and project signs shall be considered as included in the Lump Sum price paid for Traffic Control System.

3-7. MAINTAINING TRAFFIC – Attention is directed to Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", and 12, "Temporary Traffic Control", of the Standard Specifications and the City of Petaluma Traffic Control Design and Construction Standards Series 700. Nothing in these special provisions shall be construed as relieving the CONTRACTOR from his/her responsibility as provided in said Section 7-1.04.

The Contractor will minimize disruption to all traffic (vehicular, transit, bicycle, and pedestrians) during the allowed work window. During construction, bicyclists will either share the road with vehicular traffic in a signed detour or be provided separate access. In addition, pedestrian access will be maintained at all times during construction. The Contractor shall provide temporary pedestrian curb ramps and clearly mark the temporary crosswalks. The pedestrian path shall be clear of any debris and meet ADA requirements. Driveway access to schools, residents, and businesses will also be maintained at all times.

Lane closures shall conform to the provisions in the section of these special provisions entitled, “Traffic Control System for Lane Closure”.

At least five (5) working days prior to beginning of each phase of construction (i.e., piping installation, paving, pavement repair, concrete construction, etc.), the CONTRACTOR shall:

A. Notify all adjacent residents, businesses, City of Petaluma Police and Fire, Green Waste Recovery (residential refuse service company), Waste Management Company (industrial refuse service company), and Petaluma Transit by written notices detailing the type, limits, date, and the hours of work. Details of the notice shall be submitted to the ENGINEER for review and approval at least five (5) days prior to delivering these notices.

B. Where required, post streets with temporary "No Parking/Tow Away" signs at 100-foot intervals at least 72 hours in advance. These signs shall be furnished by the CONTRACTOR and shall state the date; day of week and hour parking is prohibited.

Illuminated traffic cones when used during the hours of darkness shall be affixed or covered with reflective cone sleeves as specified in Section 12-3.10, "Traffic Cones", of the Standard Specifications.

Full compensation for temporary delineation shall be considered as included in the prices paid for the contract in terms of work which obliterated the existing delineation, and no separate payment will be made therefore.

When working in or blocking any intersection, the CONTRACTOR shall provide flag persons to direct traffic at that intersection. This is in addition to other required flag persons.

Personal vehicles of the CONTRACTOR's employees shall not be parked on the traveled way, including any section closed to public traffic. The CONTRACTOR, at all times, shall provide flag person(s) to direct delivery trucks and CONTRACTOR's vehicles entering or leaving the public traffic.

The CONTRACTOR shall notify the City of Petaluma of his/her intent to begin work at least 5 days before work is begun. The CONTRACTOR shall cooperate with local authorities relative to handling traffic through the area and shall make his/her own arrangements relative to keeping the working area clear of parked vehicles.

Whenever vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, the shoulder area shall be closed with fluorescent traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. A minimum of 9 cones or portable delineators shall be used for the taper. A C23 (Road Work Ahead) or C24 (Shoulder Work Ahead) sign shall be mounted on a telescoping flag tree with flags. The flag tree shall be placed where directed by the ENGINEER.

A minimum of one (paved) reversible traffic lane, not less than 10 feet wide, shall be open for use by public traffic in with minimal delays, flaggers, adequate traffic control, and signing. ***Flashing arrow boards shall be required for any lane closures***.

Day work: No work and/or preparation of work shall be performed between 5:00 p.m. and 7:00 a.m. unless approved by the ENGINEER in writing, except work required under said Sections 7-1.03 and 7-1.04 of the Standard Specifications or specified elsewhere in the special provisions.

Night work: No work and/or preparation of work shall be performed between 5:00 a.m. and 10:00 p.m. unless approved by the ENGINEER in writing, except work required under said Sections 7-1.03 and 7-1.04 of the Standard Specifications or specified elsewhere in the special provisions.

Except as otherwise provided, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, after 4:00 p.m. on Fridays, on designated legal holidays, during the holiday shutdown period (in applicable areas), and when construction operations are not actively in progress.

Designated legal holidays and the holiday shutdown period are outlined in "Hours of Work" of these Special Provisions.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the CONTRACTOR if in the opinion of the ENGINEER public traffic will be better served and the work expedited. Such deviations shall not be adopted until the ENGINEER has indicated his/her written approval. All other modifications will be made by contract change order.

Ten (10) working days prior to commencing construction which will affect existing traffic, the contractor shall submit for review by the Engineer, a Traffic Control Plan on 11"x17" or 22"x34" sheet(s) of paper which contains only information specially related to work zone traffic control. If the Contractor proposes to use the latest edition of California Department of Transportation Manual of Traffic Controls for Construction and Maintenance of Work Zones in lieu of a traffic control plan, in specific work operations, he/she shall submit in writing for consideration which Typical Application Diagram will be used for each work operation. No work shall commence on Public / County / State right of way until a traffic control plan is approved and implemented.

In addition to the traffic control plan, the Contractor shall submit a haul route for approval by the Engineer. The route must minimize traffic on residential streets that are not part of the project. Temporary staging of construction materials shall not occur on streets or areas that are not within the immediate limits of the project.

The Traffic Control Plan shall contain a title block which contains the contractor's name, address, phone number, project superintendent's name, contract name, dates and hours traffic control will be in effect, and a space for review acknowledgement by the City.

The content of the Traffic Control Plan shall include, but not limited to, the following:

A. Show location and limits of the work zone for each phase or specific operation of construction if requiring different traffic control.
B. Give dimensions of lanes affected by traffic control that will be open to traffic.
C. Indicate signing with MUTCD designation, cone placement (including spacing), changeable message signs, flashing arrow boards, pavement markings, and other methods of delineation and reference to appropriate standards and sign designations.
D. Dimension location of signs and cone tapers.
E. Location of any and all flagmen, if applicable.
F. Identify side streets and driveways affected by construction and show how they will be handled.
G. Show how pedestrian and bicycle traffic will be handled through the construction site during all hours including edge grinding operation.
H. Show locations of nighttime lighting if applicable.
I. Modification to Traffic Signal operations in the vicinity of the project. Contractor shall be responsible for making arrangements with the City's Traffic Signal Technician at least 48 hours in advance before starting any work in or nearby a signalized intersection if any signal operations need to be modified.
J. Separate Traffic Control Plans shall be prepared for each phase of a construction project and shall be submitted for City's review and approval.

No work except for installation of project identification signs will be allowed to commence prior to approval of the Traffic Control Plan.

Residents, businesses, delivery to businesses, and customer parking shall be notified in writing by the Contractor at least five (5) calendar days prior to any activity that will impact access to their property.

The City of Petaluma Traffic Control Design and Construction Standards (Series 700) shown elsewhere in these specifications are guidelines only. The CONTRACTOR is not relieved from his/her responsibility for submitting his/her own traffic control plan.

The CONTRACTOR's failure to comply with the requirements of this section will be sufficient cause for the ENGINEER to suspend work at no cost to the City.

All costs involved for completing all work described in this section shall be considered to be included in the contract price paid for Traffic Control System and no additional compensation shall be allowed therefore.

3-8. TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE - A traffic control system shall consist of closing traffic lanes in accordance with the details shown on the plans, the City of Petaluma Traffic Control Design and Construction Standards Series 700, the provisions of Section 12, "Temporary Traffic Control", of the Standard Specifications, and the provisions under "Maintaining Traffic" elsewhere in these supplementary general conditions.

The provisions in this section will not relieve the CONTRACTOR from his/her responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety", of the Standard Specifications.

During the hours of darkness, as defined in Division 1, Section 280, of the Vehicle Code, portable signs shown on the plans to be illuminated shall be, at the option of the CONTRACTOR, either; illuminated signs in conformance with the provisions in Section 12-3.06B(3), "Portable Signs", of the Standard Specifications; or Reflexite vinyl microprism reflective sheeting signs; or 3M high intensity reflectorized sheeting on aluminum substrate signs or Seibulite Brand Ultralite Grade Series, encapsulated lens retroreflective sheeting signs; or equal.

Each vehicle used to place, maintain, and remove components of a traffic control system on arterials and collectors shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining, or removing said components. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on the vehicles which are doing the placing, maintaining, and removing of components of a traffic control system, and shall be in place before a lane closure requiring its use is completed.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the CONTRACTOR shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location.

When lane closures are made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way shall be removed from the traveled way and shoulder. If the CONTRACTOR so elects, said components may be stored at selected central locations, approved by the ENGINEER, within the limits of the City right-of-way.

When traffic is shifted across the centerline, the CONTRACTOR shall provide W57 signs at 300-foot intervals and on both sides of intersections to direct traffic in proper lanes. Flashing arrow boards shall be required for any lane closures on any streets.

The adjustment provisions in Section 4-1.05, "Changes and Extra Work", of the Standard Specifications, shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the ENGINEER and will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force account basis as provided in Section 9-1.04, "Force Account", of the Standard Specifications for increased work, and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.05 of the Standard Specifications, will be paid for as a part of said extra work.

The contract lump sum price paid for "Traffic Control System" shall include full compensation for furnishing all labor (including flagging costs), materials, signs, tools, equipment and incidentals, and for doing all the work involved in furnishing, placing, operating, maintaining, repairing, replacing, changing messages on a **TWO** changeable message signs as requested by the Engineer, moving and removing the components of the traffic control system as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

3-9. WATERING - Watering shall conform to the provisions in Section 17, "Watering", of the Standard Specifications except that full compensation for developing water supply shall be considered as included in the prices paid for various contract items for work involving the use of water and no separate payment will be made therefore. The application of water for dust control will not be considered as extra work under any circumstances. Water can be purchased from the City at current rates provided that the CONTRACTOR meters the water so used with a City furnished meter (a deposit will be required) and a CONTRACTOR furnished valve assembly.

3-10. PROGRESS SCHEDULE - The CONTRACTOR shall submit a schedule which includes all major tasks and milestones to the City of Petaluma, Public Works and Utilities Department for review **at least** ten (10) working days prior to start of work.

After beginning of work, updated schedules shall be submitted. No progress payments will be processed without accepted updated schedules.

Payment for the original schedule and updated, weekly schedules shall be considered to be included in the various items of work and no additional compensation will be allowed therefore.

3-11. SUPERINTENDENCE - The CONTRACTOR shall designate in writing and submit to the Project Engineer two (2) working days before starting work, an authorized representative who shall have the authority to represent and act for the CONTRACTOR

for the duration of the contract. Any change in the designation shall require prior approval of the ENGINEER.

When the CONTRACTOR is comprised of two (2) or more persons, firms, partnerships or corporations functioning on a joint venture basis, said CONTRACTOR shall designate in writing before starting work, the name of one authorized representative who shall have the authority to represent and act for the CONTRACTOR.

Said authorized representative shall be present at the site of work at all times while work is actually in progress on the contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the ENGINEER shall be made for any emergency work, which may be required.

<u>If work is in progress and the authorized representative is not on site, the City reserves the right to stop the work at no cost to the City.</u>

Once the work begins, the Superintendent shall keep the ENGINEER informed of the CONTRACTOR's daily schedule. The ENGINEER shall have at least twenty-four (24-hour advance notice of all work, on a daily basis, including SUBCONTRACTOR's work. If the CONTRACTOR fails to notify the ENGINEER, the ENGINEER reserves the right to stop the work at no cost to the City.

In the case of urgency or emergency where the CONTRACTOR's authorized representative is not present on any particular part of the work and where the ENGINEER wishes to give notification or direction, it will be given to and be obeyed by the superintendent or foreperson who may have charge of the particular work, or it will be given to and be obeyed by any worker in the area should the superintendent or foreperson not be immediately available.

All costs involved in superintendence shall be included in the contract prices paid for various items of work and no additional payment will be allowed therefore.

3-12. <u>SAFETY REQUIREMENT</u> - The CONTRACTOR shall comply with all CAL/OSHA safety requirements. It shall be the CONTRACTOR's sole responsibility for making sure these safety requirements are met and the CONTRACTOR shall fully assume all liabilities for any damages and/or injuries resulting from his or her failure to comply with the safety requirements. Failure on the City's part to stop unsafe practices shall, in no way, relieve the CONTRACTOR of his/her responsibility.

The CONTRACTOR shall <u>first</u> call City of Petaluma Emergency Center at 911, from a regular telephone, and (707) 762-2727 or from a cellular phone (707) 762-4545, if any gas lines or electrical power lines are broken or damaged.

3-13. <u>PROJECT APPEARANCE</u> – The CONTRACTOR shall maintain a neat appearance to the work area.

When practicable, debris developed during construction shall be disposed of concurrently with its removal. Stockpiling on the street shall not be allowed. The CONTRACTOR

shall apply for a "stockpiling" permit from the City's Community Development Department prior to stockpiling more than fifty (50) cubic yards of materials on private property. The CONTRACTOR shall solely be responsible for securing staging and/or stockpiling areas.

The CONTRACTOR shall provide dust control as often as required during the construction and shall clean the roads/streets with street sweepers at least once a day at the end of each working day or more often if safety or appearance conditions warrant. Failure to maintain dust control, street cleaning and/or any required work specified in this section shall result in the City performing the work with other forces and back charge the CONTRACTOR for the costs.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefore.

3-14. RESPONSIBILITY FOR DAMAGE - The CONTRACTOR shall indemnify, hold harmless, release and defend the City of Petaluma, its officers, officials, employees and agents from and against any and all liabilities, claims, demands, losses, damages, expenses, costs (including without limitation costs and fees of litigation) of every nature arising out of or in connection with the activities of the CONTRACTOR, his/her subcontractors, employees and agents, except such loss or damage which was caused by the sole negligence or willful misconduct of the CITY, its employees or agents. The CITY may retain so much of the money due the CONTRACTOR as shall be considered necessary, until disposition has been made of claims or suits for damages as aforesaid.

3-15. GUARANTEE OF WORK - Neither the final certificate of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this contract by the City or the public shall constitute an acceptance of work not done in accordance with the contract or relieve the CONTRACTOR of liability in respect to any warranties or responsibility for faulty materials or workmanship. The CONTRACTOR's attention is directed to Article 5, "Bonds and Insurance", of the General Conditions.

3-16. NOTICE TO PROCEED, BEGINNING OF WORK, CONTRACT TIME, TIME OF COMPLETION, AND LIQUIDATED DAMAGES – Article 2.3, "Commencement of Contract Times; Notice to Proceed" of the General Conditions is amended to read:

The CONTRACTOR shall begin work within ten (10) working days from the date of Notice to Proceed (NTP) and shall diligently prosecute the same to completion before the expiration of total allocated working days as specified in the Construction Agreement and/or Invitation to Bid, from the date of starting work. The CONTRACTOR shall complete all of the work directed by the ENGINEER in all parts and requirements within the time set forth. A working day is defined in these specifications.

The CONTRACTOR is on notice that it may take approximately eight (8) weeks from the bid opening to obtain the City Council's award of the contract, to process the construction agreement, and to issue the Notice to Proceed.

The CONTRACTOR shall pay to the City of Petaluma the sum of $1,500 per day for each and every *calendar day's* delay in finishing the work in excess of the number of days prescribed above (and/or in excess of the number of days prescribed for any scheduled operations or works described in the Special Provisions).

A working day is defined as any day, except as follows:

a. Saturdays, Sundays, and legal holidays
b. Days on which the CONTRACTOR is prevented by inclement weather or conditions resulting immediately therefrom adverse to the current controlling operation or operations, as determined by the ENGINEER, from proceeding with at least 75 percent of the normal labor and equipment force engaged on that operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations.

Should the CONTRACTOR prepare to begin work at the regular starting time of any day on which inclement weather, or the conditions resulting from the weather, or the condition of the work, prevents the work from beginning at the usual starting time and the crew is dismissed as a result thereof and the CONTRACTOR does not proceed with at least 75 percent of the normal labor and equipment force engaged in the current controlling operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations, the CONTRACTOR will not be charged for a working day whether or not conditions should change thereafter during that day and the major portion of the day could be considered to be suitable for those construction operations.

Determination that a day is a non-working day by reason of inclement weather or conditions resulting immediately therefrom shall be made by the ENGINEER. The CONTRACTOR will be allowed 10 days from the issuance of the weekly statement of working days in which to file a written protest setting forth in what respects the CONTRACTOR differs from the ENGINEER; otherwise, the decision of the ENGINEER shall be deemed to have been accepted by the CONTRACTOR as correct. The ENGINEER will furnish the CONTRACTOR a weekly statement showing the number of working days charged to the contract for the preceding week, the number of working days of time extensions being considered or approved, the number of working days originally specified for the completion of the contract, and the number of working days remaining to complete the contract and any time extensions thereof.

3-17. HOURS OF WORK

Weekdays – Weekdays (Monday through Friday) hours shall be from 7:00 a.m. to 5:00 p.m. for all required work except those hours approved by the City of Petaluma or specified in "Order of Work" Section of these special provisions. Work hours for County of Sonoma and Caltrans right of way shall be governed by their respective permit conditions.

Night Hours – Other than emergency work, there will be no night hours allowed on this project.

Liquidated Damages in the sum of Fifteen Hundred Dollars ($1,500) per day will be assessed against the CONTRACTOR if he fails to comply with any of the daily conditions or operations such as maintaining erosion control facilities, job site/street cleanliness and daily cleanup and traffic control and flagging, as described in the General Conditions, these Special Provisions, and the Technical Specifications.

If the CONTRACTOR closes a street or sidewalk without prior notice and approval of the ENGINEER within 24 hours, the associated operation will be shutdown at the CONTRACTOR's expense.

Holidays - Designated legal holidays are: January 1st, the third Monday in January, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, the second Monday in October, November 11th, Thanksgiving Day, the day after Thanksgiving, December 24th and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday. The Contractor shall not work on the legal holidays unless approved in writing by the Engineer.

Holiday Shutdown - No work shall be allowed to be performed in the business district (defined by the map on the City of Petaluma web site at **http://cityofpetaluma.net/cdd/pdf/boundaries.pdf**) between Thanksgiving Day, the day after Thanksgiving, and December 25th thru January 3rd of the following year.

3-18. RECORD ("AS-BUILT") DRAWINGS – The CONTRACTOR shall furnish Record Drawings of the complete project and procure from the Director of Public Works a full-sized set of Contract Drawings. Construction drawings shall be on the construction site at all times while the work is in progress. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The Drawings shall be to scale, and all indications shall be neat and legible. All information noted on the CONTRACTOR's job-site print shall be transferred to the Record Drawings by CONTRACTOR and all indications shall be recorded in a neat, legible, and orderly way. The Record Drawings shall be signed by the CONTRACTOR and turned over to the Director of Public Works before the final acceptance of the project. If the CONTRACTOR fails to provide the City with an acceptable "Record Drawings", the City shall deduct $2,000 from the amount due CONTRACTOR.

3-19. NOTICE OF POTENTIAL CLAIM - If for any reason the CONTRACTOR deems that additional compensation is due him/her for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized extra work, a Notice of Potential Claim shall be made. The CONTRACTOR shall give the ENGINEER a written Notice of Potential Claim for such additional compensation before work begins on the items on which the claim is based. The notice shall set forth the reasons for which the CONTRACTOR believes additional compensation will or may be due and the nature of the costs involved. The CONTRACTOR shall afford the ENGINEER every opportunity and facility for keeping records of the actual cost of the work. The CONTRACTOR shall keep records of the disputed work in accordance with Contract General Conditions, Section 11.3, "Cost of Work (Based on Time and Materials)."

If such notification is not given or the ENGINEER is not afforded proper opportunity by the CONTRACTOR for keeping strict account of actual cost as required, then the CONTRACTOR hereby agrees to waive any claim for such additional compensation. Such notice by the CONTRACTOR and the fact that the ENGINEER has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the CONTRACTOR shall, within 10 calendar days, submit his/her written claim to the ENGINEER who will present it to the City for consideration in accordance with local laws or ordinances. The CONTRACTOR is directed to Section 17.20 "Resolution of Construction Claims" of the General Conditions.

Any claim for overhead type expenses or costs, in addition to being certified as stated above, shall be supported by an audit report of an independent Certified Public Accountant. Any claim for overhead shall also be subject to audit by the City at its discretion.

Any costs or expenses incurred by the City in reviewing or auditing any claims that are not supported by the CONTRACTOR's cost accounting or other records shall be deemed to be damages incurred by the City within the meaning of the California False Claims Act.

Nothing in this subsection shall be construed as a waiver of the CONTRACTOR's right to dispute final payment based on differences in in-place quantity measurements or computations of unit priced pay items.

3-20. PAYMENT FOR MATERIALS ON HAND - At the discretion of the ENGINEER, partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications. Such delivered costs of stored or stockpile materials may be included in the next partial payment after the following conditions are met:

1. The material has been stored or stockpiled and protected at the sole expense of the CONTRACTOR at a location acceptable to the City and in a manner acceptable to the ENGINEER.

2. The CONTRACTOR has furnished the ENGINEER with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

3. The CONTRACTOR has furnished the ENGINEER with satisfactory evidence that the material and transportation costs have been paid.

4. The CONTRACTOR has furnished the City legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

5. The CONTRACTOR has furnished the City evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

6. The CONTRACTOR shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

It is understood and agreed that the transfer of title and the City's payment for such stored or stockpiled materials shall in no way relieve the CONTRACTOR of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications. In no case will the amount of partial payments for materials on hand exceed 70% of the contract price for the contract items in which the material is intended to be used.

3-21. ACCESS TO DRIVEWAYS – All accesses for local businesses and residents shall be maintained at all times. Temporary ramps will be required each night for access to driveways for residences and commercial access. The Contractor shall coordinate with each driveway user as needed.

3-22. ARCHAEOLOGICAL MONITORING – In the event that archaeological materials are found during construction, CONTRACTOR shall notify the ENGINEER immediately and shall temporarily cease work in the area until a determination or investigation of the site can be made by a qualified archaeologist. Archaeologist services shall be provided by the City at no cost to the CONTRACTOR.

3-23. STORM WATER MANAGEMENT, AND SEDIMENT AND EROSION CONTROL – CONTRACTOR shall prepare storm water management, and sediment and erosion control measures for implementation and shall maintain these measures during the construction period as required by the Regional Water Quality Control Board (RWQCB) permit.

If the area to be disturbed by construction activities is more than one acre, the CONTRACTOR shall be required to file a Notice of Intention (NOI), pay the fee, prepare the SWPPP, BMP, etc. as required by RWQCB permit.

Storm water management, and sediment and erosion control shall include, but not be limited to fiber rolls (sediment logs or wattles), straw bales, drain rock, check dams, silt fencing, siltation basins and as required for construction conditions. Measures shall be submitted to the ENGINEER for review seven (7) days prior to start of construction. The

CONTRACTOR shall be responsible for providing the measures that would comply with the RWQCB.

The CONTRACTOR shall also place drain rock bags around storm drain inlets/catch basins and install drain rock check dams at 50-foot intervals within 100 feet upstream from the inlets/catch basins.

The CONTRACTOR shall comply with all Federal, State and local regulations and ordinances governing storm water pollution prevention.

If required, the CONTRACTOR shall file a Notice of Intent (NOI) with the RWQCB and shall comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Association with Construction Activity requirements. The CONTRACTOR shall prepare and implement a Storm Water Pollution Plan (SWPPP). Resources used in developing the SWPPP shall include the "California Storm Water Best Management Practice Handbook for Construction Activity," and the San Francisco Bay Regional Water Quality Control Board's "Information on Erosion and Sediment Controls for Construction Projects." The SWPPP shall be submitted for review and acceptance prior to start of work. The CONTRACTOR shall have an accepted and implemented SWPPP as part of Mobilization. The SWPPP shall, at a minimum, include Best Management Practices (BMPs), acceptable to the City, to address the following:

1. Housekeeping
2. Waste Containment and Control.
3. Minimizing Disturbed Areas.
4. Stabilize Disturbed Areas.
5. Protect Slopes and Channels.
6. Control Site Perimeter.
7. Control of Internal Erosion.
8. Disposal of Storm Water and Ground Water
9. Sediment Control.
10. Liquid Waste Management.
11. Concrete Waste Management.
12. Hazardous Waste Management.
13. Employee and SUBCONTRACTOR Training.

14. Vehicle and Equipment Fueling and Maintenance.

15. Spill Prevention and Control.

16. Contaminated Soil Management.

17. Sawcutting.

18. Paving and Asphalt Work.

19. Street Cleaning.

Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.

All costs involved for completing all work described in this section shall be considered to be included in the contract price paid for Storm Water Management and Sedimentation/Erosion Control and no additional compensation shall be allowed therefore.

3-24. ITEM INCREASES AND DECREASES -

Increased or Decreased Quantities

Increases or decreases in the quantity of a contract item of work will be determined by comparing the total pay quantity of that item of work with the ENGINEER's Estimate therefor.

If the total pay quantity of any item of work required under the contract varies from the ENGINEER's Estimate therefore by 25 percent or less for increases and 25 percent or less for decreases, payment will be made for the quantity of work of the item performed at the contract unit price.

If the total pay quantity of any item of work required under the contract varies from the ENGINEER's Estimate therefor by more than 25 percent for increases and 25 percent for decreases, in the absence of an executed contract change order specifying the compensation to be paid, the compensation payable to the CONTRACTOR will be determined in accordance with the following sections.

Increases of More Than 25 Percent

Should the total pay quantity of any item of work required under the contract exceed the ENGINEER's Estimate therefore by more than 25 percent, the work in excess of 125 percent of the estimate and not covered by an executed contract change order specifying the compensation to be paid therefor will be paid for by adjusting the contract unit price based upon a force account analysis.

The adjustment of the contract unit price will be the difference between the contract unit price and the actual unit cost which will be determined as hereinafter provided, of the total pay quantity of the item. If the costs applicable to the item of work include fixed costs, the fixed costs will be deemed to have been recovered by the CONTRACTOR by the payments made for 125 percent of the ENGINEER's Estimate of the quantity for the item, and in computing the actual unit cost, the fixed costs will be excluded. Subject to the above provisions, the actual unit cost will be determined by the ENGINEER in the same manner as if the work were to be paid for on a force account basis.

When the compensation payable for the number of units of an item of work performed in excess of 125 percent of the ENGINEER's Estimate is less than $5,000 at the applicable contract unit price, the ENGINEER reserves the right to make no adjustment in the contract unit price if the ENGINEER so elects, except that an adjustment will be made if requested in writing by the CONTRACTOR.

Decreases of More Than 25 Percent

Should the total pay quantity of any item of work required under the contract be less than 25 percent of the ENGINEER's Estimate therefore, an adjustment in compensation pursuant to this Section will not be made unless the CONTRACTOR so requests in writing. If the CONTRACTOR so requests, the quantity of the item performed, unless covered by an executed contract change order specifying the compensation payable therefor, will be paid for by adjusting the contract unit price based upon a force account analysis. In no case shall the payment for that work be less than that which would be made at the contract unit price.

The adjustment of the contract unit price will be the difference between the contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. The actual unit cost will be determined by the ENGINEER in the same manner as if the work were to be paid for on a force account basis; or the adjustment will be as agreed to by the CONTRACTOR and the ENGINEER.

The payment for the total pay quantity of the item of work will in no case exceed the payment which would be made for the performance of 25 percent of the ENGINEER's Estimate of the quantity for the item at the original contract unit price.

3-25. EXISTING WATER VALVES, MONUMENTS AND MANHOLES – The City shall have access at all times to water valves, monuments, and manholes except immediately following a construction operation as noted below.

Prior to placement of paving, all manholes, monuments, and valves covered by paving, shall be clearly marked in white paint before the close of that work day. Throughout the construction process, the CITY shall have access to manholes, monuments, and valves within 48 hours of any operation affecting the manholes, monuments and valves.

A penalty of Fifty Dollars ($50) per each valve, monument, and manhole that is not raised, or that the CITY is not provided easy access to, will be assessed against the contractor for each calendar day.

3-26. WAGE RATES - The 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 1773.2. The CONTRACTOR can download this information from the web site: http://www.dir.ca.gov/dlsr/PWD/

The most current prevailing wage rates available at the time of bid opening shall be used.

3-27. STORAGE AREA – The Contractor is responsible to locate a suitable area for storage for materials. The project site has limited availability in areas used for storing of equipment and materials. Contractor shall field verify conditions and determine if area is adequate to facilitate work and storage. Any additional areas needed for storage are the responsibility of the Contractor.

3-28. SCADA OPERATION – The existing reservoir has a functioning SCADA antenna which communicates pressure readings from a pressure transducer at the site to the City Utility operations. The Contractor shall coordinate removal and relocation of equipment during the work.

3-29. CORROSION PROTECTION – The work includes removal of the existing impressed current corrosion protection for the tank. The Contractor shall coordinate with the City's corrosion protection specialist for placement of the new corrosion protection system.

3-30. RESERVOIR DEWATERING COORDINATION – The Contractor shall coordinate the dewatering operations with City staff. The tank shall be taken offline for a minimum of one week prior to dewatering of the tank, to allow for troubleshooting of SCADA operations. Upon direction from the Engineer, the Contractor shall commence dewatering operations. The Contractor is responsible for all work, equipment, pumps, materials and appurtenances used in the dewatering operations. The Contractor, to the extent possible, shall pump water from the existing reservoir into the system, to minimize the amount of water wasted or discharged.

SECTION IV

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

SECTION 01 11 00 – SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Project description.
   2. Description of bid items.
   3. Coordination.
   4. List of drawings.

1.02 RELATED SECTIONS

A. Contract General Conditions

B. Section 01 35 13 – Special Project Procedures

C. Section 01 14 00 – Work Restrictions and Coordination

1.03 PROJECT DESCRIPTION

A. The work specifically includes all work as represented by the Drawings, the Specifications and all other Contract Documents issued for construction and subsequent approved revisions and addenda.

B. The work generally includes removing all interior and exterior tank coatings, preparing all steel surfaces, and recoating per the specifications. Tank improvements will include the addition of steel handrailing on the roof, new roof vents, replacement of the level indicator, replacement of the interior ladder, replacement of roof rafter ties and minor piping improvements. Control and isolation valves will be replaced in the valve vault next to the tank. Electrical work will include a new electronics cabinet, intrusion switches and site lighting.

1.04 DESCRIPTIONS OF BID ITEMS

A. Bid Items are presented to indicate major categories of the work for purposes of comparative bid analyses and payment breakdown for monthly progress payments. Bid items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Bid Item (work phase) as shown and specified.

B. Quoted prices accepted by the Owner shall be held good and in effect until the Work is completed and accepted by the Owner, unless modified by Change Order.

C. Compensation for all plant, equipment, tools, materials, labor, service, travel, and incidentals, and for doing the work and all other items required to complete the Work in conformity with the Contract Documents will be included in the payment provided in this Section unless specifically excluded. No other compensation will be made except for the items listed in the Bid Proposal. Work for which no separate payment has been provided will be considered as a subsidiary obligation of the Contractor, and the cost therefore included in the applicable contract price for the item to which the work applies. All measurements of work done will be made by the Engineer. No adjustment in prices will be made where any quantities provided in the Item Description vary from actual quantities, unless the work described and shown in the Contract Documents has been modified by the Owner.

D. Base Bid Items

1. Mobilization and Demobilization: Mobilization shall include obtainment of all permits, bonds and insurance, moving of all equipment onto the site, temporary buildings if needed, and other construction facilities as required for the proper performance and completion of the work. Demobilization shall include, but not be limited to, removal of all equipment, unused materials, all temporary utilities, job trailers and all temporary communication facilities.
2. Interior Tank Coatings: This bid item shall include all labor, material, and equipment necessary to furnish, prepare and construct the interior coatings for the tank, rafters, interior of vents and hatches, tank interior piping including the mixing system, and internal tank appurtenances. The work shall generally include but not be limited to removal of existing coatings, surface preparation, abrasive blasting, handling of removed coatings and spent abrasive in accordance with all environmental and safety regulations regarding removal, handling, and disposal, cleaning, inspection, application of primer, intermediate and finish coats, stripe coating, curing, environmental controls in compliance with coatings manufacturer's recommendations including ventilation, temperature and humidity control, disinfection, testing, new manway gaskets and other work incidental thereto, complete in accordance with the Drawings and as specified herein.
3. Exterior Coatings: This bid item shall include all labor, material, and equipment necessary to furnish, prepare and construct the exterior coatings for the tank, tank exterior exposed piping, electrical cabinets, and external tank appurtenances including but not limited to hand railings, roof vents, hatches and manways and stairs. The work shall generally include but not be limited to removal of existing coatings, surface preparation, abrasive blasting, handling of removed coatings and spent abrasive in accordance with all environmental and safety regulations regarding removal, handling, and disposal, cleaning, inspection, application of primer, intermediate and finish coats, stripe coating, curing, environmental controls in compliance with coatings manufacturer's recommendations including ventilation, temperature and humidity control, testing, and other work incidental thereto, complete in accordance with the Drawings and as specified herein.

4. Valve Vault Improvements: This bid item shall include all labor, material, and equipment necessary to furnish, prepare and construct the improvements within the valve vault including replacing the following: 8-inch inlet control valve, 2 each 8-inch gate valves, 16-inch outlet check valve, 2 each 16-inch butterfly valves, 3-inch combination air release valve, and miscellaneous fittings and appurtenances. This item shall include the removal and disposal of valves and fittings to be replaced, all pipe and fittings required to install the valves in the vault, onsite operational adjustments and training by a manufacturer's technical representative for the control valve, protective coatings, removal of the irrigation pump, capping of irrigation pipes, testing, and other work incidental thereto, complete in accordance with the Drawings and as specified herein.
5. Tank Appurtenance Improvements: This bid item shall include all labor, material, and equipment necessary to furnish, prepare and construct the tank appurtenance improvements including the perimeter roof vents, perimeter roof handrailing, overflow pipe modifications, replacement of the level indicator, removal and replacement of the internal ladder, removal of the internal grated platform, modifications to the external and internal sensing piping including modification to include water sampling station, replacing expanded metal and screen for the center vent, new gaskets for hatches and manways, replacement of hand hole covers on the roof, handling and disposal of all items to be removed, welding, cutting, capping, pipe and fittings as necessary, and other work incidental thereto, complete in accordance with the Drawings and as specified herein.
6. Replace Rafter Ties: This bid item shall include all labor, material, and equipment necessary to remove, furnish, prepare and construct the replacement of rafter tie rods designated by the engineer for replacement after initial abrasive blasting including welding, and other work incidental thereto, complete in accordance with the Drawings and as specified herein.
7. Door Sheet: This bid item shall include all labor, material, and equipment necessary to cut out, store and replace the door sheet in the shell of the tank for equipment access to the interior, including but not limited to cutting, removal, temporary storage, replacement, full-penetration butt welding and complete radiographic testing of the full length of all associated welds complete in accordance with the AWWA D1---11, Section 11, the Drawings and as specified herein.
8. Electrical Work: This bid item shall include all labor, material, and equipment necessary to complete all electrical work, including but not limited to conduit, wiring, weather protective enclosures, replacing or adding intrusion switches, new electrical cabinet, removal and later replacement of cathodic protection devices and cabinet, removal of electrical cabinets for tank coating, replacing or relocating electrical components from old cabinet to new cabinet, site lighting, vault lighting and start-up, testing, and commissioning as required, complete in accordance with the Drawings and as specified herein.

Alternate Bid Item A. Seal Welding Roof Plates: This bid item shall include all labor, material, and equipment necessary to seal weld the bottom joints on all steel roof plates for the entire length of the joints including surface preparation and cleaning, lifting plates off the rafters as needed, welding, grinding and other work incidental thereto, complete in accordance with the Drawings and as specified herein.

Alternate Bid Item B. Steel Banding Around Bottom Shell Course: This bid item shall include all labor, material, and equipment necessary to furnish and install two steel bands completely around the exterior of the bottom shell course including rolled plate steel, delivery, surface preparation and cleaning, seal welding, grinding, removal and replacement of any appurtenances as necessary and other work incidental thereto, complete in accordance with the Drawings and as specified herein.

E. The work to be performed under these specifications is at the City of Petaluma's Manor Tank located on Manor Lane in Petaluma, California.

1.05 COORDINATION

A. Coordinate with operations and maintenance personnel to maintain uninterrupted operation of critical site equipment.

1.06 TANK SUMMARY TABLE

Year Constructed	1991
Nominal Capacity	2,000,000 Gallons
Shell Diameter	130 Feet
Shell Height	20 Feet
Shell Manways	2 each, 30-Inch Diameter
Knuckle Radius	3 Feet
Interior Columns (8" I-Beams)	1 Center, 5 Intermediate
Radial Rafters	10 Each
Roof Hatches	2 Each, 36x36 Inch
Roof Access	Circular Staircase with Intermediate Landing

1.07 PROJECT WORK ITEMS (MINOR ITEMS OMITTED)

1. Remove all coatings, prepare and recoat interior and exterior of tank.
2. Replace 8-inch inlet control valve in vault.
3. Replace 2-each 8-inch gate valves in vault.
4. Replace 16-inch outlet check valve in vault.
5. Replace 2-each 16-inch butterfly valves in vault.

6. Replace 3-inch combination air release valve in vault.
7. Modify control valve sensing lines and add water sampling station assembly.
8. Add duckbill check valve to end of 12-inch steel overflow pipe.
9. Remove internal ladder and replace with stainless steel ladder with new supports.
10. Remove internal grated platform.
11. Install new steel handrailing around perimeter of roof.
12. Install 3-each perimeter roof vents.
13. Replace level indicator.
14. Replace 13-each corroded rafter ties.
15. Electrical: replace two intrusion switches, add one intrusion switch, install new electrical cabinet, add site lighting and lighting in the valve vault.
16. Alternate Bid Items:
    A. Seal Weld the underside of the steel roof plates.
    B. Install two steel bands around the bottom shell course.

1.08 LIST OF DRAWINGS

A. The set of 10 (ten) Drawings is dated December, 2021. Drawings are as follows:

DWG. NO.	TITLE
1.	Cover Sheet
2.	Abbreviations, Legend & Notes
3.	Site Plan
4.	Details
5.	Details
6.	Details
7.	Electrical Symbols & Abbreviations
8.	Electrical Cabinet
9.	Electrical Typical Details
10.	Electrical Site Plan

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 1400 - WORK RESTRICTIONS AND COORDINATION

1.01 GENERAL

1.02 SUMMARY

A. Section includes:
   1. Restrictions on workdays and hours.
   2. Locating and protecting existing utilities.
   3. Project coordination between trades, including but not limited to, electrical and mechanical work on the Project.
   4. Partial occupancy requirements.

1.03 RELATED SECTIONS

A. Section 01 1100 – Summary of Work

B. Section 01 35 13 – Special Project Procedures

1.04 RELATED DOCUMENTS

A. Contract General Conditions.

1.05 CONTRACTOR USE OF SITE

A. The Contractor shall confine operations at Site to areas designated by Contract Documents, permits, ordinances, and laws.

B. The Contractor shall not unreasonably encumber Site with materials or equipment.

C. The Contractor shall assume full responsibility for protection and safekeeping of products stored on premises.

D. The Contractor shall move any stored products that interfere with operations of Owner or other contractor.

E. The Contractor shall coordinate parking, storage, staging, and work areas with Owner.

F. Contractor may use the area within the City property fence at the tank site for storage of equipment and materials.

1.06 WORKDAYS AND HOURS

A. All construction activity, except for emergency situations, will be confined to weekday daylight hours to minimize nuisances to surrounding residents. The days and hours of

work shall be confined to the hours of 7:00 AM to 6:00 PM Monday thru Friday. This restriction includes deliveries of materials and equipment and servicing of construction equipment on the project site. If special circumstances require construction outside these hours, the Contractor may request and the Owner may approve additional times as necessary.

B. Any work scheduled by the Contractor on non-working days (Saturdays, Sundays, and Owner Legal Holidays) shall be verified with the Owner at least 72 hours in advance. The Owner shall be reimbursed for project management and inspection work, at a personnel's standard charge out rate, for any work on non-working days and for overtime. Any work designated to have a special time frame shall be so noted on the drawings and/or elsewhere in these specifications and shall be excluded from this reimbursement.

1.07 EXISTING UTILITIES

A. Obtain the best available current information on location, identification and marking of existing utilities, piping, conduits and other underground facilities before beginning any excavation. The Owner has endeavored to determine the existence of utilities at the work site from the records of known utilities in the vicinity of the work. The positions of these utilities, as derived from such records, are shown on the drawings. The service connections to these utilities may not be shown on the drawings.

B. A minimum of 48 hours in advance of excavation activities, the Contractor shall contact the following parties to ascertain and verify the existence and location of utility lines and facilities and shall coordinate all work in accordance with the information obtained from such inquiries in order to prevent damage to such lines and facilities:

- Underground Service Alert (USA) (dial 1-800-642-2444 or dial 811);
- The Owner
- The utility owner.

C. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of existing service laterals or appurtenances when their presence can be inferred from the presence of other visible facilities, such as buildings, meters and junction boxes, on or adjacent to the work site.

D. The Contractor shall use extreme care when excavating or working in areas that may contain existing utilities, process piping, conduits or other underground facilities. Use careful potholing, hand digging and probing to determine the exact location of underground installation.

E. Some locations contain multiple pipes or conduits. Prior to performing any subsurface work, investigate, determine and prepare a plan to turn off or disconnect each utility

believed to be in the within 100 feet of the subsurface work in the event of an accidental breach of a utility conduit.

F. Where connections to existing utilities or other underground facilities is required or where new piping or conduits may cross or interfere with existing utilities or underground facilities, carefully excavate and uncover existing installations to a point one foot below the pipe or conduit to determine the actual elevation and alignment. Call the Owner's attention to differing existing conditions that may require a clarification or change.

1.08 PROJECT COORDINATION

A. General
   1. Coordinate the work; do not delegate responsibility for coordination to any subcontractor.
   2. Anticipate the interrelationship of all subcontractors and their relationship with the total work.
   3. Resolve differences or disputes between subcontractors and materials suppliers concerning coordination, interference, or extent of work between sections. The Contractor's decisions, if consistent with the Contract Documents, shall be final. The Engineer is not required to coordinate work and will not do so.
   4. Coordinate the work of subcontractors and material suppliers, so that their work is performed in a manner to minimize interference with existing operations at the site and to facilitate the progress of the work.
   5. Be responsible for providing anchorage, blocking, joining and other detailing as required to provide complete project.
   6. Do not obstruct spaces required by Code in front of electrical equipment, access doors, etc.
   7. Do not cover any piping, wiring, ducts, etc., until properly inspected and approved and until proper certificates have been issued.
   8. Coordination with Other Contracts: Coordinate work of this Contract with other contracts and contractors as appropriate.
   9. This work shall be coordinated with all associated work in a manner that will insure that all work will be accomplished as rapidly as the progress of the project will permit and so that no work will be delayed for want of associated work.

B. Electrical Coordination
   1. Work out all "tight" conditions involving work of various sections in advance before installation. If necessary, and before work proceeds in these areas, prepare supplementary drawings for review showing all work in "tight" areas.
   2. Provide supplementary drawings and additional work necessary to overcome "tight" conditions at no increase in contract price. Refer to Section 01 3300, Submittals.

1.09 PARTIAL OCCUPANCY/UTILIZATION REQUIREMENTS

A. Allow Owner to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work.

B. Possession, use of Work, and placement and installation of equipment by Owner shall not in any way evidence the completion of the Work or any part of it.

C. Unless caused by defect due to faulty construction, Contractor shall not be held responsible for damage to the occupied part of the Work resulting from Owner occupancy.

D. Make available, in areas occupied, on a 24-hour per day and 7-day per week basis if required, any utility services, in condition to be put in operation at the time of occupancy. Responsibility for operation and maintenance of said equipment shall remain with Contractor.

E. Use and occupancy by Owner prior to acceptance of Work does not relieve Contractor of its responsibility to maintain insurance and bonds required under the Contract until entire Work is completed and accepted by Owner.

END OF SECTION

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Furnish and install products specified, under options and conditions for substitutions stated in this Section.

1.02 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 33 00 – Submittal Procedures

1.03 PRODUCT LIST

A. Submit five (5) copies of complete list of major products which are proposed for installation.

B. Tabulate products by Specification Section number and title.

C. For products specified only by reference standards, list each such product:
   1. Name and address of manufacturer.
   2. Trade name.
   3. Model or catalog designation.
   4. Manufacturer's data:
      a. Reference standards.
      b. Performance test data.

1.04 CONTRACTOR'S OPTIONS

A. TRADE NAMES AND ALTERNATIVES: Whenever any material or equipment is specified by patent or proprietary name or by the name of the manufacturer, such specification shall be considered as used for the purpose of describing the material or equipment desired and shall be considered as if followed by the words "or acceptable equal", whether or not such words appear. In the event any material or equipment is specified by only one patent or proprietary name or by the name of only one manufacturer, it is for the purpose of standardization or because the Engineer knows of no equal. The Contractor may offer material or equipment with equal or better qualities of performance, operation, and maintenance in substitution for those specified which he considers would be in the Engineer's interest to accept. No offers for substitution will be acknowledged or considered from suppliers, distributors, manufacturers, or subcontractors.

   Any such offer shall be made in writing to the Engineer for his consideration at least four weeks in advance of the time at which the Contractor wishes to order the material or equipment for use in the work. The Contractor shall include with his offer sufficient

data, which together with any other data the Engineer may require, will enable the Engineer to assess the acceptability of the material or equipment. When the substitute equipment or material necessitates changes to or coordination with any other portion of the work, the data submitted shall include drawings and details showing all such changes and the Contractor shall perform these changes as a part of any acceptance of substitute material or equipment. The use of any material or equipment so offered will be permitted only after written acceptance of the Contractor's offer by the Engineer. Such acceptance by the Engineer shall not relieve the Contractor from full responsibility from the efficiency, sufficiency, and quality and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name. Between the dates of public notice of advertisement and the bid opening, the Owner will not, under any circumstances, review or entertain any proposals for the acceptability of equipment or materials for inclusion into the contract documents.

1.05 SUBSTITUTIONS

A. Catalog numbers and specific brands or trade names followed by the designation "or approved equal" are used in conjunction with material and equipment required by the Specifications to establish the standard of quality, utility, and appearance required.
   1. "Quality" features include, but are not limited to, materials and methods of construction, standards compliance, listings, ratings, corrosion resistant finishes, durability, reliability, and the local service organization's capabilities and responsiveness.
   2. "Utility" features include, but are not limited to, size, performance, capacity, quiet operation, efficiency, controllability, points of connection, and accessibility.
   3. "Appearance" features include, but are not limited to, size, color, finish, and other visual characteristics.
   4. Owner's Representative will accept in writing proposed substitutions that are, in the Owner's Representative's opinion, equal in quality, utility, and appearance to the material or equipment specified.
   5. All substitutions must be accepted in writing by the Engineer. Contractor shall submit to the Engineer, within thirty-five (35) days after the date of commencement specified in the Notice to Proceed, or prior to purchase and installation, a typewritten list containing a description of each substitute material or equipment.
      a. The thirty-five (35) day submittal period does not excuse Contractor from completing the Work within the Contract Time or excuse Contractor from paying liquidated damages if Final Completion is delayed.
      b. After end of that period, request of substitution will be considered only in case of product unavailability or other conditions beyond the control of Contractor and at no additional cost to the Owner.
      c. Product unavailability shall be verified in writing by manufacturer.
   6. If a request for substitution occurs after the identified period, the substitution may be reviewed at the discretion of the Engineer and the costs of such review, as approved by Owner, shall be borne by Contractor and will be deducted from the Contract Sum.

B. Product Options:

1. Wherever more than one (1) manufacturer's name or product is specified, the first-named product is the basis for the design and the use of alternative named manufacturer's products or substitutes may require modifications in the project design and construction. Products of any other manufacturer, named or unnamed, shall be considered as substitutions and submitted in accordance with the requirements for substitutions.
    a. For some products, manufacturers are listed under Part 2 in subsequent specification sections.
    b. For some products, manufacturer's catalog model numbers and tradenames are listed under detailed product descriptions or on the Drawings.
    c. If such alternatives are proposed by Contractor and are favorably reviewed by the Engineer, Contractor shall be responsible for all costs of any changes resulting from Contractor's proposed substitutions which affect other parts of the Work or the Work of separate Contractors, including the cost of the Engineer's additional services, testing, and permits thereby made necessary.
2. The Contract Documents do not purport that the specified product is a standard product of a named manufacturer, or that the named manufacturer's standard product is acceptable. Many products require special materials, construction, ratings, performance, testing, and controls and shall be considered one-of-a kind fabrications. Submit in accordance with the requirements for substitutions, any named product which deviates from specified materials, construction, ratings, listings, performance, controls, or other special features.

C. Requests for substitutions will only be considered if the Contractor submits the following:
    1. Complete technical data including drawings, specifications, samples, and test reports of the article proposed for substitution and any information required by the Engineer.
    2. Data described in Subparagraph D for the specified item for which substitution is proposed.
    3. Complete breakdown of costs, which shall include additional costs and savings generated by the proposed and shall indicate the amount to be deducted from the Contract Sum if the proposed substitution is accepted. Do not submit substitution requests if no savings is realized.
    4. Statement by the Contractor that the proposed substitution is in full compliance with the requirements of the Contract Documents and Applicable Code Requirement.
    5. List of other trades, if any, which may be affected by the substitution.
    6. If the proposed substitution requires that portions of the Project be redesigned or construction be removed to accommodate the substituted item, submit design and engineering calculations prepared by a properly licensed design professional. The Contractor shall bear all costs resulting from the substitution including any Work incurred by the Engineer to accommodate the substitution. Any such costs of the Engineer shall be approved prior to the Work involved by the Owner and the Contractor and shall be assessed as a Deductive Change Order.

7. If tests for the determination of quality and utility are required by the Engineer, they shall be made by a testing laboratory, with acceptance of the test procedure first given by the Engineer, and at the expense of Contractor.

D. Submit separate request for each substitution. Support each request with:
   1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
      a. Product identification, including manufacturer's name and address.
      b. Manufacturer's literature; identify:
         1) Product description.
         2) Reference standards.
         3) Performance and test data
      c. Samples, as applicable.
      d. Name and address of similar projects on which the product has been used, and date of each installation.
   2. Itemized comparison of the proposed substitution with product specified; list significant variations.
   3. Data relating to changes in construction schedule.
   4. Any effect of substitution on separate contracts.
   5. List of changes required on other work or products.
   6. Accurate cost with product cost data comparing proposed substitution with specified.
   7. Designation of required license fees or royalties.
   8. Designation of availability of maintenance service sources of replacement materials.

E. Substitutions will not be considered for acceptance and are invalid when:
   1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
   2. They are requested directly by a Subcontractor or supplier.
   3. Acceptance will require substantial revision to Contract Documents.
   4. Insufficient information is submitted.
   5. To match existing as designated after a manufacturer or model number.
   6. The Engineer may reject any substitutions not proposed in the manner and within the time prescribed above.
   7. Failure of Contractor to submit proposed substitutions for approval in the manner described above and within the time prescribed shall be sufficient cause for disapproval by the Engineer of any substitutions otherwise proposed

F. The Engineer may accept, in writing, proposed substitutions that are in the Engineer's opinion, equal in quality, utility, and appearance to the material or equipment specified, and result in an installation compliant with Owner Standards and result in a net contract savings after redesign and re-approvals.

G. Such acceptance shall not relieve Contractor from complying with the requirements of the Drawings and Specifications.

H. The Contractor shall be responsible that the substituted component fits the available space with no reduction in service access; that proper and correct piping and duct connections can be made; that adequate support and seismic bracing can be provided; and that substituted equipment and the systems they are a part of function in accordance with the intent of the Sequence of Operation.

I. Decision of the Engineer shall be final. If any proposed substitute is judged by the Engineer to be unacceptable, the specified item shall be provided. Further submissions will not be allowed unless directed by the Engineer.

1.06 CONTRACTOR'S REPRESENTATION

A. In making a formal request for substitution, Contractor represents that: upon the Owner's approval of a Change Order Proposal Request, the Engineer will issue a Change Order for signatures of the Owner and Contractor as provided in the Conditions of the Contract.
   1. He has investigated and determined that it is equal to, or superior, in all respects to that specified.
   2. He will provide same warranties for the substitution as for the product specified.
   3. He will coordinate installation of accepted substitution into the Work and will make such changes as may be required for the Work to be complete in all respects.
   4. He waives claims for additional costs caused by substitution which may subsequently become apparent

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
   1. Submittal schedule.
   2. Submittal procedures.
   3. Shop Drawings.
   4. Product Data.
   5. Samples
   6. Engineer's action.

B. Refer General Conditions for requirements for administrative submittals. Such submittals include, but are not limited to:
   1. Permits.
   2. Applications for payment.
   3. Performance and payment bonds.
   4. Insurance certificates.
   5. List of Subcontractors.

1.02 RELATED SECTIONS

A. General Conditions.

B. Section 01 25 00 – Substitution Procedures

C. Section 01 33 01 – Submittal List

1.03 SUBMITTAL PROCEDURES

A. Requirements for Submittals described herein rely upon the use of hard copies. Use of equivalent electronic means is also acceptable. Engineer reserves the right to convert any hard copy submittal to electronic (pdf) format for return to Contractor.

B. Coordination
   1. Coordinate preparation and processing of submittals with performance of construction activities.
   2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

3. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    a. The Engineer shall return without action any submittals requiring coordination with other submittals until related submittals are coordinated.
4. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
    a. See General Conditions for additional requirements.
    b. If an intermediate submittal is necessary, process the same as the initial submittal.
    c. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.

C. Place a permanent label or title block on each submittal for identification.
1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Include the following information on the label for processing and recording action taken:
    a. Project name
    b. Date
    c. Name and address of Engineer
    d. Name and address of Contractor
    e. Name and address of subcontractor
    f. Name and address of supplier
    g. Name of manufacturer
    h. Number and title of appropriate Specification Section
    i. Drawing number and detail references, as appropriate.

D. Submittal Transmittal
1. Package each submittal appropriately for transmittal and handling.
2. Transmit each submittal from Contractor to Engineer using a transmittal form.
    a. Record relevant information and requests for data.
    b. Record deviations from Contract Document requirements, including minor variations and limitations.
    c. Include Contractor's certification that information complies with Contract Document requirements.
3. Submittals received from sources other than the Contractor will be returned without action.

1.04 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale.

B. Highlight, encircle, or otherwise indicate deviations from the Contract Documents.

C. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

D. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
   1. Dimensions
   2. Identification of products and materials included.
   3. Compliance with specified standards
   4. Notation of coordination requirements
   5. Notation of dimensions established by field measurement.

E. Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 30" x 42".

F. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

1.05 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as:
   1. Manufacturer's installation instructions.
   2. Catalog cuts.
   3. Standard color charts.
   4. Roughing-in diagrams and templates.
   5. Standard wiring diagrams.
   6. Performance curves.

B. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

C. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
   1. Manufacturer's printed recommendations

2. Compliance with recognized trade association standards
3. Compliance with recognized testing agency standards
4. Application of testing agency labels and seals
5. Notation of dimensions verified by field measurement.
6. Notation of coordination requirements

D. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

E. Submit a copy of each required submittal. The Engineer will return an electronic copy marked with action taken and corrections or modifications required.

F. Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.
   1. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
   2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.06 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include:
   1. Partial sections of manufactured or fabricated components
   2. Cuts or containers of materials
   3. Color range sets
   4. Swatches showing color, texture, and pattern.

B. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to include the following:
   1. Generic description of the Sample
   2. Sample source
   3. Product name or name of manufacturer
   4. Compliance with recognized standards
   5. Availability and delivery time

C. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

D. Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

1. Preliminary submittals will be reviewed and returned with the Engineer's mark indicating selection and other action.

E. Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.

F. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

G. Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work.

H. Field Samples specified in individual Sections are special types of Samples.

I. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

1.07 ENGINEER'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer will review each submittal, mark to indicate action taken, and return promptly.

B. Compliance with specified characteristics is the Contractor's responsibility.

C. The Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. Final Unrestricted Release: Where submittals are marked "No Exceptions Taken," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
2. Final-But-Restricted Release: When submittals are marked "Make Changes Noted, See Comments," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections provided and requirements of the Contract Documents; final acceptance will depend on that compliance.
3. Returned for Resubmittal: When submittal is marked either "Revise & Resubmit, See Comments" or "Rejected", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    a. Do not permit submittals marked "Revise & Resubmit, See Comments" or "Rejected" to be used at the Project site, or elsewhere where Work is in progress.

b. Note: Any work performed prior to receiving a "No Exceptions Taken" response to the submittal shall be done at the Contractor's own risk.

D. The Contractor shall be allowed a maximum of two resubmittals for any part of the work where resubmittal is required.

1. In the event that the Contractor's submittal for a part of the work is returned for resubmittal more than two times, the Contractor shall bear the cost for the Engineer's review of any and all subsequent review of resubmittals for that part of the work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 01 – SUBMITTAL LIST

PART 1 GENERAL

1.01 SUMMARY

A. Shop Drawings, Product Data, Calculations, and Samples shall be submitted by the Contractor for review by the Engineer prior to delivery to the job site. Materials and services requiring submittals shall include but not be limited to the following:

1. Installer certifications including from the coatings manufacturer for application of submitted coatings
2. Grouts
3. Epoxy anchors
4. Structural metal items
5. Fabricated metal items
6. Steel banding
7. Guardrail
8. Hand hole covers
9. Welding plans and certifications
10. Coatings plan
11. Ventilation and containment plan
12. Abrasive blast media
13. Safety and health plans
14. Pipe and piping appurtenances
15. Valves and operators (all types)
16. Internal tank ladder
17. Level indicator
18. Roof vents
19. Electrical equipment
    a. Anchor/mounting details for all equipment
    b. Circuit breakers
    c. Conduit, wire, cable, junctions
    d. Pull boxes, junction boxes
    e. Receptacles and switches
    f. Wiring diagrams
    g. Terminating kits, lugs, and connectors for all conductors (Power, Control, and Indication)
    h. Intrusion switches

i. Cabinets
j. Lighting and mounting hardware

20. Testing procedures and testing results

1.02 RELATED SECTIONS

A. Contract General Conditions

B. Section 01 33 00 – Submittals

C. Section 01 33 01 – Submittal List

D. Section 01 70 00 – Project Close-Out

E. Section 03 60 00 – Grouts

F. Section 09 97 14 - Steel Tank Coating

G. Section 26 00 00– Electrical

H. Section 33 12 16 - Valves and Fittings

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 13 – SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes requirements for the following:
   1. Dust and Air Pollution Control
   2. Water from Cleaning Tank
   3. Disposal Operations
   4. Access
   5. Security

1.02 RELATED SECTIONS

A. General Conditions

B. Section 01 11 00 – Summary of Work

C. Section 01 14 00 – Work Restrictions and Coordination

D. Section 01 33 01 – Submittal List

E. Section 09 97 14 – Steel Tank Coating

1.03 DUST AND AIR POLLUTION CONTROL

A. Employ measures to avoid the creation of dust and air pollution.
   1. Limit equipment speed to 10 miles per hour in unpaved areas.
   2. Unpaved areas shall be wetted down, to eliminate dust formation, a minimum of twice a day to reduce particulate matter. When wind velocity exceeds 15 mph, site shall be watered down more frequently.
   3. Store all volatile liquids, including fuels or solvents in closed containers.
   4. No open burning of debris, lumber or other scrap will be permitted.
   5. Maintain equipment in good mechanical condition.

B. Limit dust emissions during periods of high winds (greater than 15 miles per hour).

C. Abrasive Blasting
   1. All dust, removed coatings and abrasive blast media shall be completely contained with no fugitive emissions per Bay Area Air Quality requirements and per SSPC Guide 6 Class 1A standards.

2. No dry abrasive blasting will be allowed without SSPC Guide 6 Class 1A containment.
3. Wet abrasive blasting (SSPC SP6 WAB) may be approved with approved liquid containment and using recycled water. City recycled water is available for pick up by the contractor at no cost to the contractor.
4. Self-contained wheel blast cleaning using recycled shot will be allowed with approved sealed debris containment and vacuum handling systems. See SSPC Guide 6, Section 5.1.9.2.

D. Coating Operations
1. Contractor to cover pavement and concrete around the tank and all City equipment on site to prevent unintentional coating or depositing of dry fall.
2. No coating of tank exterior shall be done when wind is above 10 mph.

1.04 DISPOSAL OPERATIONS

A. Solid Waste Management: supply solid waste transfer containers. Remove all debris such as spent air filters, oil cartridges, cans, bottles, combustibles, and litter. Take care to prevent trash and papers from blowing onto adjacent property. Encourage personnel to use refuse containers. Convey contents to a sanitary landfill.

B. Washing of containers where wastewater may reach adjacent property, storm drains or natural water courses will not be permitted. Remove any excess concrete to the sanitary landfill.

C. Chemical Waste and Hazardous Materials Management: furnish containers for storage of spent chemicals used during construction operations. Dispose of chemicals and hazardous materials in accordance with applicable regulations.

D. Garbage: store garbage in covered containers, pick up daily and dispose of in a sanitary landfill.

E. Dispose of vegetation, weeds, rubble, and other materials removed by the clearing, stripping and grubbing operations off site at a suitable disposal site in accordance with applicable regulations.

F. Water from Cleaning Tank
1. Contractor is responsible to collect and dispose off site all water from cleaning tanks.
a. Disposal shall be in compliance with all applicable water quality regulations.
2. Contractor shall submit to the Construction Observer a Plan for collecting and disposing tank wash water. Contractor shall not wash tank until the plan has been accepted in writing.

3. For disposal to the City of Petaluma Water Recycling Facility, the Contractor shall make a written request to the City.
   a. The Contractor shall obtain a Wastewater Discharge Permit for the City.
   b. The request shall include the approximate quantity to be disposed on a daily basis.
   c. The request shall include a list of chemicals used in cleaning the tank or otherwise introduced to the water, including MSDS for each.
   d. Upon favorable review of the request, the City will direct the Contractor as to which manhole(s) may be used for disposal.

G. Removed Coatings & Spent Abrasives:
   1. Handling and disposal of removed coating and spent abrasive materials shall comply with the requirements of Section 09 97 14 Steel Tank Coating.

H. Rubbish shall consist of all materials not classified as suitable materials or rubble and shall include shrubbery, trees, timber, trash and garbage.

1.05 ACCESS

A. The water tank is within a fenced and locked area. Arrangements for Contractor access will be made at the Pre-Construction meeting.

1.06 SECURITY

A. The areas where the tank improvements work will be performed are located within locked and fenced areas. The sites are accessible from public or private roads. The Contractor will be allowed to store items within the fenced areas, but the City will NOT assume liability for theft, damage or injury, which are the sole responsibility of the Contractor.

1.07 ELECTRICAL POWER

A. Contractor shall be responsible for providing power for all construction needs, including tank dehumidification.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 54 50 – SAFETY AND HEALTH

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Confined Space Entry

B. General Safety

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. General Conditions

B. Section 09 97 14 – Steel Tank Coating

1.03 SUBMITTALS

A. Accident Reporting: A copy of each accident report, which the Contractor or Subcontractors submit to their insurance carriers, shall be forwarded to the Construction Observer as soon as possible, but in no event later than seven (7) calendar days after the day the accident occurred.

B. Other Submittals: If agreed to in writing at the preconstruction safety meeting, other submittals shall be required. One such submittal that may be included is a plan of action for handling removed coatings and spent abrasive materials to contain the following:
   1. Number, type, and experience of employees to be used for the Work.
   2. Description of how safety and health regulations and standards shall be met.
   3. Type of protective equipment and work procedures to be used.
   4. Emergency procedures for accidental spills or exposures.

1.04 WORK IN AND AROUND TANKS

A. Confined spaces are defined by Title 8 Section 5157 of the California Code of Regulations. Conform to confined space entry requirements.

B. Provide head and face protection equipment and respiratory devices required to safely perform this work. Include applicable masks and air supply recommended by the manufacturer while performing blasting or application of the coating materials.

C. Provide and require the use of approved ear protection devices by personnel working in the areas of excess noise whenever the occupational noise exposure exceeds maximum allowable sound levels as specified by Cal OSHA requirements.

D. Include necessary worker and environmental protective methods and procedures for removal of coatings containing toxic metals, if present, and asbestos (if present) in conformance with applicable regulation, SSPC-6 guidelines, and the contract documents.

E. Temporary ladders and scaffolding shall conform to applicable safety requirements. Erect ladders and scaffolding where requested by the Inspector to facilitate inspection.

F. Failure to comply with health and safety laws, regulations, codes, permits and Standard Operation Procedures will be grounds for shutting down the Work. Costs resulting due to a shutdown of the Work that are due to the Contractor's negligence or failure to comply with applicable safety requirements shall be borne by the Contractor. After a shutdown of the Work, the Work will not be permitted to begin again until the Engineer is satisfied that all necessary health and safety precautions are being taken.

G. Flammable, volatile solvents in coating system components constitute a major hazard with regard to fire and explosions wherever flame or spark exposure is possible. Flames, smoking, and welding, etc., are strictly prohibited in work or storage areas. Fire abatement devices shall be readily available and in operating condition. Necessary precautions shall be taken to keep fire hazard to a minimum; all oily rags, waste and other combustibles not in covered containers shall be removed from the area daily. Coatings, solvents, thinners and related products shall be stored in conformance with applicable State, County and/or Local Fire Codes pertaining to flammable materials.

H. Tank Interior:
   1. Provide sufficient ventilation to keep solvent concentrations below the lower explosive limit. The blower capacity required to maintain vapor concentration below the lower explosive limit will be determined by the Contractor. Blowers will be suction type. Maintain ventilation during the entire application period and for at least 48 hours thereafter.
   2. Use of approved supplied air masks by workers in tanks and closely confined areas during the blast and cleanup operation is required. During the coating operation, use approved respiratory filters and masks. Provide one spare mask and respiratory filter readily available for use by the Construction Observer or Inspector. Mask manufacturers include the DeVilbiss Company, Toledo, Ohio and Mine Safety Appliances Co., Pittsburgh, Pennsylvania.
   3. Remove the solvent vapors from the tank by suction. Do not force air from the outside into the tank. The solvents in paint products are heavier than air and therefore tend to settle in the lowest part of the tank. In setting up the ventilation system, the most remote and the lowest areas should receive special attention. Continue ventilation until solvent vapors have been completely removed and the paint has completely cured.
   4. Use explosion proof and spark-proof equipment. Electric cable, motors and lighting equipment must be of an approved explosion-proof type. No electric junction boxes

should be permitted inside the tank. Drop lights used by the workmen must also be explosion proof. Workmen should be cautioned not to cut or stretch electric cables since sparks will result if the cable parts. Within the hazardous area all metal equipment and hand tools must be of a non-sparking type and workmen's shoes must have rubber soles and heels. All blast and spray equipment must be properly grounded.

5. Prohibit smoking, matches, flames or sparks of any kind.

I. Sound Level

1. Whenever occupational noise exposure exceeds maximum allowable sound levels, Contractor shall provide and require the use of approved ear protection devices.
2. Equipment shall be placed in locations or muffled in order to reduce exterior noise with respect to nearby residents. Noise shall not exceed 76 decibels at 10 feet from any of the generator, dehumidifier, compressors, and/or any other equipment. At the request of the Engineer, and in the presence of the Engineer, Contractor shall measure the noise level at 10 feet from any operating equipment, using a noise measuring instrument accepted by the Engineer.

J. Illumination

1. Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment.
2. Whenever required by the Engineer, Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected.

PART 2 PRODUCTS

2.01 GENERAL

A. Special facilities, devices, equipment, clothing, and similar items used by the Contractor in the execution of the Work shall comply with the applicable regulations.

2.02 HAZARDOUS MATERIALS

A. The Contractor shall bring to the attention of the Construction Observer or Engineer, any material suspected of being hazardous which he encounters during execution of the Work. The Inspector shall perform tests to determine if the material is hazardous. If the material is found hazardous and additional protective measures are needed, a Contract Change Order may be required, subject to the requirements of the General Conditions.

PART 3 EXECUTION

3.01 STOP WORK ORDERS

A. When the Contractor or its Subcontractors are notified by the Construction Manager of any noncompliance with the provisions of the Contract, and the action(s) to be taken, the Contractor shall immediately, if so directed, or within 48 hours after receipt of a notice of violation correct the unsafe or unhealthy condition. If the Contractor fails to comply promptly, all or any part of the work being performed may be stopped by the Inspector with a "Stop Work Order." When, in the opinion of the Inspector, satisfactory corrective action has been taken to correct the unsafe and unhealthy condition, a start order will be given immediately. The Contractor shall not be allowed any extension of time or compensation for damages by reason of or in connection with such work stoppage.

END OF SECTION

SECTION 01 70 00 – PROJECT CLOSE-OUT

PART 1 GENERAL

1.01 SUMMARY

A. Section specifies administrative and procedural requirements for project close-out, including but not limited to the following:
   1. Punchlist inspection procedures
   2. Spare parts/materials
   3. Submittal of warranties
   4. Submittal of permits and regulatory inspection reports
   5. Operations and maintenance manuals
   6. Commissioning/equipment testing and startup
   7. Record Documents Submittals
   8. Close-out procedures and final completion

1.02 RELATED SECTIONS

A. General Conditions

B. Section 01 11 00 – Summary of Work

C. Section 01 33 00 – Submittal Procedures

1.03 PUNCH-LIST INSPECTION

A. When each portion of the Work is, in the opinion of the Contractor, complete in all respects, the Contractor shall call for a punch-list inspection.

B. Inspection Procedures: On receipt of a request for inspection, the Engineer will schedule the Inspection. The Engineer will then perform a preliminary, walk-through. If, in the judgment of the Engineer, the project is not sufficiently complete in all respects, the Engineer will so advise the Contractor and discontinue the inspection.
   1. The Engineer will repeat inspection when requested and assured that the work has been completed.
   2. Results of the completed inspection will form the basis of requirements for final acceptance punch-list.

1.04 SPARE PARTS/MATERIALS

A. Submit all required spare parts and material required by the Contract Documents.

1.05 SUBMITTAL OF WARRANTIES

A. Submit all equipment and material warranties required by the Contract Documents.

1.06 PERMITS AND REGULATORY INSPECTION REPORTS

A. Submit a copy of each permit obtained for the project with all associated information including, but not limited to permit application forms, inspection reports, regulatory authorizations, Notice of Intent, and notice of completions.

1.07 OPERATIONS AND MAINTENANCE MANUALS

A. Submit three (3) sets to the Engineer for review and approval.

1.08 COMMISSIONING/EQUIPMENT TESTING AND STARTUP

A. Conduct all required equipment testing and startup to the satisfaction of the Owner and provide all testing and startup reports and forms.

1.09 RECORD DOCUMENTS SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire resistive location, provide access to documents for the Engineer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of black line, white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions full and accurately; where Shop Drawings are used, record a cross reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
   1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
   2. Mark new information that is important to the Engineer, but was not shown on Contract Drawings or Shop Drawings.
   3. Note related Change Order numbers where applicable.
   4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates, contact information and other identification on the cover of each set.
   5. Upon completion of the work, submit Record Drawings to the Engineer for further processing.

C. Record Specifications: Maintain one complete copy of the Project Specifications, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications. Give particular attention to substitutions, deviations, selection of options and similar information on elements that are buried, concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information ad Product data. Upon completion of the work, submit record Specifications to the Engineer for further processing.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CLOSE-OUT PROCEDURES – CLOSEOUT MEETING

A. The Engineer will call for a "Close-out" meeting approximately two to four weeks prior to the anticipated completion date.
   1. At this meeting a completion Action List will be prepared listing all major items required to be completed prior to the issuance of the Notice of Completion.
   2. The action-list shall assign an action-responsibility and a projected action-completion date to **each** item.
   3. The contractor shall be solely responsible for the timely completion of all required close-out items.

3.02 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for certification of acceptance of final completion submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Engineer.

B. Re-inspection Procedure: The Engineer will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections (punch-list), has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner.
   1. Upon completion of re-inspection, the Engineer will prepare and submit to the Owner, a recommendation of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final completion.

C. See additional requirements for final completion in the General Conditions.

END OF SECTION

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SECTION 01 74 10 – CLEANING

PART 1 GENERAL

1.01 SUMMARY

A. Work covered by this Section includes furnishing all labor, materials, equipment, tools, and incidentals and performing all operations to conduct clean-up activities and responsibilities during construction and prior to final acceptance.

1.02 RELATED SECTIONS

A. Section 01 35 13 – Special Project Procedures

B. Section 01 70 00 – Project Close-Out

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL PROCEDURES

A. The construction area shall be kept free of rubbish, waste materials, and packing materials. All waste materials shall be disposed of as soon as possible.

B. Easements, right-of-way and temporary access routes shall be kept free of all waste materials, unused pipe, excessive dirt and dust. Cleanup shall closely follow pipe laying and backfilling. Fences shall be protected during construction and repaired to the City's satisfaction immediately following site and underground construction. All large rocks, clods, broken pipe and unused materials shall be removed from the work site during construction and during final cleanup.

C. All structures shall be completely cleaned prior to final acceptance. All painted surfaces, including all piping and equipment shall be cleaned of all dirt, oil, smudges, etc.

D. Final cleanup shall include the removal and disposal of all foreign material, paint and paint chips, paper, rubbish, rocks, clods, excess pipe, asphalt, wood, metal, and all other excess miscellaneous construction material.

E. All asphalt pavement and concrete structures shall be washed with water and swept clean.

F. Repair any damage caused by construction activities to pavement, concrete structures or other appurtenances on the site.

3.02 SITE RESTORATION / CLEANUP

A. Remove all staging, scaffolding, abrasives, containers, etc., from the work site in a manner approved by the Engineer upon completion of the work. Dispose abrasive blast residue in a manner consistent with guidelines set forth by the U S Environmental Protection Agency (US-EPA) or California Environmental Protection Agency (Cal/EPA)

B. Remove and dispose of materials classified as hazardous Class 1 Landfill, or in a manner consistent with standards and guidelines set forth by the above-named agencies, or as directed by the Engineer.

C. Protect the public from hazardous materials found at the site. Remove and dispose of hazardous materials in accordance with all local, State, and Federal agencies' rules, regulations, laws, or ordinances, in existence at the time of the work.

D. Remove coating, paint spots and/or oil stains upon adjacent surfaces and clean the job site. Damage to surfaces and/or landscaping resulting from work in this section shall be cleaned, repaired, or refinished to the satisfaction of the Engineer, at no cost to the City.

END OF SECTION

SECTION 03 60 00 - GROUTS

PART 1 GENERAL

1.01 SUMMARY

A. The work covered in this section includes grout associated with the construction of the following:
   1. Concrete mortar.
   2. Grout.
   3. Drypack mortar.
   4. Non-shrink grout.
   5. Epoxy grout.
   6. Non-shrink epoxy grout.

1.02 RELATED WORK SPECIFIED ELSEWARE

1. Section 03 30 01 – Concrete and Reinforcement

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. C 109 - Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2 inch or 50 millimeter cube specimens).
   2. C 230 - Standard Specification For Flow Table For Use In Tests Of Hydraulic Cement
   3. C 531 - Test Method for Liner Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
   4. C 579 - Test Method for Compressive Strength of Chemical-Resistant Mortars and Monolithic Surfacings.
   5. C 827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
   6. C 939 - Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method).
   7. C 1090 - Test Method for Measuring Change in Height of Cylindrical Specimens from Hydraulic-Cement Grout.
   8. C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
   9. C 1181 - Test Methods for Compressive Creep of Chemical-Resistant Polymer Machinery Grouts.

1.04 SUBMITTALS

A. Non-Shrink Grout: Submit manufacturers literature and certified test data prior to installation.

1.05 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be delivered to the jobsite in their original, unopened packages or containers, clearly labeled with the manufacturer's product identification and printed instructions.
   1. All materials shall be stored in a cool dry place and in accordance with the manufacturer's recommendations.

B. All materials shall be handled in accordance with the manufacturer's instructions.

1.06 PROJECT/SITE CONDITIONS

A. Refer to manufacturer's literature or contact the manufacturer for any special physical or environmental limitations that may be required for use of products.

1.07 WARRANTIES

A. Non-Shrink Grout: The manufacturer shall warranty that the non-shrink grout will never go below its initial placement volume when tested in accordance with ASTM 01107.

B. Non-Shrink Epoxy Grout: The manufacturer shall warranty that non-shrink epoxy grout will show negligible shrinkage or expansion when tested in accordance with ASTMC531.

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete Mortar:
   1. General: Consist of concrete mixture with coarse aggregate removed and water quantity adjusted as required.
   2. At Exposed Concrete Surfaces Not to Be Painted or Submerged in Water: White cement.

B. Grout:
   1. Consist of mixture of Portland cement and sand.

C. Dry-Pack Mortar:
   1. Consist of mixture of Portland cement and sand.

D. Non-Shrink Grout:
   1. Manufacturers: One of the following or equal:
      a. Five Star Products, Inc., Fairfield, CT, Five Star Fluid Grout 100.
      b. BASF Building Systems, Shakopee, MN, Masterflow 928.
   2. Non-shrink grout shall be a pre-portioned and prepackaged cement-based mixture. It shall contain no metallic particles such as aluminum powder and no metallic aggregate such as iron filings. It shall require only the addition of potable water.
   3. Potable water for pre-soaking, mixing, and curing shall be clean and free of oils, acids, alkalis, organics, and any other deleterious matter.
   4. Bleeding: Non-shrink grout shall be free from the emergence of mixing water from within or the presence of water on its surface.
   5. Non-shrink grout shall be in accordance with ASTM C 1 107.
   6. Consistency: Non-shrink grout shall remain at a minimum flowable consistency for at least 45 minutes after mixing at 45 degrees Fahrenheit to 90 degrees Fahrenheit when tested in accordance with ASTM C 230. If at a fluid consistency, it shall be verified in accordance with ASTM C 939.
   7. Dimensional Stability (height change): Non-shrink grout shall be in accordance with ASTM C 1107, volume-adjusting Grade B or C at 45 degrees to 90 degrees. It shall show 90 percent or greater bearing area under bases or baseplates.
   8. Compressive Strength: Non-shrink grout shall show minimum compressive strengths at 45 degrees Fahrenheit to 90 degrees Fahrenheit in accordance with ASTM C 1107 for various periods from the time of placement, including 5,000 pounds per square inch at 28 days when tested in accordance with ASTM C 109 as modified by C 1107.

E. Epoxy Grout:
   1. Consist of mixture of epoxy and sand.
   2. Sand: Clean, bagged, graded, and kiln dried silica sand.

F. Non-Shrink Epoxy Grout:
   1. Manufacturers: One of the following or equal:
      a. Five Star Products, Inc., Fairfield, CT, Five Star Epoxy Grout.
      b. Master Builders, Inc., Cleveland, OH, Masterflow 648 CP Plus.
      c. L&M Construction Chemicals, Inc., EPOGROUT.
   2. Non-shrink epoxy grout shall be a 100 percent solids, premeasured, prepackaged system containing a two-component thermosetting epoxy resin and inert aggregate.
   3. Consistency: Non-shrink epoxy grout shall maintain a flowable consistency for at least 45 minutes at 70 degrees Fahrenheit.
   4. Dimensional Stability (height change):

a. Non-shrink epoxy grout shall have negligible shrinkage or expansion (less than 0.0006 in/in) when tested in accordance with ASTM C 531.

5. Compressive Strength: Non-shrink epoxy grout shall show a minimum compressive strength of 1 0,000 pounds per square inch at 24 hours and 14,000 pounds per square inch at 7 days when tested in accordance with ASTM C 579, Method B.
6. Compressive Creep: The compressive creep for non-shrink epoxy grout shall not exceed 0.0027 in/in when tested under a 400 pounds per square inch constant load at 140 degrees Fahrenheit in accordance with ASTM C 1181
7. Thermal Capability: The coefficient of thermal expansion for non-shrink epoxy grout shall not exceed 0.000018 inches per inch per degree Fahrenheit when tested under ASTM C 531, Method B.

2.02 MIXES

A. Concrete Mortar Mix:
   1. Use water-cement ratio that is no more than that specified for concrete being repaired.
   2. At Exposed Concrete Surfaces Not to Be Painted or Submerged in Water: Use sufficient white cement to make color of finished patch match that of surrounding concrete.

B. Grout Mix:
   1. For Concrete Repair: Mix in same proportions used for concrete being repaired, with only sufficient water to give required consistency for spreading.
   2. For Spreading over the Surfaces of Construction or Cold Joints: Mix with no more water used than allowed by water-cement ratio specified for concrete.
   3. For Other Applications: Mix in proportions by weight of one part cement to four parts of concrete sand.

C. Dry-Pack Mortar Mix: Use only enough water so that resulting mortar will crumble to touch after being formed into ball by hand.
   1. Non-Shrink Grout: Mix in accordance with manufacturers installation instructions such that resulting mix has fluid or flowable consistency and is suitable for placing by pouring.

D. Epoxy Grout:
   1. Mix in accordance with manufacturer's installation instructions for mixing.
   2. Proportioning:
      a. For horizontal work, consist of mixture of one part epoxy as specified in Section 03071 with not more than 2 parts sand.
      b. For vertical or overhead work, consist of 1 part epoxy gel as specified in Section 03071 with not more than 2 parts sand.

E. Non-Shrink Epoxy Grout: Mix in accordance with manufacturer's installation instructions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspect concrete surfaces to receive grout or mortar and verify that they are free of ice, frost, dirt, grease, oil, curing compounds, paints, impregnations and all loose material or foreign matter likely to affect the bond or performance of grout or mortar.

B. Inspect baseplate and anchor systems for rust, oil, and other deleterious substances that may affect the bond or performance of grout.

C. Confirm that newly placed concrete has been cured sufficiently to attain its design strength and limit further shrinkage.

D. Verify that temperature of cementitious grout does not exceed manufacturer's recommendations.

3.02 PREPARATION

A. Surface Preparation:
   1. Roughen all concrete surfaces by heavy sandblasting, chipping, or other mechanical means to assure bond. Loose or broken concrete shall be removed.
   2. All grease, oil, dirt, curing compounds, laitance, and other deleterious materials that may affect bond that were identified in the inspection process shall be completely removed from concrete and bottoms of baseplates.
   3. For cementitious mortars and grouts, concrete surfaces shall be saturated surface dry. Any standing water shall be removed prior to placing grouts.

B. Forms and Headboxes for Grouts (Cementitious):
   1. Forms for grouts shall be built of material with adequate strength to withstand the placement of grouts.
   2. Forms must be rigid and liquid tight. All cracks and joints shall be caulked with an elastomeric sealant. All forms shall be lined with polyethylene for easy grout release. Forms carefully waxed with two coats of heavy-duty paste wax shall also be acceptable.
   3. Forms shall be 4 to 6 inches higher than the baseplate on one side of the baseplate configuration when using head pressure for placement.
   4. A sufficient number of headboxes shall be built to facilitate placement of grouts.
   5. Air relief holes a minimum 1/8 inch in diameter shall be provided when required by a baseplate configuration to avoid entrapping air underneath.

3.03 APPLICATION

A. Cement Mortar and Grout:
   1. For Defective Concrete Repair:
      a. Filling: Filling of voids around items through the concrete.
      b. Grout Spreading: Spread over construction joints, cold joints, and similar type items.
   2. Concrete Surfaces:
      a. Apply epoxy bonding agent to clean, roughened, and dry surfaces before placing mortar or grout.
   3. Placing:
      a. Exercise particular care in placing Portland cement mortar or grout since they are required to furnish structural strength or impermeable water seal or both.
      b. Do not use cement mortar or grout that has not been placed within 30 minutes after mixing.

B. Epoxy Grout:
   1. Apply in accordance with manufacturer's installation instructions.
   2. Use where specified herein or where indicated on the Drawings.

3.04 PLACEMENT

A. The CONTRACTOR shall make arrangements to have a grout manufacturer's representative present for a preconstruction meeting and during initial grout placement. Grout shall only be installed after the final equipment alignment is correct and accepted by the ENGINEER.
   1. Grouts shall be mixed in accordance with the manufacturer's recommendations.
   2. A mortar mixer with moving paddles shall be used for mixing grouts. For cementitious grouts, pre-wet the mixer and empty out excess water before beginning mixing.
   3. Cementitious Grouts:
      a. Non-shrink cementitious grout shall be added to a premeasured amount of water that does not exceed the manufacturer's maximum recommended water content.
      b. Mix cementitious grouts per manufacturer's instructions for uniform consistency.
      c. Grouts may be dry packed, flowed, or pumped into place. All baseplate grouting shall take place from one side of a baseplate to the other to avoid trapping air. Do not overwork grouts.
      d. Do not retemper grout by adding more water after stiffening.
      e. Hydrostatic head pressure shall be maintained by keeping the level of the grout in the headbox above the bottom of the baseplate. The headbox should be filled to the maximum level and the grout worked down to top of baseplate.

4. Epoxy Grouts:
    a. Epoxy grouts shall be mixed in complete units. Do not vary the ratio of components or add solvent to change the consistency of the mix.
    b. Pour the hardener into the resin and mix for at least one minute and until each mixture is uniform in color. Pour the chemical components into the mortar mixer wheelbarrow and add the aggregate. Mix until aggregate is uniformly wetted. Overmixing will cause air entrapment in the mix.
    c. All epoxy grouts shall be flowed into place using a headbox. All grouting shall take place from one side of a baseplate to the other in a continuous flow to avoid trapping air.
    d. Hydrostatic head pressure shall be maintained by keeping the level of grout in headboxes above the bottom of baseplates. Headboxes shall be filled to the maximum level and grout worked down to the bottom of baseplates.
    e. Epoxy grouts shall not be cut back after setting. The final level of grout will be as installed with all chamfer edges built into the formwork.

3.05 CURING

A. Cementitious Grouts:
    1. Grouts must be cut back to the lower edge of baseplates after reaching initial set. Provide a 45-degree angle cut back.
    2. Clean equipment and tools as recommended by the grout manufacturer.
    3. Cure grouts in accordance with manufacturer's specifications and recommendations. Keep grout moist for a minimum of 3 days. The method needed to protect grouts will depend on temperature, humidity, and wind. Wet burlap, a soaker hose, sun shading, ponding and, in extreme conditions, a combination of methods shall be employed.
    4. Grouts shall be maintained above 40 degrees Fahrenheit until they have attained a compressive strength of 3,000 pounds per square inch or above 70 degrees Fahrenheit for a minimum of 24 hours to avoid damage from subsequent freezing.

B. Epoxy Grouts:
    1. Cure grouts in accordance with manufacturers' specifications and recommendations. Do not wet cure epoxy grouts.
    2. Consult the manufacturer for appropriate cure schedule. In no case should any surface in contact with grout be allowed to fall below 50 degrees Fahrenheit for a minimum of 48 hours after placement.
    3. Equipment and tools shall be cleaned immediately with a strong liquid detergent and water solution before grout hardens.

3.06 FIELD QUALITY CONTROL

A. Non-shrink cementitious grouts shall be tested for 24-hour compressive strength in accordance with ASTM C 109.

B. Non-shrink grouts shall be tested for 24-hour compressive strength in accordance with ASTM C 579 (Method B).

END OF SECTION

SECTION 05 05 23 - MISCELLANEOUS METALS

PART 1 GENERAL

1.01 DESCRIPTION

A. The Work includes, but is not necessarily limited to, the furnishing and installing of miscellaneous metals, guardrails, fasteners, and galvanized finishes for exterior items, as indicated on the Drawings and specified herein.

1.02 RELATED REQUIREMENTS

A. Section 09 97 14: Steel Tank Coating

1.03 QUALITY CONTROL

A. Codes and standards: Comply with the provisions of the following codes, standards, and specifications, except as otherwise shown and specified.
   1. AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Building", including "Commentary on the AISC Specification."
   2. AISC "Specification for the Design of Cold-formed Steel Structural Members."
   3. AWS "Code for Welding in Building Construction."
   4. ASTM A6 "General Requirements for Delivery of Rolled-Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."
   5. AWWA D100-11

B. Welding procedures, welders, welding operation, and tackers shall be qualified in accordance with the AWS "Code for Welding in Building Construction", D1.0.
   1. Comply with AWS publication, "Welded Zinc Coated Steel" for galvanized products.
   2. Verify exact dimensions by field measurements.
   3. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. Contractor shall comply with general requirements for materials, design, shop fabrication, erection, welding, testing and accessories of the AWWA Standards for Welded Carbon Steel Tanks for Water Storage, Designation ASWWA D100-11.

D. Welding inspections shall be under the direction of the City, and, as they require, by inspectors representing the City of Petaluma.

1.04 SUBMITTAL

A. Procedures: In accordance with Section 01 33 00.

B. Shop Drawings: Submit large-scale drawings for the fabrication and erection of all assemblies, which are not completely shown on the Drawings.
   1. Include plans and elevations; include details of sections and connections; and show anchorage and accessory items.
   2. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices.
   3. All welds, both shop and field, shall be indicated by AWS "Welding Symbols."
   4. Welding procedures.
   5. Hardware cut sheets.

C. Product Data: Manufacturer's specifications, load tables, dimensions, diagrams, anchor details, and installation instructions for products to be used in the fabrication of Work, including paint products.

D. Reports certifying that welding procedures, welder and welding operators are qualified, prior to any construction.

E. Welding procedures for review prior to start of welding.

F. Copies of test results for Procedure and Welder Certification properly certified in accordance with Section 8 of AWWA Standard D100-11.

PART 2 PRODUCTS

2.01 MATERIALS

A. Standard structural steel shapes, bars and plates: ASTM A36.

B. Steel plate to be bent or cold formed: ASTM A283, Grade C.

C. Cold-drawn steel tubing: ASTM A500.

D. Typical unfinished bolts, nuts, eyebolts and washers: Low carbon steel standard fasteners, externally and internally threaded, ASTM A-307; malleable washers.

E. Expansion Bolts:
   1. Reverse cone, self-wedging, expansion type made by HILTI Kwik-Bolt, or approved equal. Tightening of nut or increased tension on bolt shank shall act to force wedges

outward to create positive increased resistance to withdrawal. All expansion bolts shall be drill-in type, sizes as recommended by the item manufacturer.

F. Welding Electrodes: In accordance with AWS D1.1.

G. Primer: FS TT-P-645 (Zinc-chromate) or TT-P-86 Type I (alkyd type), <200 V.O.C. Primer shall be compatible with finish paint requirements.

H. Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, complying with DOD-P-21035A.

I. Zinc for Galvanizing: ASTM B6.

J. Non-metallic, shrinkage-resistant grout: Pre-mixed non-metallic, non-corrosive product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water educing agents, complying with CRD C-621 Grades B or C.

2.02 FABRICATION

A. Preparation:
1. Coordinate with other Work supporting or adjoining metal fabrications and verify requirements for cutting out, fitting, and attaching.
2. Verify sizes, designs, and location of items.

B. General Requirements:
1. Materials, sizes, connections, fasteners, and anchors shall be shown or specified. When materials, sizes, connections, fasteners, and anchors are not shown or specified they shall be of good commercial quality, suitable in all respects for the intended purpose and in accordance with established professional standards.
2. Miter corners and angles of frames unless otherwise shown or specified.
3. Perform cutting, shearing, drilling, punching, threading, tapping as required.
4. Drill or punch holes; do not use cutting torch.
5. Remove burrs resulting from cutting or punching.
6. Insure shearing and punching leaves true lines and surfaces.
7. Items to be galvanized: Items which will be exposed to weather in the completed work or as shown, using hot-dip process after fabrication.
8. Fabricate exterior items for assembly and installation on site without field-welding of joint.
9. Insure metal thickness and assembly details provide ample strength and stiffness.
10. Size sleeves for approximately 1/4-inch clearance all around.

C. Fastening:

1. Provide fasteners and anchor assemblies required for complete fabrication, field assembly, and erection.
2. Size internally threaded diameters to accommodate threaded bolts where galvanizing is required.
3. Weld permanent connection in ferrous metal items wherever practicable; avoid bolts and screws.

D. Welding:
1. Use electric shield-arc process according to AWS D1.1.
2. Maintain shape and profile of welded item.
3. Prevent heat blisters, run-through, and surface distortions.

E. Bolted and Screwed Connection:
1. Use bolts for field connections only, and then only as specified. Countersink heads; finish smooth and flush, where appropriate.
2. Where necessary to use screws for permanent connections in ferrous metal, use flat-head type, countersink, fill screw slots, and finish smooth and flush.

2.03 FABRICATED ITEMS

A. Roof Guardrail
1. Guardrails shall be installed on the full perimeter of the tank roof and comply with all Cal OSHA safety regulations.
2. Rails: 3 each horizonal rails, equal spaced vertically, of 1-1/4-inch standard weight steel pipe, shall be rolled to match the required radius with all welded assembly. Top rail shall be 3-foot 6-inches above the top of the tank roof.
3. Posts shall be ¼-inch steel flat bar bent into compatible structural shape or 1-1/4-inch standard weight steel pipe, no more than 7 feet apart. Posts shall be welded to the roof directly or with steel doubler plates per accepted shop drawings.
4. Toe Guard: 4-inch x ¼-inch thick steel flat bars are to be rolled to match the railing radius and welded to the posts with ¼-inch vertical gap between the toe guard plate and the roof.
5. All welds shall be minimum 3/16-inch fillet seal welds with all tight spaces filled.
6. Guardrail will be located 6-inches inside the perimeter of the roof plates (top of the knuckle) and rails and toe plates shall be rolled to match this radius.
7. Roof guardrails shall be prepared and coated per the tank exterior coating schedule in Section 09 97 14 Steel Tank Coating.
8. Contractor shall submit detailed shop drawings for the guardrails.

B. Miscellaneous metal fabricated items are not necessarily individually described. Provide all miscellaneous items not described as required to complete metal fabrications Work.

C. Miscellaneous Metal: Provide all miscellaneous steel angles, channels, plates and shapes, threaded rods, pipe, bolts, nuts, washers, spacers, and fastenings shown or required to complete the Work.

2.04 FINISHES

A. Preparation of Surfaces:
   1. Thoroughly clean mill scale, rust, dirt, grease and other foreign matter from ferrous metal prior to galvanizing, hot phosphate treatment of painting.
   2. Prior to installation apply protective coating to separate dissimilar materials.

B. Hot Phosphate Treatment: Conform to SSPC-PT-4.

C. Galvanizing:
   1. Galvanize items after fabrication in largest section practicable, unless otherwise permitted or recommended by ASTM A123.
   2. Where galvanizing is removed by welding or other assembly procedures, touch up abraded areas with molten zinc or zinc-rich paint.
   3. Where ferrous metal item is shown or specified to be galvanized, perform galvanizing in accordance with the following standards as applicable:
      a. Hardware items including fasteners: ASTM A153.
      b. Items under 1/8-inch thickness and fabricated from rolled, pressed and forged shapes, plates, bars and stripes: ASTM A386.
      c. Other fabricated items: ASTM A123.
   4. Plug relief holes exposed by tapping and installing IPS plug and Teflon tape.

D. Finish schedule: Unless items are furnished factory finished.
   1. Ferrous Metal, Interior Items:
      a. Concealed: Clean, chemically etch and shop apply one (1) prime coat.
      b. Exposed: Clean, treat with hot phosphate, chemically etch, and shop apply one (1) prime coat. Finish as specified in 09 97 14: Steel Tank Coating.
      c. Hardware and Fasteners: Cad plated or electro-plated.
   2. Ferrous Metal, Exterior Items:
      a. Concealed: Clean and hot-dip galvanize in accordance with galvanizing standard.
      b. Exposed: Clean, then hot-dip galvanize in accordance with galvanizing standards. Finish as specified in 09 97 14: Steel Tank Coating.
      c. Hardware and Fasteners: Stainless or hot dip galvanized.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas to receive Work and verify that setting conditions and dimensions are satisfactory to receive items.

B. Do not start installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Bottom joints between roof plates on the tank shall be seal welded for the entire length of the joint. Lift roof plates over rafters as required to complete seal welding.

B. Install Work plumb, true, rigid, and neatly trimmed out.

C. Do not tighten fastener through finish without spacer washers.

D. Install concrete inserts or expansion bolts in predrilled holes for fastening items into concrete.

E. Fasten Work tightly to prevent rattle or vibration except where expansion-contraction tolerances are required.

F. Use non-shrink grout mixed in accordance with manufacturer's directions for setting bolt plates and similar items.

G. Set items shown or required to be installed in sleeves with quick-setting anchor cement unless otherwise specified.

H. Touch-up Painting:
   a. Immediately after erection, clean field welds, bolted connections, and abraded area of shop paint and paint all exposed areas with same materials as used for shop painting.
   b. Apply by brush or spray to provide minimum dry-film thickness of 2.0 mils.
   c. Touch up galvanized surfaces in accordance with AHDGA publication, "Recommended Practice for Touch-up of Damaged Galvanize Coating."

I. Protect metal from damage to surface, profile, and shape.

END OF SECTION

SECTION 09 97 14 – STEEL TANK COATING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. Perform work on the following tank: Manor Tank.
2. Remove existing interior coatings.
3. Prepare interior surfaces for coating in accordance with SSPC-SP 10/NACE No. 2 Near White Blast Cleaning
4. Provide and install interior protective coating system, NSF 61 approved for potable water use.
5. Remove existing exterior coatings on tank and appurtenances.
6. Prepare exterior surfaces for coating in accordance with SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning.
7. Provide and install protective exterior coating system.
8. Provide and install protective coating system for stairs, access platforms, handrails, piping and other tank appurtenances.
9. Provide surface preparation, waste disposal, and pretreatment, coating application, touch-up, protection of surfaces not to be coated, cleanup and appurtenant work.

B. The Contractor shall employ methods of removal and demolition of the existing tank appurtenances, surface preparation for welding and recoating that prevents any airborne transmission of paint materials.

1. The Contractor is required to submit work plans to the Engineer for the removal of coatings. No metal work, or removal of existing paint shall occur prior to review of the plans by the Engineer.

C. The following surfaces shall not be coated unless otherwise indicated.

1. Concrete
2. Stainless steel
3. Machined surfaces
4. Grease fittings
5. Glass
6. Equipment nameplates

1.02 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 01 14 00 – Work Restrictions and Coordination

C. Section 01 35 13 - Special Project Procedures

D. Section 01 54 50 – Safety and Health

E. Section 01 74 10 – Cleaning

F. Section 33 13 13 – Water Storage Tank Disinfection.

1.03 REFERENCES

A. Codes: All Work shall comply with all codes, as referenced herein.

B. Commercial Standards:
   1. The Society of Protective Coatings (SSPC)
   2. National Association of Corrosion Engineers (NACE)
   3. American Society for Testing Materials (ASTM)
   4. American Water Works Association (AWWA/ANSI)
      a. AWWA/ANSI D102 Coating Steel Water Storage Tanks
   5. National Sanitation Foundation (NSF)
      a. NSF/ANSI 61 – Drinking Water System Components
   6. American National Standards Institute (ANSI)
      a. NSF/ANSI 61 – Drinking Water System Components

1.04 DEFINITIONS

A. Paint, Coatings and Finishes: Surface treatments, emulsions, enamels, paints, epoxy resins, and other protective coatings, except galvanizing or anodizing, whether used as a pretreatment, primer, intermediate coat, or finish coat.

B. DFT: dry film thickness.

1.05 SUBMITTALS

A. Coating Manufacturer's Instructions: Include the following:
   1. Special requirements for transportation and storage.
   2. Mixing instructions.
   3. Shelf life.
   4. Pot life of material.
   5. Precautions for applications free of defects.
   6. Surface preparation.

7. Method of application.
8. Ventilation Plan.
9. Recommended number of coats.
10. Recommended dry film thickness (DFT) of each coat.
11. Recommended total dry film thickness (TDFT).
12. Drying time of each coat, including prime coat.
13. Required prime coat.
14. Compatible and non-compatible prime coats.
15. Recommended thinners, when recommended.
16. Limits of ambient conditions during and after application.
17. Time allowed between coats (minimum and maximum).
18. Required protection from sun, wind and other conditions.
19. Touch-up requirements and limitations.
20. Statements on the suitability of the material for the intended use.
21. Safety data sheets.
22. Standard and custom color options.

B. NSF/ANSI 61 certification for interior coatings

C. Shop Drawings: Self-contained coating removal machine, forced heating, dehumidification, ventilation equipment specifications, dust collector, interior and exterior scaffolding, and enclosure to prevent fugitive dust, if used.

D. Work plans for the removal, handling and disposal of coatings and related personnel protection and safety for the removal of coatings.

E. Samples:
   1. Coating systems on a 3-inch by 3-inch steel sample representative of the existing conditions of the tank. Coat steel samples to match tank coating requirements. Label samples with the coating type, application method and dry film thickness.
   2. Provide samples for each batch of material to be used on the project.
   3. Provide manufacturer's certification that the batches provided as samples match the batches supplied to the job site. Failure to do this may result in rejection of the finished work by the City, and removing and re-applying the coating again at the Contractor's expense.
   4. Provide manufacturer's standard details for coating over joints/cracks, pipe penetrations and edge terminations.

F. Coatings Removal Plan: Submit plan for removal of existing coatings no less than 30 days prior to the removal of any coating including:

1. Sampling program to establish baseline environmental conditions in the area where coatings removal will occur.
2. Detailed procedure for removal of the coatings, including methods of removal, containment, and environmental and personnel monitoring during the work.
3. Sampling and testing of the coatings material to determine whether it constitutes a hazardous waste.
4. Methods of clean up and disposal of the removed coatings and abrasive blast material in accordance with applicable laws.
5. Post-removal sampling of the area to verify complete cleanup.

G. Coating, See Section 01 54 50 for additional information.

H. Abrasive Blasting: Dispose of residual waste from abrasive blasting and painting in compliance with state, federal and local regulations. Cover openings to keep abrasive or paint from entering or exiting tank.

I. Safety Requirements: State, Federal, and local regulations. Personnel and equipment are subject to safety inspections as deemed necessary by the City.

1.06 QUALITY ASSURANCE

A. Protective Coating Materials
   1. This specification is based on products manufactured by Tnemec Company, Inc.

B. Substitute or "Or-Equivalent" Submittals
   1. Substitute materials are acceptable if they are equivalent in quality and performance. Provide complete manufacturing documentation proving material meets the project requirements. Provide testing and analysis for proposed substitute materials (as required by the Engineer) at no additional cost. Provide changes in the work that the substitution requires at no additional cost. See Section 01 25 00 Substitution Procedures.

C. Qualifications of the Coating Contractor:
   1. State of California Class A Contractor's license. Provide copy of license and certifications.
   2. Three references which verify that the coating contractor has demonstrated successful application of the specified coating systems in the past three years. Provide the name, address and telephone number of a reference person at the location of each installation.
   3. The coatings contractor shall possess and provide a copy of an SSPC-QP1 and QP2 certification.

4. Provide manufacturer written certification that the coating contractor's supervisor and each applicator performing work on the project have been trained and approved by the manufacturer to apply the selected coating system.
5. Provide written certification from the contractor stating that they are qualified and experienced in the application of the specified coating systems.
6. Conform to State and Federal laws and regulations regarding all facets of removing and disposing of coatings. Abide by laws and regulations associated with the removal and disposal of coatings.

1.07 PERMITS, CERTIFICATES, LAWS AND ORDINANCES

A. Procure permits, certificates, and licenses required by law for the execution of the work. Comply with all Federal, State, Air Quality District, County, or City laws, ordinances, or rules and regulations relating to the performance of the work.

B. Conform to National Association of Corrosion Engineers (NACE), The Society of Protecting Coatings (SSPC), Association of Materials Protection and Performance (AMPP), American Water Works Association (AWWA), and coating manufacturer's printed instructions for surface preparation and painting of surfaces.

1.08 DELIVERY, STORAGE AND HANDLING

A. All materials shall be brought to the job site in the original sealed and labeled containers of the paint manufacturer and shall be subject to inspection by the Engineer on the job.

B. Paint material containers shall have labels bearing manufacturer's name, name and type of material, formula or specification number, batch number, color, date of manufacture, color name and number. In addition, thinning instructions and application instructions shall be available at the job site. All printed materials shall be plainly legible at the time of use.

C. Do not use products that have exceeded the manufacturer's recommended shelf life or attempt to extend stated pot lives by additional thinning.

D. Provide temporary storage facilities to protect materials and equipment stored on-site from the elements and unauthorized personnel. The storage facility shall be capable of 24-hour climate control to maintain products within the storage temperature limits recommended by the manufacturer. The location of the storage container shall be approved in advance by the Engineer.

E. The storage facility shall be capable of containing the coating systems within the storage facility in the event of a spill or rupture.

1.09 INSPECTION AND TESTING

A. All work relative to preparation for and application of coatings shall be conducted under the supervision of the Inspector.

B. Prior to the start of any work, provide the Inspector, schedules and notification procedures that will ensure that all surface preparation work has been inspected prior to the application of any coating. These procedures shall remain in effect for the duration of the project. Under no circumstances shall any surfaces be coated without prior approval of the Inspector. Coatings applied without the Inspector's authorization shall be removed and reapplied at the sole expense of the Contractor. Log sheets, approved by the Inspector, shall be used as the permanent record of all inspections with copies forwarded to the Inspector daily.

C. Prior to surface preparation work, notify Inspector a minimum of seven days in advance.

1.10 RECORDS

A. Maintain an accurate, written record of the quantity of coating material applied and the corresponding surface area covered, a description of the area coated, the batch number, surface temperature, ambient temperature, relative humidity, dew point, and applicator on a daily basis. Furnish a signed copy of said record to the Inspector at the beginning of the next working day. These quantities shall be independently verified by the Inspector and reported on the Inspector's log. The Inspector shall immediately investigate and resolve any discrepancies between these reported quantities.

1.11 SERVICES OF COATING MANUFACTURER

A. Furnish the following services:
   1. Provide onsite technical support to resolve field problems associated with the manufacturer's products furnished under this Contract or the application thereof throughout the duration of the Work.
   2. The coating manufacturer's representative shall be present during the final inspection of the finished coating if requested by the Inspector.

1.12 WARRANTY

A. Contractor shall provide a warranty on materials and coatings work for 1 year beginning with the final acceptance of the project.

B. Provide standard 1-year minimum Manufacturer's Limited Warranty on materials.

1.13 ENVIRONMENTAL REQUIREMENTS

A. Comply with the manufacturer's recommendations as to environmental conditions under which the coating systems may be applied and cured.

B. Coating shall not be applied: when the metal temperature is less than 50°F; when the temperature is less than 5°F above the dew point; when the expected weather conditions are such that the temperature will drop below 40°F or less than 5°F above the dew point within six (6) hours after the coating has been applied; or when the relative humidity is above or below the manufacturer's recommendation.

C. Abrasive blasting and/or painting shall not be performed inside the tank whenever the above conditions exist.

D. Provide dehumidification. Maintain a continuous record of temperature and relative humidity.

E. Relative humidity and dew point shall be measured or confirmed by use of a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables.

F. Do not apply paint in areas where dust is being generated.

G. The Contractor shall conduct his operations to ensure that no paint or solvents are allowed to enter surface waters or the ground.

H. Provide complete environmental containment and environmental control of the tank for all activities related to coatings removal, surface preparation and application of coatings unless other approved dust containment methods are used such as wet abrasive blasting with approved fluid containment or approved self-contained wheel coatings removal machine with shot media recycling and integral local vacuum removal of all dusts. See Section 3.06 herein.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Tnemec Company Inc. or approved equal.

2.02 COMPATIBILITY

A. Use compatible materials from a single manufacturer. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to the approval

of the Engineer, a barrier coat shall be applied between existing prime coat and subsequent field coats to ensure compatibility.

2.03 EXTERIOR COLORS

A. Finish color shall be selected by the City. The color shall match the color of the existing reservoir as close as possible. The Contractor shall submit at least two color options similar to the existing reservoir, complete with brush out samples.

B. Each coat shall be of a different shade, to facilitate inspection of surface coverage of each coat.

2.04 MATERIALS

A. Abrasives
   1. Manufacturer: Kleen Blast or approved equivalent.
   2. Performance requirements: produce a surface profile that meets the coating manufacturer's recommendations.
   3. Provide new, clean, abrasives in unopened, weather resistant, airtight containers. Do not reuse abrasive materials unless approved by the Inspector.
   4. Conform to Bay Area Air Quality Management District requirements. No more than one (1) percent free silica is allowed on the job site.
   5. Disposal shall be in accordance with all federal, state, and local laws at no cost to the City.

B. Coatings:
   1. Interior and exterior coatings shall be provided by a single manufacturer in accordance with the Coating Schedules contained herein.
   2. Interior coatings and thinners shall be NSF 61 approved.
   3. Exterior finish topcoat shall be semi-gloss finish.

C. Interior Coating Schedule (Total DFT 20 to 30 mils)
   1. <u>Interior coatings below water line (below 2 feet below top of shell)</u>
      This includes the shell, floor, overflow piping, mixing piping, etc.
      a. System Type: 100% Solids Epoxy
      b. AWWA D102-11 Inside Coating System No. 3
      c. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP10/NACE No. 2 Near-White Blast Cleaning with minimum surface profile of 3.0 mils.

d. Stripe-Coat Procedure: Tnemec Series FC22 Epoxoline or Series 22 Epoxoline brush-applied or spray-applied and back-brushed to all welds and sharp edges per SSPC-PA1, 6.6 Striping.
e. Prime/Finish Coat: Tnemec Series FC22 Epoxoline or Series 22 Epoxoline at 20.0 to 30.0 mils DFT applied in one or two coats.
f. Total System: The total dry film thickness shall be 20.0 mils minimum.

2. Interior coatings above the water line (above 2 feet below top of shell)

The includes top 2 feet of the shell, knuckle, roof, rafters and roof supports, and inside of roof hatches and vents.

a. System Type: Organic Zinc Primer and 100% Solids Epoxy
b. AWWA D102-11 Inside Coating System No. 3.
c. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP10/NACE No. 2 Near-White Blast Cleaning with a minimum surface profile of 2.0 mils.
d. Prime Coat: Tnemec Series 94-H20 Hydro-Zinc at 2.5 to 3.5 mils DFT.
e. Stripe-Coat Procedure: Tnemec Series FC22 Epoxoline or Series 22 Epoxoline brush-applied or spray-applied and back-brushed to all welds and sharp edges per SSPC-PA1, 6.6 Striping.
f. Finish Coat: Tnemec Series FC22 Epoxoline or Series 22 Epoxoline at 20.0 to 30.0 mils DFT applied in one or two coats.
g. Total System: The total dry film thickness shall be 25.5 mils minimum.

D. Exterior Coating Schedule (Total DFT 8.5 to 12.5 mils)

a. System Type: Organic Zinc Primer, Epoxy Intermediate and Fluoropolymer Finish Coat.
b. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP6/NACE No. 3 Commercial Blast Cleaning with a minimum surface profile of 2.0 mils.
c. Prime Coat: Tnemec Series 94-H20 Hydro-Zinc at 2.5 to 3.5 mils DFT.
d. Stripe-Coat Procedure: Series L69 Hi-Build Epoxoline II brush-applied or spray-applied and back-brushed to all welds and sharp edges per SSPC-PA1, 6.6 Striping.
e. Intermediate Coat: Tnemec Series L69 Hi-Build Epoxoline II at 4.0 to 6.0 mils DFT.
f. Finish Coat: Tnemec Series V700 HydroFlon gloss or Series V701 HydroFlon semi-gloss at 2.0 to 3.0 mils DFT.
g. Total System: The total dry film thickness shall be 8.5 to 12.5 mils.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Apply coatings under dry and dust-free conditions. Produce an even film of uniform thickness. Thoroughly clean edges, corners, crevices and joints to ensure they receive an adequate thickness of coating material. Finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks and variations in color, texture, and finish.

B. Clean, repair and refinish surfaces to original condition where damage occurs.

3.02 PROTECTION OF SURFACES NOT TO BE COATED

A. Remove, mask and protect surfaces not to be coated. Provide drop cloths to prevent coating materials from falling on or marring adjacent surfaces.

3.03 PREPARATION

A. Clean surfaces to receive protective coatings. Examine surfaces to be coated. Correct surface defects before application of coating material. Touch-up and restore marred or abraded spots on shop-primed and on factory-finished surfaces prior to coating application.

B. Surface preparation for ferrous surfaces
   1. Conform workmanship for metal surface preparation of interior tank surfaces and appurtenances to the current SSPC Standards and this Section. Blast cleaned surfaces shall conform to SSPC-SP 10 Near White Blast Clean set forth by the Society for Protective Coatings (SSPC).
   2. Conform workmanship for metal surface preparation of exterior tank surfaces and appurtenances to the current SSPC Standards and this Section. Blast cleaned surfaces shall conform to SSPC-SP 6 Commercial Blast Clean set forth by the Society for Protective Coatings (SSPC).
   3. Remove oil, grease, welding flux, and other surface contaminants by solvent cleaning per SSPC-SP 1 prior to abrasive blast cleaning.
   4. Chamfer or round sharp edges. Grind burrs, surface defects and weld splatter prior to abrasive blast cleaning.
   5. Select type and size of abrasive to produce a surface profile that meets the coating manufacturer's recommendation for the particular coating and service conditions. Abrasives for submerged and severe service coating systems shall be clean, hard, sharp cutting crushed slag or abrasive approved by Engineer.
   6. Do not reuse abrasive unless otherwise approved by the Engineer. Maintain clean, oil-free abrasives for automated shop blasting systems.

7. Comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.
8. The exhaust from blasting shall be filtered to remove particulate matter.
9. Supply compressed air for air blast cleaning at adequate pressure from well-maintained compressors equipped with oil/moisture separators that remove at least 95 percent of the contaminants.
10. Clean surfaces of dust and residual particles of the cleaning operation by dry air blast cleaning, vacuuming or another approved method prior to painting.
11. Vacuum clean enclosed areas and other areas where dust settling is a problem. Wipe those areas with a tack cloth afterwards.
12. Collect and dispose of all water and debris from tank cleaning per Section 01 35 13 Special Project Procedures.
13. Remove damaged or defective coating by the specified blast cleaning to meet the clean surface requirements before recoating.
14. Completely remove shop applied coatings of unknown composition before the specified coatings are applied. Examine valves, castings, ductile or cast-iron pipe, and fabricated pipe or equipment for the presence of shop-applied temporary coatings. Clean temporary coatings by solvent cleaning per SSPC-SP1 before being completely removed by abrasive blast cleaning.
15. Solvent clean shop primed equipment in the field before finish coats are applied.

C. Plastic, fiber glass and nonferrous metals surface preparation:
   1. Sand or brush-off blast clean plastic and fiber glass surfaces prior to solvent cleaning with a chemical compatible with the coating system primer.
   2. Solvent-clean (SSPC-SP1) non-ferrous metal surfaces followed by sanding or brush-off blast cleaning (SSPC-SP7). Galvanized metal surfaces shall be cleaned per SSPC-SP1 Solvent Cleaning followed by SSPC-SP16 4 Brush-Off Blast Cleaning providing a surface profile of 1.0 to 1.5 mils.
   3. Clean surfaces and dry prior to coating application.

3.04 MIXING AND THINNING OF MATERIALS

A. Strictly observe the coating manufacturer's printed recommendations and instructions for thinning, mixing and handling its coating materials. Prepare multiple component coatings using all of the contents of the container for each component as packaged by the manufacturer. Do not use partial batches. Do not use multiple component products that have exceeded their shelf life. Provide four kits for touch-up and small area work. Mix only the components specified and furnished by the manufacturer. Do not intermix additional components for reasons of color or otherwise.

B. Thinners used for interior tank coatings shall be NSF 61 approved.

3.05 APPLICATION

A. The application of protective coatings to steel substrates shall be in accordance with "Paint Application Specification No. 1, (SSPC-PA1)," The Society of Protective Coatings.

B. Inspect cleaned surfaces and coats prior to each succeeding coat. Schedule inspection with the Inspector in advance.

C. Paint blast cleaned ferrous metal surfaces before rusting or other surface deterioration occurs. Limit blast cleaning to only those surfaces that can be coated in the same working day except where environmental controls are used and approved by Inspector.

D. Apply coatings in accordance with the manufacturer's instructions and recommendations, and this Section, whichever has the most stringent requirements.

E. Special attention shall be given to edges, angles, weld seams, flanges, nuts and bolts and other places where insufficient film thicknesses are likely to be present. Stripe paint these areas using a brush, with the same primer material specified for the particular service or as recommended by manufacturer.

F. Special attention shall be given to surfaces that will be joined so closely that proper surface preparation and application are not possible. Such contact surfaces shall be coated prior to assembly or installation.

G. Special attention shall be given to existing surfaces that are joined so closely that proper surface preparation and application are very difficult, in particular areas where the roof is close to the tops of rafters. Contractor shall wedge apart the roof panels from the top of the roof rafters in order to gain access for surface preparation and coating operations.

H. Finish coats, including touch-up and damage repair coats shall be applied in a manner that will present a uniform texture and color-matched appearance.

I. Do not apply coatings under the following conditions:
   1. Temperature exceeding the manufacturer's recommended maximum and minimum allowable.
   2. Dust or smoke laden atmosphere.
   3. Damp or humid weather exceeding the manufacturer's recommended maximum and minimum allowable.
   4. When the substrate or air temperature is less than 5 degrees F above the dew point.
   5. When air temperature is expected to be less than 5 degrees F above the dew point within 6 hours after application of coating.

6. Dew point shall be determined by use of a sling psychrometer in conjunction with U.S. Dept. of Commerce, Weather Bureau psychrometric tables.

3.06 CLIMATE CONTROL AND AIR QUALITY PROTECTION

A. Contractor shall provide complete environmental control of all tank activities related to coating application, coating removal, and surface preparation to prevent overspray, odor, or dust related to removed coatings or abrasives from contaminating the air, depositing onsite, or traveling offsite. Contractor shall comply with CCR Title 17, SSPC Guide 6 and all relevant air quality regulations such as those administered by the Bay Area Air Quality District.

B. Containment enclosures must use heat welded seams and be inspected by the Engineer prior to any coating operations. Adhesives and Adhesive tapes will not be allowed for seams of enclosures. Sufficient ventilation shall be provided such that there is a consistent negative pressure within containment and/or the tank during all coatings operations to prevent any fugitive emissions.

C. Contractor may submit for approval dust containment methods that may not require enclosing the entire tank such as wet abrasive blasting with approved fluid containment or approved self-contained wheel coating removal machines with shot media recycling and integral local vacuum removal of all dusts.

D. Contractor shall control environmental conditions including air/steel temperatures, moisture, and humidity to comply with the manufacturer's recommendations for application and curing, including during any work during the winter.

3.07 CURING OF COATINGS

A. Provide curing conditions in accordance with the conditions recommended by the coating material manufacturer or by this Section, whichever is the highest requirement, prior to placing the completed coating system into service.

B. Forced air ventilation.
   1. Forced air ventilation and dehumidification is required for the application and curing of coatings on the interior surfaces of enclosed hydraulic structures.
   2. All solvent vapors shall be completely removed by suction type, explosion-proof exhaust fans and blowers.
   3. During curing periods, continuously exhaust air from the lowest level of the structure using portable ducting.
   4. Air shall not be forced from the outside into the enclosure.
   5. Ventilation system shall be approved by the Engineer prior to the start of work.

6. Ventilation systems, using heated air when applicable, shall remain in service during coating application and for a minimum of seven (7) days after completion of final coating application or coating repair, or until coating has fully cured.
7. Fuel or electricity costs shall be borne by the contractor unless specified otherwise.
8. After all interior coating operations have been completed provide a final curing period as required by the manufacturer during which the forced ventilation system shall operate continuously.

C. Submit Ventilation Plan a minimum of two weeks before beginning work inside the tank.
   1. No work may begin inside the tank until the Ventilation Plan has been accepted by the Engineer.

3.08 APPROVAL

A. Inspection and Testing
   1. Conduct final inspection at the completion of coating work. The Contractor and its Supervisor, a representative of the coating manufacturer, and the Construction Observer and/or other representative of the City shall conduct a final inspection to establish that all work has been completed per the Contract Documents.
      a. All coated surfaces will be inspected for the following defects:

Orange-peel	Holidays, missed areas
Mud cracking	Over spray
Sanding Scratches	Contaminants, including spent abrasives
Runs, sags, curtains	Mechanical damage – chipping, chips, scratches
Sand lines	Excessive or insufficient gloss
Pinholes	Fisheyes
Blisters	Unmatched colors
Bubbling	

      b. Before final acceptance of the Work will be granted, Contractor shall document deficiencies found and corrected.
      c. Contractor shall thoroughly document the conditions of each area of work at the time of inspection using video and still photography. Provide a copy of the photographs and video to the City and keep the originals. The photographs and video shall be the basis of evaluation of the condition of the coating systems at the warranty inspection.
   2. Erect or move scaffolding or ladders to locations where requested by the Inspector to facilitate inspection.

3. Whenever required by the Inspector, provide additional illumination required for inspections. Adequate illumination shall include explosion-proof lights and electrical equipment where required to meet safety standards. The Inspector shall determine the level of illumination for inspection purposes.
4. Inspection Devices: Provide the items listed below (or approved equals) to complete the inspections in the presence of the Inspector, in good working order and with calibration data prior to beginning work. Inspection devices shall remain available until final acceptance of the coating applications:
    a. Film Thickness: Non-destructive measurement devices.
    b. U.S. Department of Commerce, National Bureau of Standards, certified thickness calibration plates to test accuracy of dry film thickness gauge.
    c. Pinhole and Holiday Detection: Low voltage holiday detectors.
    d. Sling Psychrometer.
    e. Surface Temperature: High quality IR thermometer or Magnetic surface temperature gauge.
    f. Coating Adhesion Testing:
        1) Elcometer Model 106
5. Film Thickness: Inspect prepared surfaces and coating system component applications prior to each succeeding application. Collect representative thickness data as follows:
    a. Thickness of coatings on metal surfaces shall be checked with a properly calibrated, non-destructive type thickness gauge. Each coat shall be checked for correct thickness. No measurements shall be made until at least 8 hours after application of the coating.
    b. Inspector shall determine where and how often to test for film thicknesses, and at a minimum the requirements of SSPC-PA-2 Level 3 will be followed.
    c. At each inspection point, record a minimum of three gauge readings, moving the gauge 1 to 3 inches for each new gauge reading.
    d. Discard unusually high or low gauge reading that cannot be repeated consistently. Take the average (mean) of the three gauge readings as the spot measurement. The average spot measurement shall meet or exceed the specified dry film thickness for each application.
6. Coating Pinhole and Holiday Detection of Tank Interior Surfaces:
    a. Furnish a low voltage, wet sponge type holiday detector and use in inspecting the finished coating job.
    b. Contractor shall perform the test on all surfaces to be submerged in the presence of the inspector.
    c. Holiday detectors shall not exceed the voltage recommended by the manufacturer of the coating system.

d. The electrode movement over the coating surface shall be continuous and shall proceed in a systematic manner which ensures 100 percent coverage of the coating surface.
e. All pinholes shall be marked, repaired in accordance with the manufacturer's recommendations and retested.
f. No pinholes or other irregularities will be permitted in the final coating.
g. Deficiencies in the continuity of the coating shall be corrected by applying additional finish coats, at the expense of the Contractor.

7. Contractor shall correct all deficiencies to the satisfaction of the Inspector.
   a. Defects in any coat of multiple coat applications must be repaired prior to application of subsequent coats.
   b. Coating defects may only be rectified after the coating in which the defect occurred has dried/cured sufficiently, unless approved otherwise by the Engineer.
   c. Usage of rollers to mask or obliterate defects in sprayed coatings will result in rejection of the work.
   d. In case of numerous or significant defects, the Engineer may require complete removal and replacement of all coatings applied by the Contractor.
   e. All defects shall be corrected by the Contractor at the Contractor's expense.

B. Disinfection per Section 33 13 13 Water Storage Tank Disinfection.

C. Bacteriological Sampling and Testing
   1. The City will sample and test for bacteriological compliance to all pertinent regulations. The contract shall coordinate and assist the City as requested.

D. Testing for Volatile Organic Compounds
   1. Testing for Volatile Organic Compounds (VOCs) will not be required, unless at the discretion of the Inspector, it is suspected that the contractor has introduced VOCs in the tank. Examples of this may include not providing for proper curing of coatings per the manufacturer's recommendations or introducing solvents or thinners of a type, amount or method not approved by NSF 61 for use in potable water storage tanks.
   2. Testing for volatile organic compounds (VOCs), if required, shall be done by the contractor at his expense in accordance with California Department of Public Health (CDPH) Sanitation and Radiation Laboratory guidelines set forth in "Collection, Pretreatment, Storage, and Transportation of Water and Wastewater Samples," most current edition.
   3. If VOC testing is required, the tank shall be filled, and the contents retained for seven (7) calendar days. Prior to contents release for distribution, a sample of water

shall be taken by the City and analyzed according to CDPH requirements. Such testing shall be at the City's expense and performed by the City's representative.

4. In some instances, Contractor may find it necessary to extend coating cure times beyond manufacturer's recommendations in order to achieve satisfactory action levels, due to temperatures and humidity conditions at project site.
5. If test results reveal unacceptable levels of impurities or volatile organic compounds, tank shall be drained, flushed, refilled, and retested. Such remedial action will be performed at Contractor's expense, and will be continued until satisfactory levels are achieved. The Contractor will be required to pay for additional testing, corrective actions, water disposal and water to refill the tank. The Contractor is responsible for controlling the rate of discharge through the drain line to prevent erosion as approved by the Engineer.
6. Disposal of liquids drained from the tank shall be the responsibility of the Contractor. Submit discharge plan to North Coast Regional Water Quality Control Board for approval. Do not discharge until submitted discharge plan is approved.

E. Acceptance

1. Upon successful completion of all inspection and testing, and upon receipt by the City of the Contractor's Warranty, the City shall issue a Notice of Completion.
2. Warranty Inspection: A warranty inspection shall be conducted as outlined in AWWA D102, Section 5.2, within 11 months following completion and acceptance of all coating and painting work. The City shall establish a date for the inspection and notify the Contractor thirty days in advance. All parties present at the Pre-Job conference are required to attend this inspection. The City shall drain the tank and the Contractor shall supply suitable interior lighting for the inspection. The Contractor shall prepare a report for the City. Any work found to be defective shall be repaired in accordance with the manufacturer's recommendations, this specification and to the satisfaction of the Engineer. Repair of the tank shall be at the City's convenience and shall be performed within such stated date as the City designates.

3.09 REPAIRS

A. If an area is found to have an improper finish, insufficient film thickness or other deficiencies; clean, prepare and topcoat the coating surface per the manufacturer's recommendations to obtain the specified finish and coverage. Work shall be free of runs, bridges, shiners, laps or other imperfections.

B. Damaged or defective coating shall be removed by the specified blast cleaning to meet the clean surface requirements before recoating.

END OF SECTION

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SECTION 26 00 00 – ELECTRICAL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall install, ready for use, the electrical system as specified herein and shown on the Contract drawings. This document describes the function and operation of the system and particular components, but does not necessarily describe all necessary devices. All components and devices shall be furnished and installed as necessary to provide a complete operable and reliable system for accomplishing the functions and meeting the performance set forth hereinafter.

B. Furnish all required labor, materials, project equipment, tools, construction equipment, safety equipment, transportation, test equipment, incidentals and services to provide a complete and operational electrical system as shown on the Contract E-series Drawings, included in these Specifications, or necessary for fully operating facility.

C. Examine the specification and Drawings for mechanical equipment and provide all appurtenances which are not specified to be with the mechanical equipment. Erect all electrical equipment not definitely stated to be erected by others, furnish and install conduit, wire and cable and make connections required to place all equipment in complete operation.

D. The major areas in the scope of work shown on E-series Contract drawings which includes both the furnishing and installation:
   1. Replacing existing Field Control Stations (FCS).
   2. Intercepting existing conduits and wire to the pumps. Install new pull box and transition box. Extend conduits to new pump location.
   3. Pull new wire from motor starter / VFD to pumps and FCSs.
   4. Installation, mounting supports, wiring, start-up, and testing of new and relocated systems.
   5. Provide all necessary hardware, fittings, and devices to connect the designated equipment and wiring.
   6. Provide trenching, backfilling, and compaction for all underground conduit routes, concrete pads, and pull boxes.
   7. Concrete pads and supports for electrical and instrumentation equipment.

E. It is the Contractor's responsibility to visit jobsite to collect and document existing conditions and determine conduits & wire routing.

F. Existing site is limited in space. It is the Contractor's responsibility to provide an electrical package to fit in the allocated space at no additional cost to the Owner.

G. The following specifications incorporate specific equipment and devices that are standards of the Owner because of their serviceability, because of the local availability of labor, parts and materials, or because of the ability of the Owner to umbrella the equipment under existing maintenance contracts.

H. All electrical work shall conform with the National Electric Code (NEC) 2008 issue. Nothing on the Drawings or in the Specifications shall be construed to permit work or materials not conforming to these codes and standards.

I. The Contractor is encouraged to visit site and shall thoroughly examine existing conditions before submitting his bid proposal to perform any work. He shall compare site conditions with data given on the plans or in these Specifications. No allowance shall be made for any additional costs incurred by the Contractor due to his failure to not have examined each site or to have failed to report any discrepancies to the Engineer.

1.02 RELATED WORK IN OTHER SECTIONS

A. Provide an electrical system that interfaces to work performed under other Mechanical and Equipment Sections of these Specifications.

1.03 CONTRACT DOCUMENTS

A. The Contract drawings and specifications are intended to be descriptive of the type of electrical system to be provided; any error or omissions of detail in either shall not relieve the Contractor from the obligations there-under to install in correct detail any and all materials necessary for a complete operational system, at no additional cost.

B. The Contract drawings are generally diagrammatic; exact locations of electrical products shall be verified in the field with the Engineer. Except where special details on drawings are used to illustrate the method of installation of a particular piece or type of equipment or materials, the requirements or descriptions in this Section shall take precedence in the event of conflict.

C. Location at facilities of equipment, inserts, anchors, panels, pull boxes, conduits, stub-ups, and fittings for the electrical system are to be determined by the Contractor and Engineer at time of installation. Contractor shall make minor adjustments to locations of electrical equipment required by conditions and coordination with other trades at no additional cost.

D. The Contractor shall examine the architectural, mechanical, structural, electrical and instrumentation equipment provided under other Sections of this Contract in order to determine the exact routing and final terminations for all conduits and cables. The exact locations and routing of cables and conduits shall be governed by structural conditions, physical interferences, and the physical location of wire terminations on equipment. It is the Contractor's responsibility to verify all manufacturer cable lengths prior to ordering. Conduits shall be stubbed up as near as possible to equipment.

E. All equipment shall be installed and located so that it can be readily accessed for operation and maintenance. The Engineer reserves the right to require minor changes in location of equipment, without incurring any additional costs.

F. "Provide" means to furnish equipment and accessories, do the installation, complete connections, submit documentation, perform start-up, and be responsible for the warranty.

G. Where conduits are shown as "home runs" on the Contract drawings or stated to be furnished, but not explicitly shown, as part of the scope of work; the Contractor shall provide all fittings, boxes, wiring, etc. as required for completion of the raceway system in compliance with the NEC and the applicable specifications in this Section.

H. No changes from the Contract drawings or specifications shall be made without written approval of the Engineer. Should there be a need to deviate from the Contract documents, submit written details and reasons for all changes to the Engineer for favorable review.

I. The resolution of conflicting interpretation of the Contract documents shall be as determined by the Engineer.

J. The Contractor shall coordinate with other Suppliers on the project for a complete and operable system.

1.04 COORDINATION

A. The Contractor shall coordinate the electrical work with the other trades, code authorities, utilities, Engineer; with due regard to their work, towards promotion of a rapid completion of the project. If any cooperative work must be altered due to lack of proper supervision of such, or failure to make proper provisions, then the Contractor shall bear expense of such changes as necessary to be made in work of others.

B. Manufacturer's directions and instructions shall be followed in all cases where such is not shown on the Contract Drawings or herein specified or have stipulations in order to meet warranty requirements.

C. The Contractor shall cease work at any particular point, temporarily, and transfer his operations to such portions of work as directed, when in the judgment of the Owner it is necessary to do so.

D. The electrical and instrumentation modifications and additions are to be made at the operational pump station. The Contractor shall schedule all the required work with the Owner, including each shutdown period. Each shutdown shall be implemented to minimize disruption of the existing operations. The work to be provided under this Contract shall not disrupt any of the existing operations without prior approval.
   1. The Contractor shall limit all unscheduled shutdown periods to less than 1 hour and only with prior approval of the Owner.
   2. Carry out scheduled shut downs only after the time, date, and sequence of work proposed to be accomplished during shutdown has been favorably reviewed by the Owner. Submit shutdown plans at least 2 days in advance of when the scheduled shutdown is to occur.
   3. The Owner reserves the right to delay, change, or modify any shutdown at any time, at no additional cost to the Owner, when the risk of such a shutdown would jeopardize the operation of system or effluent regulations.

1.05 SUPERVISION

A. The Contractor shall schedule all activities, manage all technical aspects of the project, coordinate submittals and drawings, and attend all project meetings associated with this Section.

B. The Contractor shall supervise all work in this Section, including the electrical system general construction work, from the beginning to completion and final acceptance.

C. The Contractor shall supervise and coordinate all work in this Section to insure each phase of the project, submittal, delivery, installation, and acceptance testing, etc. is completed within the allowable scheduled time frames.

D. The Contractor shall be responsible for obtaining, preparing, completing, and furnishing all paper work for this Section; which shall include transmittals, submittals, forms, documents, manuals, instructions, and procedures.

1.06 INSPECTIONS

A. All work or materials covered by the Contract documents shall be subject to inspection at any and all times by the Owner. If any material does not conform to the Contract documents, or does not have a favorably reviewed submittal status; then the Contractor shall, within three days after being notified by the Owner, remove said material from the premises; and if said material has been installed, the entire expense of removing and

replacing same, including any cutting and patching that may be necessary, shall be borne by the Contractor.

B. The Contractor shall give the Owner 10 working days notice of the dates and time for inspection. Date of inspection shall be as agreed upon by both the Contractor and Owner.

C. Work shall not be closed in or covered over before inspection and approval by the Engineer. All costs associated with uncovering and making repairs where non-inspected work has been performed shall be borne by the Contractor.

D. The Contractor shall cooperate with the Engineer and provide assistance at all times for the inspection of the electrical system under this Contract. The Contractor shall remove covers, provide access, operate equipment, and perform other reasonable work which, in the opinion of the Engineer, will be necessary to determine the quality and adequacy of the work.

E. Before request for final inspection is made, the Contractor shall submit to the Owner in writing, a statement that the Contractor has made his own thorough inspection of the entire project enumerating punch list items not complete and that the installation and testing is complete and in conformance with the requirements of this Division.

F. The Owner may arrange for a facility inspection by Cal-OSHA Consultation Service at any time. The Contractor shall make the necessary corrections to bring all work in conformance with Cal-OSHA requirements, all at no additional cost to the Owner.

G. Contractor will be Responsible for any Additional Cost for Overtime, Weekend Overtime or Differential Time, Expenses for Inspection of Defective Work that has to be re-inspected.

1.07 JOB CONDITIONS

A. The Contractor shall make all arrangements and pay the costs thereof for temporary services required during construction of the project, such as temporary electrical power. Upon completion of the project, remove all temporary services, equipment, material and wiring from the site as the property of the Contractor.

B. The Contractor shall provide adequate protection for all equipment and materials during shipment, storage and construction. Equipment and materials shall be completely covered with two layers of plastic and set on cribbing six inches above grade so that they are protected from weather, wind, dust, water, or construction operations. Equipment shall not be stored outdoors without the approval of the Engineer. Where equipment is stored or installed in moist areas, such as unheated buildings, etc., provide an acceptable

means to prevent moisture damage, such as a uniformly distributed heat source to prevent condensation.

C. The normal outdoor, not in direct sunlight, ambient temperature range of the job site will vary between 20 to 110 degrees Fahrenheit. All equipment shall be rated to operate in these temperature ranges or provisions for adequate heating and cooling shall be installed, at no additional cost to Owner.

1.08 SUBMITTAL AND DRAWING REQUIREMENTS

A. Six (6) copies of electrical submittals shall be submitted for favorable review by the Engineer per this subsection. They shall be complete giving all details of connections, wiring, instruments, enclosures, materials and dimensions. Standard sales literature will not be acceptable.

B. The electrical submittals shall include but not be limited to data sheets and drawings for each product together with the technical bulletin or brochure. The electrical submittals shall include:
   1. Product (item) name used herein and on the Contract Drawings.
   2. The manufacturer's model or other designation.
   3. Tag name/number per the drawings or schedules.
   4. Detail electrical interconnection diagrams showing all wiring requirements for each system.
   5. Catalog Cuts - General sales literature will not be acceptable. The part or model number with options to be provided shall be clearly identified. Where more than one item or catalog number appears on a catalog cut, the specific item(s) or catalog numbers(s) proposed shall be clearly identified.
   6. Location of assembly at which it is installed.
   7. Physical size with dimensions and mounting details.
   8. Enclosure fabrication and color.
   9. Enclosure layout and elevation drawings to scale.
   10. Quantity and quality requirements for electric power, air, and/or water supply.
   11. Materials of construction of components.
   12. Nameplate schedule.
   13. Bill of Materials: A complete Bill of Materials list shall be provided at the inside of the front cover.
      a. The Contractor shall provide Bill of Material for electrical components formatted as shown in Appendix "A".
      b. Generic names or part numbers used by a distributor or Systems House are not acceptable; originating manufacturer’s name and part number shall be listed.

C. Drawing Requirements: All drawings shall be drawn using AutoCAD, drawn in a professional manner and submitted on 11" x 17" sheets. Shop drawings shall be provided with minimum drafting details as illustrated on the Contract "electrical" series drawings. Diagrams shall carry a uniform and coordinated set of wire colors, wire numbers, and terminal block numbers. The shop drawings shall include:

1. Enclosure and Elevation layout diagrams for MCC/control panels; show all front panel, sidepan and backpan devices drawn to scale. Show fabrication methods and details; including material of construction, paint color, support & latching mechanisms, fans & ventilation system, and conduit entrance areas.
2. Interconnection Diagram - An interconnection diagram shall be furnished for each electrical and instrumentation system, even if one was not shown explicitly on the Contract Drawings. Interconnection diagrams shall show for each piece of equipment all wiring between all devices, panels, cabinets, terminal boxes, control equipment, motor control centers and any other devices and equipment. Each interconnection diagram shall include the following as a minimum:
    a. Interconnect drawings shall be prepared for all equipment by the System Supplier.
    b. Interconnect drawings shall be prepared for all equipment and conduits by the System Supplier with the exception of the Telephone System and Security Alarm System which shall produce their own interconnect drawings.
    c. The diagrams shall be utilized by the electrician during all phases of installation and connection of all conductors to ensure coordination of equipment interconnect.
    d. The diagrams shall show wiring as field labeled at the end of the project when as-builts are submitted.
    e. Each wire labeling code as actually installed shall be shown. The wiring labeling code for each end of the same wire must be identical.
    f. All device and equipment labeling codes shall be shown.
    g. Interconnections shall be shown point to point with identified lines. Diagrams of the wireless or wire schedule type are not acceptable. Bundled wires shall be shown as a single line with the direction of entry/exit of individual wires clearly shown. Interconnect diagrams shall not be combined with loop or elementary diagrams.
    h. All terminations points on the diagram shall be shown with the actual equipment identification terminal number or letter. This identification of terminations includes terminal blocks, junction boxes, all devices, computer I/O points, etc.
    i. Diagrams shall include raceway numbers, raceway size, cable numbers, wire color code, and wire numbers. Wire numbers used on interconnection diagrams shall match wire numbers used on other submitted drawings (i.e. elementary diagrams, I/O wiring diagrams, etc.)

j. Each wire and cable size and color code shall be shown. Each conduit route with the conduit label and conduit size shall be shown. Wire and cable routing through conduits, wireways, manholes, handholes, junction boxes, terminal boxes and other electrical enclosures shall be shown with the appropriate equipment labels. All spare wires, cable, and termination points shall be shown. Cable shields shall be shown.

k. Labeling codes for terminal blocks, terminals, wires, cables, panels, cabinets, instruments, devices, and equipment shall be shown. Place "øA", "øB", and "øC" label next to each breaker to identify phase connected to.

l. Schematic symbols shall be used for field devices, showing electrical contacts. Signal and DC circuit polarities shall be shown.

m. Do not show the same wires or jumpers on the elementary or loop and interconnection diagrams. All jumper, shielding and grounding termination details not shown on the connection diagrams shall be shown on the interconnection diagrams.

n. Example format of Interconnection diagram is shown on Contract "E" Series Drawings or may be obtained from the Engineer.

o. Interconnection Drawings shall use bundled wire format as shown on example interconnect Contract Drawing. Interconnect drawings submitted with wiring of a single conduit run separated onto multiple interconnect drawings will be rejected without review. A single conduit run with wiring shown on separate interconnect drawings will be allowed only after written approval is given by the Engineer for each conduit run prior to submitting the associated interconnect drawings.

p. Only field wiring between switchboards, MCCs, Panelboards, Control Panels, and other electrical and instrumentation devices or equipment shall be shown on interconnection drawings. No internal panel wiring shall be shown on interconnect drawings except jumper or other wiring to be installed in field by Electrical Contractor.

q. Provide a notes section on each interconnect drawing. In the note section, provide a detailed list of any variances from the Contract conduit schedule necessary for completing the interconnections (i.e. wire fill changes, conduit additions, etc).

r. The field electrician shall mark-up all interconnection diagrams during installation to show accurate as-built wiring, conduits runs, terminations, etc.

s. The system supplier shall be responsible to collect all information necessary to complete each interconnection drawing. This includes making field trips to collect all terminal connection data for new and existing, panels, switchboards, panelboards, instruments, equipment and electrical panels.

D. Submittal Format: Each submittal shall be bound in a three ring binder, which is sized such that when all material is inserted the binder is not over 3/4 full. Binder construction

shall allow easy removal of any page without complete manual disassembly; spiral ring type binders are not acceptable.

1. Each binder shall be appropriately labeled on the outside spine & front cover with the project name, contract number, equipment supplier's name, specification section(s), and major material contained therein.
2. An index shall be provided at the inside of the front cover. This index shall itemize the contents of each tab and subtab section. Also list the project name, contract number and equipments supplier's name, address, phone number, and contact person on the index page.
3. For each resubmittal, provide a copy of submittal comments and a separate letter, on Company letterhead, identifying how each submittal comment has been addressed in the resubmittal.
4. Provide Exceptions/Clarifications letter clearly identifying exceptions to the Contract Specifications or Drawings by the Equipment Supplier
5. All copies shall be clear and legible. Data sheets shall be provided for each instrument, with an index and proper identification and cross-referencing.
6. Provide product catalog cut sheets on all hardware items. Clearly marked to show the applicable model number, optional features, and intended service of each device.
7. Field equipment shop documents, panel equipment shop documents, drawings, and bill of materials shall be grouped under separate tabs. Catalog cuts shall be ordered in the same sequence as their corresponding Contract specification subsection.
8. Electrical submittals shall be complete giving all details of connections, wiring, instruments, enclosures, materials and dimensions. Standard sales literature will not be acceptable.
9. Drawings shall be submitted in a separate hole-punched binder that covers the entire 11" X 17" length of the Drawing:
    a. Shop Drawings with less than 20 sheets total in the submittal, may be provided in an 11½-inch by 17½-inch reinforced folder.
    b. All Interconnection Drawings or Shop Drawings of 20 sheets or more shall be provided in separate three-ring binder to allow drawings to be easily removed. Binder shall be Cardinal D-Ring Easy Open Ledger Binder with locking D-Rings or approved equal.
    c. Failure to provide drawing submittal in correct binder format may be grounds for immediate rejection without review.
    d. Each drawing title block shall contain the English description name for drawing contents (i.e. Lift Pump No. 1 Interconnect Drawing) and drawing number. All pages and drawings in the submittal shall be numbered sequentially (with no number skipped) in lower right hand corner.
    e. Drawings that are "C" or "D" size shall be folded, with the title block visible and placed in reinforced clear plastic pockets.

E. Exceptions to the Contract Specifications or Drawings shall be clearly defined by the Equipment Supplier.
   1. Data shall contain sufficient details so a proper evaluation may be made by the Engineer. Contractor shall provide separate letter (located in the front of the submittal) detailing specific exceptions to the Contract Specifications or Drawings.
   2. Exceptions that are noted in the marked-up Drawings or Specifications, but not listed on the Exceptions/Clarifications letter, will be considered as non-responsive and not accepted as changes to the Contract Documents

F. The Supplier shall coordinate submittals with the work so that project will not be delayed. This coordination shall include scheduling the different categories of submittals, so that one will not be delayed for lack of coordination with another.

G. No material or equipment shall be allowed at the job site until the submittal for such items has been favorably reviewed by the Engineer and marked "No Exceptions Taken" or "Make Corrections Noted" and all comments have been addressed

H. The equipment specifications have prepared on the basis of the equipment first named in the Specifications. The Supplier shall note that the second named equipment, if given, is considered acceptable and equal equipment, but in some cases additional design, options, or modifications may be required, at no additional cost, to meet Specifications.

I. No submittal documents shall be labeled as proprietary. Labeling documents as proprietary will be sufficient cause for rejection of entire submittal. The Owner reserves the right to copy or duplicate any and all portions of the documents provided for the project including copyrighted documents as desired.

J. The decision of the Engineer governs what is acceptable as a substitution. If the Engineer considers it necessary, tests to determine equality of the proposed substitution shall be made, at the Supplier's expense, by an unbiased laboratory satisfactory to the Engineer.

PART 2 PRODUCTS

2.01 QUALITY

A. It is the intent of the Contract specifications and drawings to secure the highest quality in all materials and equipment in order to facilitate operation and maintenance of the facility. All equipment and materials shall be new and the products of reputable suppliers having adequate experience in the manufacture of these particular items. For uniformity, only one manufacturer will be accepted for each type of product.

B. All equipment shall be designed for the service intended and shall be of rugged construction, of ample strength for all stresses which may occur during fabrication, transportation, erection, and continuous or intermittent operation. All equipment shall be adequately stayed and braced and anchored and shall be installed in a neat and workmanlike manner. Appearance and safety, as well as utility, shall be given consideration in the design of details. All components and devices installed shall be standard items of industrial grade, unless otherwise noted, and shall be of sturdy and durable construction suitable for long, trouble free service. Light duty, fragile and competitive grade devices of doubtful durability shall not be used.

C. Products that are specified by manufacturer, trade name or catalog number established a standard of quality and do not prohibit the use of equal products of other manufacturers when a listing "or approved equal" is given provided they are favorably reviewed by the Engineer prior to installation.

D. Underwriters Laboratories (UL) listing is required for all substituted equipment when such a listing is available for the first named equipment.

E. When required by the Contract specifications or requested by the Engineer, the Contractor shall submit equipment or material samples for test or evaluation. The samples shall be furnished with information as to their source and prepared in such quantities and sizes as may be required for proper examination and tests, with all freight and charges prepaid. All samples shall be submitted before shipment of the equipment or material to the job site and in ample time to permit the making of proper tests, analyses, examinations, rejections, and resubmissions before incorporated into the work.

2.02 NAMEPLATES & TAGS

A. Equipment exterior nameplates - Nameplate material shall be rigid laminated black phenolic with beveled edges and white lettering; except for caution, warning, and danger nameplates the color shall be red with white lettering. The size of the nameplate shall be as shown on the drawings. No letters are allowed smaller than 3/16". All phenolic nameplates located outdoors shall be UV resistant. Securely fasten nameplates in place using two stainless steel screws if the nameplate is not an integral part of the device. Epoxy cement or glued on nameplates will not be acceptable. Engrave the nameplates with the inscriptions as approved by the Engineer in the submittal.

1. For each major piece of electrical equipment provide a manufacturer's nameplate showing the Contract specified name and number designation, the manufacturer's name, model designation, part number, serial number, and pertinent ratings such as voltage, amperage, # of phases, range, U.L listing, etc.
2. For each device with a specific identity (pushbutton, indicator, instrument, etc.) mounted on the exterior or deadfront of a piece of equipment provide a nameplate with the inscription as shown in the Contract documents. Where no inscription is

indicated in the Contract documents, furnish nameplates with an appropriate inscription providing the name and number of device.

B. Equipment Interior Nameplates - Nameplate material shall be clear plastic with black machine printed lettering as produced by a KROY or similar machine; except caution, warning, and danger nameplates shall have red lettering. The size of the nameplate tape shall be no smaller than 2" in height with 3/8" lettering unless otherwise approved by the Engineer. Securely fasten nameplates in place on a clean surface using the adhesion of the tape. Add additional clear glue to hold the nameplate securely in place when necessary. Nameplates shall not be attached to wireways or gutters. For each device with a specific identity (relay, module, power supply, fuse, terminal block, etc.) mounted in the interior of a piece of equipment provide a nameplate with the inscription as shown in the Contract documents. Where no inscription is indicated in the Contract documents, furnish nameplates with an appropriate inscription providing the name and number of device used on the submittal drawings. Stamp the nameplates with the inscriptions as approved by the Engineer in the submittal.

C. Equipment Tags - When there is no space or it is impractical to attach an engraved phenolic nameplate with screws, as is the case with most field devices and instruments, the Contractor shall attach a tag to the equipment with the same inscriptions as specified above in paragraph A. The tag shall be made from stainless steel material and the size of the nameplate shall be no smaller than 3/8"h x 2"w with 3/16" machine printed or engraved lettering unless otherwise approved by the Engineer. The tag shall be attached to the equipment with stainless steel wire of the type normally used for this purpose.

2.03 COMPONENTS

A. Switches and Pushbuttons

1. Switches (HS) and pushbuttons (HC) for general purpose applications shall be water and oil tight as defined by NEMA 13, corrosion resistant as defined by NEMA ICS 6-110.58, U.L. listed, standard 30 mm diameter, with round plastic clamp ring. Switches shall be Allen-Bradley 800H, IDEC ITE, or equal.
2. Switches and pushbuttons shall have contacts rated 10 amperes continuous and 600 VAC.
3. Manufacturer's standard size legend plates shall be provided and engraved to specify each switch and pushbutton function. The legend plate color shall be black. Stop and emergency stop pushbuttons shall have red legend plates.
4. Selector switch handles and pushbutton caps shall be black. Pushbutton caps shall be colors shown on Contract Drawings or approved in submittals.
5. Selector switches for hand-off-auto (HOA) applications shall have the hand position to the left, off in center, and auto in the right position.
6. On/Off selector switches shall have the ON position to the right.

B. Terminal Blocks

1. Control Panel Terminal Blocks

a. Terminal blocks to be clamp type, 6mm spacing, 600 volt, minimum rating of 30 amps, and mounted on DIN rail, Entrelec M4/6 colored. DIN rail shall be same type as used for the relays. Install an extra DIN rail on each type of terminal strip with 4 terminals for future additions.

b. Provide terminal blocks with "follower" plates which compress the wires and have wire guide tangs for ease of maintenance. Terminal blocks which compress the wires with direct screw compression are unacceptable. All power, control and instrument wires entering and leaving a compartment shall terminate on terminal blocks with wire numbers on terminals and on both ends of the wires.

c. Terminal Tags and Markers: Each terminal strip shall have a unique identifying alphanumeric code at one end (i.e.: TB1, TB2, etc.) and plastic marking strip running the entire length with a unique number for each terminal. On each terminal strip, terminal numbers shall be assigned starting with #1 at one end, incrementing in alphanumerical order (i.e.: 1,2,3,4....). Numbers shall be assigned to all blocks except grounding blocks. Fuse blocks shall be assigned unique tag numbers such as FU1, FU2. No two fuses shall be assigned the same tag number.

d. Plastic marking tabs shall be provided to label each terminal block. These marking tabs shall have a unique number/letter for each terminal which is identical to the "elementary" and "loop" diagram wire designation. Numbers on these marking strip shall be machine printed and 1/8 inch high minimum.

e. Terminal blocks shall be physically separated into groups by the level of signal and voltage served. Power and control wiring above 100 volts shall have a separate group of terminal blocks from terminal blocks for wiring below 100 volts, intermixing of these two types of wiring on the same group of terminal blocks is not allowed.

f. Provide a ground terminal or connection point for each grounding conductor.

g. Provide a separate common or neutral terminal for every two (maximum) inputs and/or outputs.

2.04 FIELD CONTROL STATION

A. Field Control Station (FCS) Boxes shall be stainless steel type. Provide nameplates per subsection Nameplates. Provide Lockout Stop (LOS) Pushbutton, with red cap and padlocking assembly for pushbutton. Push-pull switches shall be provided for maintained shutdown operations. Pushbutton to be water and oil tight as defined by NEMA 4X, UL listed, ultraviolet light resistant, standard 30 mm diameter, with round plastic clamp ring. Provide NO and NC contacts as shown on elementary diagrams. Enclosure, pushbutton, and padlocking assembly shall be of the same manufacturer. Lockout stop switches shall be Allen-Bradley 800H, Square D or approved equal.

2.05 WIRE

A. This section applies to all wires or conductors used internal (non-field) for all electrical equipment or external for field wiring. Wire quantity and size shall be per "Conduit & Wire Routing Schedule".

B. Material - Wire shall be new, plainly marked with UL label, gauge, voltage, type of insulation, and manufacturer's name. All wire shall conform to the following:
   1. Conductors shall be copper, with a minimum of 98% conductivity.
   2. Wire shall be Class B stranded.
   3. Insulation of all conductors and cables shall be rated 600 volt.
   4. Insulation type shall be moisture and heat resistant thermoplastic THWN, rated 90°C in dry locations and 75°C in wet locations, for #8 AWG and smaller. For #6 AWG and larger insulation shall be type XHHW.
   5. Field wire minimum AWG sizes:
      a. #12 for wires used for individual conductor circuits 100 volt and above, except for Control Wire which may be #14AWG when listed in the Conduit and Wire Routing Schedule.
      b. #14 for wires used for individual conductor circuits below 100 volt.
   6. Nonfield or equipment wire minimum AWG sizes:
      a. #16 for wires used for individual conductor circuits 100 volt and above.
      b. #18 for wires used for individual conductor circuits below 100 volt.
   7. Instrument wiring:
      a. Field: Instrument cables shall have 600V tray cable rated insulation and 100% individual shielded twisted pair #16 AWG conductors with drain wire.
      b. Non-Field (inside enclosures): Instrument cables shall have 600V rated insulation and 100% individual shielded twisted pair #18 AWG conductors with drain wire.
      c. Single twisted shielded pair (T.S.PR.) cables shall be Belden or approved equal.

C. Color code - color code of all wire shall conform with the following table. Tape color coding allowed only on #6 AWG wires and larger.

WIRES COLOR CODE TABLE

DESCRIPTION	PHASE/CODE LETTER	FIELD WIRE WIRE OR TAPE COLOR	NON-FIELD WIRE COLOR
480 V, 3 PHASE	A	BROWN	BROWN
	B	ORANGE	ORANGE
	C	YELLOW	YELLOW
240 V or 208 V, 3P	A	BLACK	-
	B	RED (ORANGE if high leg)	-
	C	BLUE	-
240 / 120 V, 1 P	L1	BLACK	BLACK
	L2	RED	-
24V POSITIVE	24P	PINK	PINK
24V NEGATIVE	24N	BLACK/WHITE STRIPE	BLACK/WHITE STRIPE
AC CONTROL		VIOLET	RED (YELLOW FOR FOREIGN CIRCUITS)
DC CONTROL		LIGHT BLUE	LIGHT BLUE
NEUTRAL	N	WHITE	WHITE
GROUND	G	GREEN	GREEN
SHIELDED PAIR	+	BLACK	BLACK
	-	CLEAR	CLEAR

Note #1: High leg of open delta shall be colored orange per NEC 215-8.

D. Wire identification - all wires, field and interior (non-field) to equipment, shall be identified with machine permanent ink printed sleeve markers or clip-on markers covered with clear plastic heat shrinkable tubing. Hand lettered wire labels are not acceptable and shall be replaced at the Contractor's expense. All wires that are electrically the same (connected to common termination points) and do not pass through a contact or other switching device shall have the same wire identification. The wire labeling code for each end of the same wire shall be identical. Tubing shall be sized for the wire and shrunk into place with the properly sized heat gun. The wire identification code for field

and panel wiring shall be the number/letter designated on the approved "elementary", "loop" and "interconnection" diagrams.

2.06 CONDUIT, RACEWAYS, AND WIREWAYS

A. GENERAL - Conduit, raceways, and wireways, wiring methods, materials, installation shall meet all requirements of the NEC, be UL labeled for the application, and meet the minimum following specifications.

1. All wiring shall be installed in conduits, raceways, or wireways when interconnecting equipment and devices.
    a. The Contractor shall use special conduit, raceways, wireways, construction methods, and materials as shown on the Contract drawings; which shall take precedence over any general methods and materials specified in this section.
    b. The minimum size conduit shall be 3/4-inch unless indicated otherwise on the Drawings or for special connections to equipment.
    c. Conduit stubs shall be capped with coupling, nipple, & cap and each end identified with conduit labels.
2. CONDUIT MARKING
    a. All conduits listed in the "Conduit and Wire Routing Schedule" shall have conduit tags at both terminations of each conduit.
    b. Tag material shall be rigid laminated red phenolic with white lettering. The size of the tag shall be 2" diameter. No letters are allowed smaller than 7/16". Tags shall be heat and UV resistant, stainproof, electrically non-conductive and non corroding. Securely fasten tags in place using UV resistant, black plastic tie-wraps. Engrave the tags, on both sides, with the conduit number as listed in the Conduit and Wire Routing Schedule on the Contract "E"-series Drawings. Labeling shall be neatly installed for visibility and shall be clearly legible. Conduit tags shall be Brady Custom B-1 or approved equal.

B. GALVANIZED RIGID STEEL CONDUIT - PVC COATED (GRS-PVC)

1. Standard weight, galvanized conduit with a 40-mil thick polyvinylchloride coating bonded to both the outside and urethane interior coating. Conduit shall be hot-dip galvanized conforming to NEMA RN 1. GRS-PVC conduit to be Robroy Plasti-bond Red or approved equal.
2. Provide PVC coated galvanized rigid steel factory ells for 90 degree transitions.
3. Fittings shall be hot dipped galvanized steel or galvanized cast ferrous metal with a PVC 40 mils thick coating. Provide threaded-type fittings, couplings, and connectors; set-screw type and compression-type are not acceptable.
4. All junction and metal pull boxes shall be galvanized with exterior surfaces PVC coated to 40 mils thickness.

5. Conduits entering enclosures shall be fitted with insulated grounding bushing; O-Z "HBLG", Appleton "GIB", or approved equal. All grounding bushings shall be tied to the grounding system with properly sized bonding conductors per the NEC code.
6. GRS-PVC conduits shall be used for underground conduits where listed in the "Conduit and Wire Routing Schedule".
7. GRS conduit is allowed only when specifically called out in the "Conduit and Wire Routing Schedule".

C. LIQUID TIGHT FLEXIBLE METAL CONDUIT - (FLEX)

1. All flex conduits shall be metallic with water tight outer jackets.
2. Connectors:
3. Non-NEMA 1 or 12 Areas: PVC coated metallic with insulated bushings.
4. NEMA 1 or 12 Areas: Metallic with insulated bushings.
5. Final connections to vibrating equipment such as heaters and fans shall be made with flexible conduits
6. Flexible conduit lengths shall not be greater than 36 inches.
7. Flexible metallic conduit shall not be considered as a ground conductor, install a separate wire for equipment bonding.
8. Flexible conduit shall only be installed in exposed or accessible locations.
9. Flex conduits shall be used for conduit coupling to all vibrating and shifting equipment.

2.07 GROUNDING SYSTEM

A. The ground rod shall consist of not less than 10 continuous feet of ¾-inch copper coated electroplated high grade carbon steel. The ground rod shall be an Eritech 613400, NEHRING type NCC, Weater 348, or approved equal.

B. Install #1/0 bare copper ground bond wires to the various locations shown on the drawings.

C. Ground clamps shall be bolt-on type as manufactured by ILSCO type AGC, O-Z Gedney type GRC, or approved equal.

D. All ground rod, pipe, and steel plate and buried bond connections shall be made by welding process equal to Cadweld.

E. Grounding conductors shall be sized as shown on the Plans or in accordance with NEC table 250-122, whichever is larger.

F. Grounding and bonding wires shall be installed in all conduits and raceways and connected to the grounding termination point in all equipment.

G. Each ground bus shall be copper. Screw type fasteners shall be provided on all ground busses for connection of grounding conductors. Ground bus shall be a Challenger GB series, ILSCO CAN series or approved equal.

H. The system neutral conductor and all equipment and devices required to be grounded by the National Electrical Code shall be grounded in a manner that satisfies the requirements of the National Code.

I. The system neutral (grounded conductor) shall be connected to the system's grounding conductor at only a single point in the system. This connection shall be made by a removable bonding jumper sized in accordance with the applicable provisions of the National Electrical Code if the size is not shown on the Drawings. The grounding of the system neutral shall be in the enclosure that houses the service entrance main overcurrent protection.

J. Conduit grounding bushings shall be installed on all metallic conduits. Conduit grounding bushings shall be set screw locking type electra-galvanized malleable iron with insulation collar and shall be provided with a feed through compression lug for securing the ground bonding wire. Ground bonding wire shall be bare wire and shall be sized per NEC.

K. One side of the secondary on all transformers and DC power supplies shall be grounded to the ground bus.

L. All raceway systems, supports, enclosures, panels, motor frames, and equipment housings shall be permanently and effectively grounded.

M. All receptacles shall have their grounding contact connected to a grounding conductor.

N. Branch circuit grounding conductors for receptacles, or other electrical loads shall be arranged such that the removal of a lighting fixture, receptacle, or other load does not interrupt the ground continuity to any other part of the circuit.

O. Attachment of the grounding conductor to equipment or enclosures shall be by connectors specifically provided for grounding. Mounting, support, or bracing bolts shall not be used as an attachment point for ground conductors.

2.08 ELECTRICAL ENCLOSURES AND BOXES

A. Enclosures and boxes to be wall mounted, minimum 14 gauge, type 316 stainless steel with seams continuously welded & ground smooth, and fast access door latches. Enclosure construction shall be 14 gauge minimum with continuously welded seams.

B. Outer door shall have provisions for locking enclosure with standard padlock. Provide white backpan in each box.

C. A copper ground bus shall be provided in each enclosure or cabinet. It shall have provisions for connecting a minimum of ten grounding conductors.

D. Provide thermoplastic data pocket mounted on inside door. The as-built enclosure electrical drawings shall be placed in a water tight plastic wrap and shipped with the enclosure to the jobsite.

E. Enclosure shall be Hoffman, Circle AW, or approved equal.

2.09 PRECAST PULL BOXES

A. Precast pull boxes shall be rectangular with a minimum inside dimension (at the bottom of the box) of 12 inches by 22-inches with 2" thick walls.

B. The pull box shall be provided with a H20 rated, hot dipped galvanized steel checker plate lid with two hold-down bolts located opposite corners.

C. The pull box shall be model N16 with a N16-61J lid as manufactured by Christy Products, Inc, or approved equal.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. All work in this Section shall conform to the codes and standards outlined herein.

B. The Contractor shall employ personnel that are skilled and experienced in the installation and connection of all elements, equipment, devices, instruments, accessories, and assemblies. All installation labor shall be performed by qualified personnel who have had experience on similar projects. Provide first class workmanship for all installations.

C. Ensure that all equipment and materials fit properly in their installations.

D. Perform any required work to correct improper installations at no additional expense to the Owner.

E. The Engineer reserves the right to halt any work that is found to be substandard or being installed by unqualified personnel.

3.02 CONSTRUCTION METHODS, GENERAL

A. All field wires and panel wires shall have wire markers as specified in the "WIRE" subsection.

B. No wires shall be spliced without prior approval by the Engineer.

C. Where splices are allowed or approved by the Engineer they shall conform with the following:
   1. Wire splicing devices shall be sized according to manufacturer's recommendations.
   2. Splices of #10 and smaller, including fixture taps, shall be made with see-thru nylon self-insulated twist on wire joints; T & B "Piggys", Ideal "Wing-Nut" or approved equal.
   3. Splices of #8 and larger shall be hex key screw two way connectors, with built in lock washers; T & B "Locktite", O-Z type XW or approved equal, insulated with 3M Scotch Super #88, Plymouth or approved equal.
   4. Splices in underground pullboxes and exterior connection boxes shall be insulated and moisture sealed with 3M "Scotchlok" cast resin splice kits. Do not use splice kits with a date marking for shelf life that has expired.

3.03 PANEL FABRICATION

A. Panel cutouts for devices (i.e. indicating lights, switches) shall be cut, punched, or drilled and smoothly finished with rounded edges. Exposed metal from cutouts that are made after the final paint finish has been applied shall be touched up with a matching paint prior to installing device. Do not paint nameplates, labels, tags, switches, receptacles, conductors, etc.

B. All Panel doors shall be fully gasketed with nonshrinkable, water and flame resistant material.

C. Bolts and screws for mounting devices on doors shall be as specified by the manufacturer, otherwise they shall have a flush head which blends into the device or door surface. No bolt or screw holding nuts shall be used on the external surface of the door.

D. Each component within the Panel shall be securely mounted on an interior cubicle or backpan and arranged for easy servicing, such that all adjustments and component removal can be accomplished without removing or disturbing other components. Mounting bolts and screws shall be front located for easy access and removal without special tools. Access behind the sub panel or backpan shall not be required for removing any component.

E. A ground bus shall be provided in each bussed Panel section and electrical enclosure. It shall have provisions for connecting a minimum of ten grounding conductors. Screw type lugs shall be provided for connection of grounding conductors. All grounding conductors shall be sized as shown on plans or in accordance with NEC Table 250-122, whichever is larger.

F. Minimum wire bending space at terminals and minimum width of wiring gutters shall comply with NEC tables 373-6 (a) & (b).

G. Future device and component mounting space shall be provided on the door, backpan, and subpanel where detailed on the Drawings. Where no detail is shown, provide a minimum of 15 percent usable future space. Also, add extra DIN rail to allow adding relays & terminal blocks in the future as called out on Contract drawings.

H. Doors shall swing freely and close with proper alignment.

I. HARNESS: Where space is available, all wiring shall be run in slotted plastic wire ways or channels with dust covers. If space is not available for wireways, then all wiring shall be neatly bundled and laced with plastic tie-wraps, anchored in place by screw attached retainer. Wire ways or channels shall be sized such that the wire fill does not exceed 60%. Tie-wraps shall be T&B TY-RAP or approved equal.

J. HINGE LOOPS: Where wiring crosses hinged surfaces, provide a "U" shaped hinge loop protected by clear nylon spiral wrap. The hinge loop shall be of sufficient length to permit opening and closing the door without stressing any of the terminations or connections. Spiral wrap shall be Graybar T25N or approved equal.

K. RETAINERS: Wire ways, retainers, and other devices shall be screw mounted with round-head 316 stainless steel screws or mechanically mounted by push-in or snap-in attachments. Glue or sticky back attachment of any type or style shall not be used. Retainers shall be T&B TC series or approved equal.

L. ROUTING: Wires shall be routed in slotted plastic wire-ways with snap covers.
   1. Wires carrying 120 VAC shall be separated as much as possible from other low voltage wires and signal cables, and shall be routed only in ducts for 120 VAC. If the power wiring has to cross the signal wiring, the crossing shall be as close to a right

angle as possible. Ducts for 24 VDC wiring shall be used for all other wires and cables.

2. Routing of 120 VAC in combined ducts is not allowed without prior written approval of the Owner.
3. Wires and cable shall be routed along the shortest route between termination points, excepting routes which would result in routing 120 VAC and other wires and cables in the same duct.
4. Wires and cables shall have sufficient length to allow slack and to avoid any strain or tension in the wire or cable. Wires and cables shall be placed in the ducts in a straight, neat and organized fashion and shall not be kinked, tangled or twisted together.
5. Additional wire ducting shall be provided for use by the electrical subcontractor for routing field wires to their landing points in the each electrical and instrumentation panel.
6. Wiring not routed in duct work shall be neatly bundled, treed, and laced with plastic ties. Wiring across door hinges shall be carefully made up and supported to avoid straining and chafing of the conductors or from putting any strain on their terminals.

M. TERMINATIONS: Single wire and cable conductors shall be terminated according to the requirements of the terminal device. All terminations must be made at terminals or terminal blocks. Use of spring or buttsplice connectors are not allowed.

1. Provide 3" minimum separation between wireway and terminal blocks. Installation of wireways too close to terminal blocks will be required to be completely reworked to the satisfaction of the Owner.
2. For captive screw pressure plate type terminals, the insulation shall be removed from the last 0.25 inches of the conductor. The conductors shall be inserted under the pressure plate to full length of the bare portion of the conductor and the pressure plate tightened without excess force. No more than two conductors shall be installed in a single terminal. All strands of the conductor shall be captured under the pressure plate.
3. For screw terminals, appropriately sized locking forked spade lugs shall be used. Lugs shall be crimp on type that form gas tight connections. All crimping shall be done using a calibrated crimping tool made specifically for the lug type and size being crimped.
4. On shielded cables, the drain wire shall be covered with insulating tubing along its full bare length between the cable jacket and the terminal lug or terminal pressure plate.
5. For screwless terminals, wire shall be stripped back and inserted per the manufacturer's instructions. When stripping insulation from conductors, do not score or otherwise damage conductor.
6. Heat shrink shall be placed on ends of shielded cable to cover foil.

7. Additional condulets with terminal blocks shall be supplied for wire termination to devices with leads instead of terminals. (i.e. solenoid valves, level probe, etc.)

N. All devices and wiring shall be permanently labeled.

O. All components associated with a particular compartment's or enclosure's function shall be mounted in that compartment or enclosure.

P. Spacing and clearance of components shall be in accordance with UL, JIC, and NEC standards.

3.04 DAMAGED PRODUCTS

A. Damage products will not be accepted. All damaged products shall be replaced with new products at no additional cost to the Owner.

3.05 FASTENERS & LUGS

A. Fasteners for securing equipment to walls, floors, and the like shall be 316 stainless steel.

B. Stainless steel anchor bolts, ½" minimum size, shall be installed for the Panel in the front and back of each section at locations recommended by Panel manufacturer.

C. All wire & cable lugs shall be copper; aluminum or aluminum alloy lugs shall not be used. The Electrical Contractor shall supply all lugs to match the quantity & size of wire listed in the conduit & wire routing schedule.

3.06 INSTALLATION, GENERAL

A. Install all products per manufacturer's recommendations and the Drawings.
   1. Contract Drawings are intended to show the basic functional requirements of the electrical and instrumentation system and do not relieve the Contractor from the responsibility to provide a complete and functioning system.
   2. Provide all necessary hardware, conduit, wiring, fittings, and devices to connect the electrical equipment provided under other Sections. The following shall be done by the Contractor at no additional cost to the Owner:
      a. Provide additional devices, wiring, conduits, relays, signal converters, isolators to complete interfaces of the electrical and instrumentation system.
      b. Changing normally open contacts to normally closed contacts or visa versa.
      c. Adding additional relays to provide more contacts as necessary.

B. Panels and enclosures:

1. Install panels and enclosures at the location shown on the Plans or approved by the Engineer.
2. Install level and plumb.
3. Seal all enclosure openings to prevent entrance of insects and rodents.
4. All conduits entering outdoor panels and enclosures shall use watertight hubs. These hubs shall be located on sides or bottom only. Top entry of outdoor panels or enclosures is not allowed unless specifically shown on plans.
5. Clearance about electrical equipment shall meet the minimum requirements of NEC 110-26.

C. Conduits:
1. Install conduit free from dents and bruises.
2. All conduits shall be labeled on all ends; at junction boxes, pull boxes, enclosures, stub-outs, or other terminations.
3. All conduit entering or leaving a panel shall be stubbed up into the bottom horizontal wireway directly below the vertical section in which the conductors are to be terminated.
4. A maximum of three equivalent 90 degree elbows are allowed in any continuous runs. Install pull boxes where required to limit bends in conduit runs to not more than 270 degrees or where pulling tension would exceed the maximum allowable for the cable.
5. Route all above grade conduits parallel or perpendicular to structure lines and/or piping. Conduits installed above grade shall be braced in place with stanchions. Expansion joints shall be installed every 100 feet.
6. Wiring, grounding, and shielding: It is important to observe good grounding and shielding practices in the generally noisy environment in this application. The shield of shielded cables shall be terminated to ground at one end only, and covered with insulated heat shrink tubing. The shield at the other end shall be encased in an insulated material to isolate it from ground.
7. Provide the excavation for equipment foundations, and trenches for conduits or buried cables as necessary. Repave any area that was paved prior to excavation. Backfill and surface all areas as shown on the Drawings or where not shown to the original condition that was present prior to the excavation.
8. In pullboxes and vaults, separate power wiring to one side within and all other wiring to opposite side in bundles, see Electrical Drawing details. In vault, these separate bundles are to be supported on plastic cable supports rated for the bundle loading.
9. Conduit entrances: Seal each conduit entrance from below grade into the electrical enclosures with plugging compound sealant to prevent the entrance of insects and rodents. Conduits between the Termination Boxes and other panels shall be sealed with plugging compound sealant on each end. All conduits entering and exiting the

pull box shall also be sealed. Plugging compound sealant shall be Courtaulds Aerospace (609 456-5700) Semco PR-868 or approved equal.

D. Wiring:

1. Wiring, grounding, and shielding: It is important to observe good grounding and shielding practices in the generally noisy environment in this application. The shield of shielded cables shall be terminated to ground at one end only, and covered with insulated heat shrink tubing. The shield at the other end shall be encased in an insulated material to isolate it from ground.

E. Seals:

1. Seal around all conduits, wires, and cables penetrating between walls, ceilings, and floors in all buildings with a fire stop material. Seal shall be made at both ends of the conduit with a fire stop putty. Seal shall have a minimum two hour rating. Fire stop sealing shall be International Protective Coatings Flamesafe, or approved equal.
2. Seal around conduits entering outside to inside structures and around bottom of free standing enclosures to maintain watertight integrity of structure.
3. Place conduit seal inside each underground conduit riser into panels and enclosures to prevent entrance of insects and rodents.

F. Cleaning and Touch-up:

1. Prior to startup and completion of the work subsequent to final acceptance, all parts of the installation, including all equipment, exposed conduit, devices, and fittings shall be cleaned and given touch up by Contractor as follows:
2. Remove all grease and metal cuttings.
3. Any discoloration or other damage to parts of the building, the finish, or the furnishings, shall be repaired.
4. Thoroughly clean any of his exposed work requiring same.
5. Vacuum and clean the inside of all panel and electrical and instrumentation enclosures.
6. Clean all above and below ground pull boxes, junction boxes, and vaults from all foreign debris prior to final acceptance.
7. Paint all scratched or blemished surfaces with the necessary coats of quick drying paint to match adjacent color, texture, and thickness. This shall include all prime painted electrical equipment, including enclosures, panels, poles, boxes, devices, etc.
8. Repair damage to factory finishes with repair products recommended by Manufacturer.
9. Repair damage to PVC or paint finishes with matching touchup coating recommended by Manufacturer.

3.07 TESTING

A. GENERAL REQUIREMENTS

1. It is the intent of these tests to assure that all equipment is operational within industry and Manufacturer's tolerances and is installed in accordance with design plans and specifications
2. All equipment setup and assembled by the Contractor shall be in accordance with the design plans and Drawings and the manufacturer's recommendations and instructions and shall operate to the Engineer's satisfaction. Follow all manufacturer's instructions for handling, receiving, installation, and pre-check requirements prior to energization. After energization, follow manufacturer's instructions for programming instrumentation, set-up and calibration of equipment. The Contractor shall be responsible for, and shall correct by repair or replacement, at his own expense, equipment which, in the opinion of the Engineer, has been caused by faulty mechanical or electrical assembly by the Contractor. Necessary tests to demonstrate that the electrical and mechanical operation of the equipment is satisfactory and meets the requirements of these Specifications shall be made by the Contractor at no additional cost to the Owner.
3. The first set of tests to be performed shall determine the suitability for energization and shall be completed with all power turned off.
4. All tests shall be witnessed by the Engineer and/or Owner personnel. The test forms shall be completed by the testing person for field checkout, testing, and calibration of all equipment and instruments. All filled in test forms shall be given to the Engineer and/or Owner the day of the test. Fill in two sets of test forms if Contractor wants to keep a copy. All tests shall be documented in writing by the supplier and signed by the Engineer as satisfactory completed. The supplier shall keep a detailed log of all tests that failed or did not meet specifications, including date of occurrence and correction. Completed forms with proper signatures and dates shall be included and become a component of the Operations and Maintenance Manual for each of the respective systems.
5. The Contractor shall notify the Owner and the Engineer of the Supplier's readiness to begin all field tests in writing (a minimum of ten working days prior to start), and shall schedule system checkout on dates agreed to by the Owner and the Engineer in order that the testing be scheduled and witnessed.
6. The supplier shall submit for approval, the proposed field testing sheets at least 24 days prior to the start of the tests. Each testing sheet shall have a title giving the type of test and entry spaces for the name of the person who performed the test, name of the person who witnessed the test, and the date. Tests performed without approved forms shall be retested at no additional cost to Owner.
7. Testing shall not commence until the test procedures have been reviewed and approved by the Owner.

8. If the results of any of tests are unacceptable to the Engineer, the Contractor shall make corrections and perform the tests again until they are acceptable to the Engineering; these additional tests shall be done at no additional cost to the Owner.
9. Prior to any field testing, Interconnection Drawings and Operation & Maintenance Manuals shall have been submitted by the Contractor and approved by the Engineer.

B. FAILURE TO MEET TEST

1. Any system material or workmanship which is found defective on the basis of acceptance tests shall be reported to the Engineer. The Contractor shall replace the defective material or equipment and have tests repeated until test proves satisfactory to the Engineer without additional cost to the Owner.

C. SAFETY

1. Testing shall conform to the respective manufacturer's recommendations. All manufacturer's safety precautions shall be followed.
2. The procedures stated herein are guidelines for the intended tests, the Contractor shall be responsible to modify these tests to fit the particular application and ensure personnel safety. Absolutely no tests shall be performed that endanger personal safety.
3. The Electrical Contractor shall have two or more Electricians present at all electrical field tests.
4. California Electrical Safety Orders (ESO) and Occupational Safety and Health Act (OSHA): The Contractor is cautioned that testing and equipment shall comply with ESO and OSHA as to safety, clearances, padlocks and barriers around electrical equipment energized during testing.
5. Field inspections and pre-energization tests shall be completed prior to applying power to equipment.

D. ELECTRICAL FIELD TESTS

1. PRE-ENERGIZATION TESTS: These tests shall be completed prior to applying power to any equipment.
   a. INSPECTIONS
      1) Visual and Mechanical:
         a) Inspect for physical damage, proper anchorage, and grounding.
         b) Compare equipment nameplate data with design plans and starter schedule.
         c) Compare overload setting with motor full load current for proper size.
      2) The Contractor shall fill in, for each piece of equipment, Test Form TF4 located in Appendix "A".
   b. TORQUE CONNECTIONS

1) All electrical, mechanical and structural threaded connections inside equipment shall be tightened in the field after all wiring connections have been completed. Every worker tightening screwed or bolted connections shall be required to have and utilize a torque screwdriver/wrench at all times. Torque connections to the value recommended by the equipment manufacturer. If they are not available, use NEC 2008 110-14 as guidelines.

c. WIRE INSULATION AND CONTINUITY TESTS

1) All devices that are not rated to withstand the 500V megger potential shall be disconnected prior to the megger tests.

2) Megger insulation resistances of all 600 volt insulated conductors using a 500 volt megger for five seconds. Make tests with circuits installed in conduit and isolated from source and load. Each conductor shall be meggered conductor to conductor and conductor to ground. These tests shall be made on cable after installation with all splices made up and terminators installed but not connected to the equipment.

3) Megger insulation resistances of all motor leads using a 500 volt megger for ten seconds. Make these tests with motors installed in place and not connected to any other wiring. Each motor lead shall be tested conductor to ground.

4) Each megger reading shall not be less than 100 Meg-ohms resistive. Corrective action shall be taken if values are recorded less than 100 Meg-ohms.

5) Continuity Tests: Each instrumentation conductor twisted shielded pair shall have the conductor and shield continuity measured with an ohmmeter. Conductors with high ohm values, that do not match similar lengths of conductors the same size, shall be replaced at no additional cost to the Owner.

6) The Contractor shall fill in test forms Power and Control Conductor Test Form TF1 and Instrumentation Conductor Test Form TF2 located in Appendix "A".

7) Values of different phases of conductors in the same conduit run showing substantially different Meg-ohm values, even if showing above 100 Meg-ohms shall be replaced.

d. GROUNDING SYSTEM TESTS

1) Visual and Mechanical Inspection.

a) Verify ground system is in compliance with drawings and specifications.

2) Electrical Tests

a) Before making connections to the ground electrodes, and before placement of sidewalks, landscape and paving, measure the resistance of each electrode to ground using a ground resistance tester. Perform the

test not less than two days after the most recent rainfall and in the afternoon after any ground condensation (dew) has evaporated.

b) After all individual ground electrode readings have been made, interconnect as required and measure the system's ground resistance.

c) Perform point-to-point tests to determine the resistance between the main grounding system and all major electrical equipment frames, system neutral, and/or derived neutral points.

d) The grounding test shall be in conformance with IEEE Standard 81.

e) Plots of ground resistance shall be made and submitted to the Engineer for approval.

f) The current reference rod shall be driven at least 100 feet from the system under test.

g) Measurements shall be made at 10 feet intervals beginning 25 feet from the test electrode and ending 75 feet from it in a direct line between the system being tested and the test electrode.

3) Test Values

a) The resistance between the main grounding electrode and ground shall be no greater than five ohms for commercial or industrial systems per IEEE Standard 142.

b) Investigate point-to-point resistance values that exceed 0.5 ohms.

c) The Contractor shall fill in Grounding System Test Form TF3 located in Appendix "A"

2. POST ENERGIZATION TESTS

a. PANEL TESTS

1) During these tests, simulate all local and remote control operations.

b. ELECTRICAL TESTS

1) Perform operational tests by initiating control devices to affect proper operation.

2) The Contractor shall fill in Operational Device Checks and Tests Form TF6 located in Appendix "A".

c. INSTRUMENTATION TESTS

1) Test equipment used for testing of new and existing equipment shall be of suitable quality so as not to mask performance deficiencies. All test equipment shall be traceable to National Bureau of Standards and have been calibrated within six months of test date.

2) Testing shall be accomplished using simulated inputs only with prior written approval of the Owner.

E. OPERATIONAL TESTING

1. After all the previous tests in this subsection are complete, the Contractor shall conduct operational testing.
2. For the operational testing the new equipment shall be activated to automatically run for 5 days, Monday through Friday 24 hours a day. During this five day period the Owner will run the different combinations of the pump control options. If equipment failure occurs during the 5 days of operational testing, the Contractor shall repair or replace the defective equipment and shall begin another 5 day operational test, Monday through Friday 24 hours a day. This shall be continued until the new equipment functions acceptably for 5 consecutive days.

3.08 WARRANTY

A. The Contractor shall have a staff of experienced personnel available to provide service on 2 working days notice during the warranty period. Such personnel shall be capable of fully testing and diagnosing the hardware and implementing corrective measures. If the Contractor "fails to respond" in 2 working days, the Owner at its option will proceed to have the warranty work completed by other resources; the total cost for these other resources shall be reimbursed in full by the Contractor. "Fail to respond" shall be defined as: The Contractor has not shown a good faith effort and has not expended adequate resources to correct the problem. The use of other resources, as stated above, shall not change or relieve the Contractor from fulfilling the remainder of the warranty requirements.

B. The Contractor shall warrant all electrical equipment provided for this project for a period of one (1) year from date of final acceptance. Standard published warranties of equipment which exceed the preceding specified length of time shall be honored by the manufacturer or supplier.

C. The Contractor shall provide all labor and material to troubleshoot, replace, or repair any hardware that fails or operates unpredictable and correct any software problems during the warranty period, at no additional cost to the Owner.

D. Each time the Supplier's repair person responds to a system malfunction during the warranty period, he or she must contact the designated Owner maintenance supervisor for scheduling of the work, access to the jobsite, and permission to make repairs. Operation of facilities necessary to test equipment shall only be performed by or under the direction of the Owner Staff. The Owner reserves the right at its sole discretion to deny operations requested by the Supplier. A written description of all warranty work performed shall be documented on a field service report to be given to Owner prior to the repair person leaving job site each day. This field service report shall detail and clearly state problem, corrective actions taken, additional work that needs to be done, data, repair person name and company.

E. Prior to "final acceptance", the Contractor shall furnish to the Owner a listing of warranty information for all manufacturers of materials, instruments, and equipment used on the project. The listing shall include the following:
   1. Manufacturer's name, service contact person, phone number, and address.
   2. Material and equipment description, equipment number, part number, serial number, and model number.
   3. Manufacturer's warranty expiration date.

3.09 FINAL ACCEPTANCE

A. Final acceptance will be given by the Owner after the equipment has passed the "final acceptance trial period", each deficiency has been corrected, final documentation has been provided, and all the requirements of design documents have been fulfilled.

B. Upon completion of the project, prior to final acceptance, remove all temporary services, equipment, material, and wiring from the site.

C. At the end of the project, following the completion of all of the field tests, and prior to final acceptance, the Supplier shall provide the following final documentation to the Owner:
   1. A listing of warranty information.
   2. Each "operation and maintenance" manual shall be modified or supplemented by the Supplier to reflect all field changes and as-built conditions.
   3. Two (2) disk copies of all final documentation to reflect as-built conditions.

D. Prior to final acceptance submit each key with matching duplicate. Wire all keys for each lock securely together. Tag and plainly mark with lock number or equipment identification, and indicate physical location, such as panel or switch number.

E. Acceptance by Owner shall be based on:
   1. All operational tests performed to the satisfaction of Supervisor.
   2. Receipt of all final documentations listed above.
   3. Receipt of all spare parts.

END OF SECTION

SECTION 33 12 16 – VALVES AND FITTINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes basic requirements for valves.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures.

1.03 REFERENCES

A. ASTM International (ASTM)
   1. ASTM A126 - Specification for Gray Iron Casting for Valves, Flanges, and Pipe Fittings
   2. ASTM A167 - Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
   3. ASTM A536 - Specification for Ductile Iron Castings
   4. ASTM E527 - Practice for Numbering Metals and Alloys (UNS)

B. American Water Works Association (AWWA)
   1. AWWA C111 – Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe Fittings

C. NSF International (NSF)
   1. NSF 61 – Drinking Water System Components – Health Effects

D. Society for Protective Coatings (SSPC)
   1. SSPC SP7 - Brush-Off Blast Cleaning
   2. SSPC SP1O - Surface Preparation Specification for Near-White Blast Cleaning

1.04 DESIGN REQUIREMENTS

A. Pressure Rating
   1. Suitable for service under minimum working pressures of 150 pounds per square inch gauge
   2. When a piping system is specified in the Piping Schedule to be tested at a pressure greater than 150 pounds per square inch gauge, provide valves for that piping system with design working pressure which is sufficient to withstand the test pressure.

B. Valve to piping connections.
   1. Valves 3-inch nominal size and larger shall have flanged ends.
   2. Valves less than 3-inch nominal size shall have screwed ends.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00.

B. Submittals prior to installation
   1. Submit detailed Product Data relating to the valve including description of component parts, materials of construction, performance, dimensions, and weights.

C. Furnish bound sets of installation, operation, and maintenance instructions for each type of valve 4-inch in nominal size and larger and all non-manual valves. Include information on valve operators in operation and maintenance instruction manual.

1.06 QUALITY ASSURANCE

A. Valves shall be manufactured by manufacturers whose valves have had successful operational experience in comparable service.

1.07 DELIVERY STORAGE AND HANDLING

A. Protect valves and protective coatings from damage during handling and installation; repair coating where damaged.

PART 2 PRODUCTS

2.01 MATERIALS

A. Stainless steel shall be ASTM A167, Type 316, UNS Alloy S31 600 stainless steel.

B. Valve and operator bolts and nuts
   1. Fabricated of 316 stainless steel for the following installation conditions:
      a. Submerged in sewage or water.
      b. In an enclosed space above sewage or water
      c. In structures containing sewage or water, below top of walls.
      d. At openings in concrete or metal decks
      e. Stem guides
   2. Where dissimilar metals are being bolted, use stainless steel bolts with isolation bushings and washers.
   3. Underground bolts shall be low-alloy steel in accordance with AWWA C 111/A21.11.

C. Use bronze and brass alloys with not more than 6 percent zinc and not more than 2 percent aluminum in the manufacture of valve parts; UNS Alloy C83600 or C92200 unless specified otherwise.

D. Valve bodies shall be cast iron in accordance with ASTM A126, Class 30 minimum or ductile iron in accordance with ASTM A536, Grade 65-45-12 minimum unless specified otherwise.

2.02 INTERIOR PROTECTIVE LINING

A. Provide valves with the type of protective lining specified per this Section unless specified otherwise in the particular valve specification.

B. Apply protective lining to interior, non-working surfaces, except stainless steel surfaces.

C. Lining Types
   1. Fusion Bonded Epoxy
      a. Manufacturers shall be the following or equal:
         1) 3-M Company, ScotchKote 134; certified to NSF 61 for drinking water use
      b. Clean surfaces to meet SSPC SP-7 or SP-10, as recommended by epoxy manufacturer.
      c. Apply in accordance with manufacturer's published instructions.
      d. Lining thickness shall be 0.010 to 0.012 inches except:
         1) Lining thickness in grooves for gaskets shall be 0.005 inches.
         2) Seat grooves in valves with bonded seat shall not be lined.
      e. Quality Control
         1) Lining thickness shall be measured with a non-destructive magnetic type thickness gauge.
         2) Verify lining integrity with a wet sponge-testing unit operating at approximately 60 volts, or as recommended by the lining manufacturer.
         3) Consider tests successful when lining thickness meets specified requirements and when no pinholes are found.
         4) Correct defective lining disclosed by unsuccessful tests, and repeat test.
         5) Repair pinholes with liquid epoxy recommended by manufacturer of the epoxy used for lining.
   2. High Solids Epoxy
      a. As specified in Section 09 97 14.
      b. After lining is cured, check lined surface for porosity with a holiday detector set at 1,800 volts, or as recommended by lining manufacturer.
         1) Repair holidays and other irregularities and retest lining.

2) Repeat procedure until holidays and other irregularities are corrected.

2.03 ALTITUDE LEVEL CONTROL VALVE – ONE WAY FLOW WITH DELAYED OPENING

A. The altitude level control valve shall control the high-water level in the reservoir without the need for floats or other devices. It shall be a non-throttling type valve and remain fully open until the shut-off point in the reservoir is reached. The valve shall be designed for one way flow with a delayed opening until the water level in the reservoir reaches a desired level.

B. The altitude level control valve shall be fluid actuated with solenoid override and have a single moving assembly. A flexible, non-wicking, FDA approved, nylon fabric reinforced synthetic elastomer diaphragm shall be integral with this assembly to form a sealed chamber, operating free of drag or wear. The diaphragm shall not be used as a seating surface. This assembly shall have a stem which is fully guided by separate upper and lower bearings to preclude binding or deflection. When the valve is in the closed position sealing at the seat shall be accomplished by the contact between one edge of a securely retained elastomer quad ring and a smooth seat surface. The seat design shall be removable and not have edges that will induce seal cutting, or wear at low flows. The valve body and cover shall be of cast iron. An FDA approved fused epoxy coating shall be applied to the internal and external exposed surfaces of these components after cleaning and degassing. All internal valve components shall be removable and repairable while the valve body remains in the line. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the valve or controls. The valve shall be provided with an externally mounted y-strainer for protection of the control circuit and ball valves to isolate the pilot system from the main valve.

C. The valve shall be equipped with a 120 VAC solenoid valve to remotely close the altitude valve. The automatic altitude control valve must also be capable of hydraulic closure with minimum tank water elevation of 5 feet and a maximum tank water elevation 23 feet. Normal valve operating range shall be adjustable, with initial setting to open when WSE is 19 feet.

D. Operation: The valve shall control the filling of a reservoir to an adjustable high-water level. It shall not allow return flow when the pressure at the valve inlet lowers below the reservoir pressure. When the water level lowers to a desired level, the valve shall reopen to fill the tank. The altitude valve shall remain open until the adjustable shutoff point is reached, then close drip tight. The pilot control shall be a diaphragm actuated, 3-way type that operates on the differential force between the height of the water in the reservoir and an adjustable spring. The pilot system shall contain a 3-way, diaphragm actuated accelerator control and adjustable closing speed needle valve.

E. Material Specification

1. Body & Cover: Ductile Iron
2. Disc Retainer: Cast Iron
3. Main Vale Trim: Stainless Steel
4. End Connections: ANSI 150
5. Disc: Buna-N Rubber
6. Diaphragm: Nylon Reinforced Buna-N Rubber
7. Stem, Nut & Spring: Stainless Steel
8. Tubing and Fittings: Stainless Steel

F. Manufacturer
1. Cla Val
2. Watts
3. Singer
4. Approved Equal

2.04 GATE VALVES

A. Valves less than 3 Inches in Size for Clean Water and Air Service
1. Manufacturer's standard bronze
2. Solid wedge disc
3. Rising stem
4. Screwed end
5. Class 150 pounds
6. Manufacturers shall be one of the following or equal:
   a. Mueller
   b. Lunkenheimer Company

B. Valves 3 Inches in Size and Larger for general service
1. Resilient wedge type in compliance with AWWA C509
2. Flange, iron body and bonnet rated for 200-pound working pressure.
3. Provide O-ring seal between valve body and bonnet.
4. Ductile or cast-iron wedge encapsulated in nitrile rubber and capable of sealing in either flow direction.
5. Bronze stem with double or triple O-ring or braided packing stem seals
6. Rising stem configuration with handwheel diameter sized to allow opening of valve with no more than a 40-pound pull.
7. Coat interior and exterior surfaces of valve body and bonnet with fusion bonded epoxy in accordance with AWWA C550.

8. Manufacturers shall be one of the following or equal:
   a. Clow
   b. American Flow Control

2.05 GENERAL PURPOSE AWWA BUTTERFLY VALVES

A. Manufacturers shall be one of the following or equal:
   1. DeZurik
   2. Henry Pratt Company

B. Valve Body
   1. Material shall be cast iron, ASTM A126, Grade B, or ductile iron, ASTM A536, Grade 65-45-12.
   2. Body Design
      a. Flanged Body Valves
         1) Comply with usage limitations specified in the Butterfly Valve Application Schedule.
      b. ASME/ANSI B16.1 Class 125 flanges for Class 150B valves, ASME/ANSI B16.1 Class 250 flanges for Class 250B valves

C. Disc
   1. Material shall be cast iron or ductile iron with Type 316 stainless steel edge that matches seat in valve body.
   2. Secure valve disc to shaft by means of smooth-sided, taper or dowel pins, Type 316 stainless steel or Monel.
   3. Extend pins through full diameter of shaft and mechanically secure in place.

D. Shaft and Bearings
   1. Valves 20-inch and less shall have one piece, through disc shaft design.
   2. Vee type shaft seal, chevron design
   3. Shaft Material for Class 150B Valves shall be Type 316 stainless steel, ASTM A276.
   4. Shaft Material for Class 250B Valves shall be Type 17-4 pH stainless steel, ASTM A564.
   5. Self-lubricating sleeve type shaft bearings shall be Teflon with stainless steel or fiberglass backing.

E. Seats
   1. Seat material shall be EPDM.
   2. For valves 20 inches in nominal size and smaller, bond or vulcanize seat into the valve body.

3. Resilient seat shall withstand 75 pound per inch pull when tested in accordance with ASTM D429, Method B.

F. Valve packing shall be EPDM self-adjusting V-type valve packing or chevron-type packing.

2.06 BUTTERFLY VALVE ACTUATORS

A. Manual operators for aboveground valves
   1. Totally enclosed worm gear actuator mounted on the valve.

B. Position indication
   1. For all aboveground worm gear provide position indication on the actuator enclosure.

2.07 SWING-FLEX CHECK VALVE

A. This specification covers the design, manufacture, and testing of 2 in. through 48 in. Swing-Flex® Check Valves suitable for cold working pressures up to 250 psig, in water service.

B. The check valve shall be of the full flow body type, with a domed access cover and only one moving part, the flexible disc.

C. The valves shall be designed, manufactured, tested, and certified to American Water Works Association Standard ANSI/AWWAC508.

D. The valves used in potable water service 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.

E. Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

F. The valves shall have flanges with drilling to ANSI B16.1, Class 125.

G. The valve body shall be full flow equal to nominal pipe diameter at all points through the valve. The seating surface shall be on a 45-degree angle to minimize disc travel. A threaded port shall be provided on the bottom of the valve with a backflow actuator.

H. 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

pipe plug shall be provided in the access cover to allow for field installation of a mechanical, disc position indicator.

I. The disc shall be of one-piece construction, precision molded with an integral O-ring type sealing surface and reinforced with alloy steel. The flex portion of the disc contains nylon reinforcement and shall be warranted for twenty-five years. Non-Slam closing characteristics shall be provided through a short 35-degree disc stroke and a memory disc return action to provide a cracking pressure of 0.25 psig.

J. The valve disc shall be cycle tested 1,000,000 times in accordance with ANSI/AWWA C508 and show no signs of wear, cracking, or distortion to the valve disc or seat and shall remain drop tight at both high and low pressures.

K. The valve body and cover shall be constructed of ASTM A536 Grade 65-45-12 ductile iron or ASTM A126 class B gray iron for 30 in. (800mm) and larger. Optional body materials include ASTM A-351 Grade CF8M, stainless steel for sizes 3" (80 mm) through12" (300 mm).

L. The disc shall be precision molded Buna-N (NBR), ASTM D2000-BG.

M. A screw-type backflow actuator shall be provided to allow opening of the valve during no-flow conditions. Buna-N seals shall be used to seal the stainless-steel stem in a Lead-Free bronze bushing. The backflow device shall be of the rising-stem type to indicate position. A stainless-steel T-handle shall be provided for ease of operation.

N. Manufacturer shall demonstrate a minimum of five (5) years' experience in the manufacture of resilient, flexible disc check valves with hydraulic cushions.

O. All valves shall be hydrostatically tested, and seat tested to demonstrate zero leakage. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

P. The exterior and interior of the valve shall be coated with an NSF/ANSI 61 approved fusion bonded epoxy coating.

Q. Swing-Flex® Check Valves shall be Series #500 as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL. USA or approved equal.

2.08 ELASTOMER DUCKBILL CHECK VALVES

A. Valves 4 Inch through 24 Inch:
   1. Manufacturer:
      a. Tideflex.
      b. Model:

1) Series TF-35

2. Valve Design:
   a. Symmetrical flare
   b. Curved bill.
   c. Flange installation
3. Materials:
   a. Body: 100% elastomer construction
   b. Galvanized steel flange retaining ring.

2.09 COMBINATION AIR RELEASE VALVE

A. Dual air valves shall be manufactured to comply with AWWA C-512.

B. 3 Inch Valves:
   1. Manufacturers:
      a. APCO (DeZurik).
         1) Model: Series 147C
      b. Crispin Valve:
         1) Model: AL30

2.10 COATING

A. Shop coat interior and exterior metal surfaces of valves, except as follows:
   1. Interior machined surfaces
   2. Surfaces of gaskets and elastomeric seats and stem seals
   3. Bearing surfaces
   4. Stainless steel surfaces and components

B. Coating material for potable water applications
   1. Coating material shall meet requirements of NSF 61.

C. Field applied coatings
   1. Additional coating of the valve exterior will be required to match the exterior coating system of the tank called for in Section 09 97 14.
      a. When shop applied finish coating matches field applied coating on adjacent piping, touch up shop coating in damaged areas in accordance with instructions recommended by the paint manufacturer.
      b. When shop applied coating does not match field coating on adjacent piping, or when damage has occurred to the shop applied coating that requires more than touchup, blast clean valve surfaces or utilize other surface preparation

recommended by the manufacturer of the coating material and apply the coating system used for coating adjacent piping.

D. Surface Coatings
   1. Interior and exterior surfaces of valves, actuators, and accessories shall be coated with high solids epoxy, per Section 09 97 17.
   2. On polished and machined surfaces apply one of the following, or equal, rust-preventive compounds:
      a. Houghton, Rust Veto 344
      b. Rust-Oleum, R-9

PART 3 EXECUTION

3.01 EXAMINATION

A. Required information prior to installation.
   1. Install valves after the required submittal on installation has been accepted.
   2. After flanged valves are selected, determine the face-to-face dimensions.

B. Fabricate piping to lengths considering the face-to-face dimensions.

3.02 INSTALLATION

A. Install each type of valve in accordance with manufacturers printed instructions.

B. Clean faces of flanges with wire brush or similar, insert gaskets and bolts, and tighten nuts progressively and uniformly.

C. Provide incidental work and materials necessary for installation of valves including flange gaskets, flange bolts and nuts, valve boxes and covers, concrete bases, blocking, and protective coating.

D. Where needed, furnish and install additional valves for proper operation and maintenance of equipment and plant facilities under the following circumstances:
   1. Where such additional valves are required for operation and maintenance of the particular equipment furnished by Contractor
   2. Where such additional valves are required as a result of a substitution or change initiated by Contractor

E. Install Valves with their stems in vertical position above the pipe, except as follows:
   1. Butterfly valves, gate valves aboveground, globe valves, ball valves, and angle valves may be installed with their stems in the horizontal position.

2. Buried plug valves with geared operators shall be installed with their stems in a horizontal position.

F. Install valves so that handles and operators clear obstructions when the valves are operated from fully open to fully closed.

G. Provide adequate clearance between internal moving valve parts and adjacent appurtenances.

H. Place top of valve boxes flush with finish grade or as otherwise indicated on the Drawings.

I. Valves with threaded connections
   1. Install valves by applying wrench on end of valve nearest the joint to prevent distortion of the valve body.
   2. Apply pipe joint compound and Teflon tape on external (male) threads to prevent forcing compound into valve seat area.

J. Valves with flanged connections
   1. Align flanges and gasket carefully before tightening flange bolts.
   2. When flanges are aligned, install bolts and hand tighten.
   3. Tighten nuts opposite each other with equal tension before moving to next pair of nuts.

END OF SECTION

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SECTION 33 13 13 – WATER STORAGE TANK DISINFECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Water tank disinfection.
   2. Bacteriological testing.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures.

B. Section 09 97 14 – Steel Tank Coating.

1.03 REFERENCES

A. American Water Works Association:
   1. AWWA C652-19 – Disinfection of Water Storage Facilities.

1.04 SUBMITTALS

A. Section 01 33 00 – Submittal Procedures: Requirements for submittals.

B. Disinfection Procedure: Submit procedure description including type of disinfectant to and calculations indicating quantities of disinfectants required to produce specified chlorine concentration in accordance with Section 4 of AWWA C652-19.

C. Test Reports in accordance with Section 5 of AWWA C652-19: Indicate results of bacteriological and residual chlorine laboratory test reports.

D. Manufacturer's Certificate:
   1. Certify products meet or exceed specified requirements.
   2. Certify disinfectants meet or exceed AWWA Standards requirements.
   3. Certify all bacteriological testing is done by a California Department of Public Health certified laboratory.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with AWWA C652-19.

B. Perform Work in accordance with State of California Standards.

C. After the tank is filled, samples shall be collected by the Contractor in the presence of the Inspector, for bacteriological testing.

D. Inspector or other representative of the Owner shall deliver the bacteria test samples to a California DPH certified laboratory.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store disinfectants in cool, dry place away from combustibles such as wood, rags, oils and grease.

B. Handle disinfectants with caution; protect skin and eyes from contact; avoid breathing vapors; wear gloves, aprons, goggles, and vapor masks.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Furnish personnel working inside tank during disinfection with equipment to comply with Federal and State regulations for work conducted in hazardous atmosphere.

B. Legal disposal of the chlorinated dosing water shall be the responsibility of the Contractor and shall be performed in a manner satisfactory to and at the approval of the Owner. The approval of the Owner does not relieve the Contractor of the responsibility of adhering to all applicable laws regarding discharge of water to disposal areas or waterways.

C. Neutralize disinfectant solution before disposal.

D. Repair damage caused by disinfectant solution and disinfection procedures.

PART 2 PRODUCTS

2.01 DISINFECTANTS

A. Chlorine Forms: In accordance with AWWA C652-19, Section 4.

B. The Contractor shall furnish and install the necessary corporation cocks and appurtenances that may be required to accomplish adequate disinfection.

PART 3 EXECUTION

3.01 EXAMINATION

A. Conduct inspection of tank interior before beginning disinfection.
   1. Verify tank is clean and free of polluting materials.

2. Verify tank pipe and vent connections are properly made and clear of obstructions.
3. Verify coatings are thoroughly cured in accordance with paint manufacturer's instructions.

3.02 PREPARATION

A. Protect aquatic life and vegetation from damage from disinfectant solution purged from tank.

3.03 APPLICATION

A. Chlorination Method 2 as specified in Section 4 of AWWA C652-02-19.

3.04 FIELD QUALITY CONTROL

A. Collect samples of water from filled tank for bacteriological analysis in accordance with Section 5 of AWWA C652-19; take inlet and outlet water samples.

B. Test water samples for bacterial contamination and residual chlorine in accordance with State Health Standards for potable water.

C. When water samples fail to meet State Health Standards for potable water perform the following corrective measures until water quality conforms to State Health Standards:
   1. Inlet and Outlet Water Sample Failure: Eliminate source of contamination in water supply, repeat disinfection, and retest water quality.
   2. Outlet Water Sample Failure: Repeat disinfection, and retest water quality.

END OF SECTION

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SECTION V

CONSTRUCTION AGREEMENT

CONSTRUCTION AGREEMENT

FY _____ Fund _____ Cost Center _____ Object Code _____ Project # C67501007 Amount $_____

For multi-year contracts or contracts with multiple accounts:

FY _____ Fund _____ Cost Center _____ Object Code _____ Project # _____ Amount $_____

FY _____ Fund _____ Cost Center _____ Object Code _____ Project # _____ Amount $_____

FY _____ Fund _____ Cost Center _____ Object Code _____ Project # _____ Amount $_____

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20____, by
(city use only)

and between CITY OF PETALUMA (hereinafter called "CITY") and _____ (hereinafter called "CONTRACTOR").

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

ARTICLE 1. WORK

CONTRACTOR shall complete the WORK as specified or indicated in the CITY'S Contract Documents entitled Manor Lane Tank Rehabilitation C67501007.

ARTICLE 2. COMPLETION OF WORK

The WORK shall be completed to the satisfaction of CITY within Ninety (90) working days from the commencement date stated in the Notice to Proceed. In no event, however, shall the WORK to be performed under this contract be considered to be complete until all construction items called for on the drawings, and specifications have been completed and the contract price paid in full.

ARTICLE 3. LIQUIDATED DAMAGES

A. CITY and the CONTRACTOR recognize that time is of the essence of this Agreement and that the CITY will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage which the CITY will sustain in the event of and by reason of the CONTRACTOR's failure to fully perform the WORK or to fully perform all of its contract obligations that have accrued by the time for completion as specified in Article 2 herein and/or as specified for completion of any scheduled operations or works described in the Special Provisions. It is, therefore, agreed in accordance with California Government Code Section 53069.85 that the CONTRACTOR will forfeit and pay to the CITY liquidated damages in the sum of Fifteen Hundred Dollars ($1,500) per day for each and every calendar day that expires after the time for completion specified in Article 2 herein and/or as specified for completion of any scheduled operations or works described in the Special Provisions

except as otherwise provided by extension of time pursuant to Article 12 of the General Conditions. It is further understood and agreed in accordance with California Government Code Section 53069.85 that the liquidated damages sum specified in this provision is not manifestly unreasonable under the circumstances existing at the time this contract was made, and that the CITY may deduct liquidated damages sums in accordance with this provision from any payments due or that may become due the CONTRACTOR.

B. Liquidated damages will continue to accrue at the stated rate until final completion of the WORK. Accrued liquidated damages may be deducted by the CITY from amounts due or that become due to the CONTRACTOR for performance of the WORK. Liquidated damages may not be waived or reduced by CITY unless expressly waived or reduced in writing by the ENGINEER.

ARTICLE 4. PREVAILING WAGES

A. Pursuant to California Labor Code Section 1771, CONTRACTOR and any subcontractor shall pay all workers employed in execution of the WORK in accordance with the general rate of per diem wages specified for each craft, classification, or type of worker needed to execute the WORK. Copies of the prevailing rates of per diem wages are on file at the City Clerk's office and shall be made available to any interested party on request.

B. CONTRACTOR is required to pay all applicable penalties and back wages in the event of violation of prevailing wage law, and CONTRACTOR and any subcontractor shall fully comply with California Labor Code Section 1775, which is incorporated by this reference as though fully set forth herein.

C. CONTRACTOR and any subcontractor shall maintain and make available for inspection payroll records as required by California Labor Code Section 1776, which is incorporated by this reference as though fully set forth herein. CONTRACTOR is responsible for ensuring compliance with this section. CONTRACTOR and any subcontractor shall maintain and make available for inspection payroll records as required by California Labor Code Section 1776, which is incorporated by this reference as though fully set forth herein. CONTRACTOR is responsible for ensuring compliance with this section. In addition, CONTRACTOR and any subcontractor shall submit certified payroll records to the Labor Commissioner online: http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html.

D. CONTRACTOR and any subcontractor shall fully comply with California Labor Code Section 1777.5, concerning apprentices, which is incorporated by this reference as though fully set forth herein. CONTRACTOR is responsible for ensuring compliance with this section.

E. In accordance with California Labor Code Section 1810, eight (8) hours of labor in performance of the WORK shall constitute a legal day's work under this Agreement. CONTRACTOR and any subcontractor shall pay workers overtime pay as required by California Labor Code Section 1815. CONTRACTOR and any subcontractor shall, as a

penalty to the CITY, forfeit Twenty-Five Dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more that 8 hours in any one calendar day and 40 hours in any one calendar week in violation so the provisions of Article 3 of Chapter 1 of Part 7, Division 2 of the California Labor Code, which is incorporated by this reference as though fully set forth herein.

ARTICLE 5. CONTRACT PRICE

A. CITY shall pay CONTRACTOR for completion of the WORK the sum of _____ Dollars ($_____), based on the bid price of same and in accordance with the Contract Documents.

B. Notwithstanding any provisions herein, CONTRACTOR shall not be paid any compensation until such time as CONTRACTOR has on file with the City Finance Department a current W-9 form available from the IRS website (www.irs.gov) and has obtained a currently valid Petaluma business license pursuant to the Petaluma Municipal Code.

C. In no case shall the total contract compensation exceed _____ Dollars ($_____) without the prior written authorization by the City Manager. Further, no compensation for a section or work program component attached with a specific budget shall be exceeded without the prior written authorization of the City Manager.

ARTICLE 6. BONDS

A. Before entering upon the performance of the WORK, the CONTRACTOR shall furnish Performance and Labor and Materials Bonds, each in the amount of one hundred percent (100%) of the contract price, as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date of Completion, except as otherwise provided by Law or Regulation or by the Contract Documents. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.

B. The CONTRACTOR shall guarantee the WORK to be free of defects in material and workmanship for a period of one (1) year following the CITY's acceptance of the WORK. The CONTRACTOR shall agree to make, at the CONTRACTOR's own expense, any repairs or replacements made necessary by defects in material or workmanship which become evident within the one-year guarantee period. The CONTRACTOR's guarantee against defects required by this provision shall be secured by a Maintenance Bond, in the amount of ten percent (10%) of the contract price, which shall be delivered by the CONTRACTOR to the CITY prior to acceptance of the WORK. The Maintenance Bond shall remain in force for one (1) year from the date of acceptance of the contracted WORK. The CONTRACTOR shall make all repairs and replacements within the time required during the guarantee period upon receipt of written order from the ENGINEER. If the CONTRACTOR fails to make the repairs and replacements

within the required time, the CITY may do the work and the CONTRACTOR and the CONTRACTOR's surety for the Maintenance Bond shall be liable to the CITY for the cost. The expiration of the Maintenance Bond during the one-year guarantee period does not operate to waive or void the one-year guarantee, as set forth herein.

C. The form of the Performance, Labor and Materials, and Maintenance Bonds are provided by the CITY as part of the Contract Documents. Only such bond forms provided by the CITY are acceptable 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 Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

D. If the surety on any Bond furnished by the CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and surety, which must be acceptable to the CITY.

E. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of California to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

ARTICLE 7. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

ARTICLE 8. RETENTION

A. Pursuant to Section 22300 of the California Public Contract Code, the CONTRACTOR may substitute securities for any money withheld by the CITY to ensure performance under the Contract. At the request and expense of the CONTRACTOR, securities equivalent to the amount withheld shall be deposited with the CITY or with a state or federally chartered bank in California as to the escrow agent, who shall return such securities to the CONTRACTOR upon satisfactory completion of the Contract.

B. Alternatively, the CONTRACTOR may request and the CITY shall make payment of retentions earned directly to the escrow agent at the expense of the CONTRACTOR. At the expense of the CONTRACTOR, the CONTRACTOR may direct the investment of the payments into securities and the CONTRACTOR shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by the CONTRACTOR. The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the escrow account and all expenses of the CITY. These expenses and payment terms shall be determined by the CITY's Finance Director of

his/her designee and the escrow agent. Upon satisfactory completion of the Contract, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of this section. The CONTRACTOR shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to ensure the performance of the CONTRACTOR.

C. Securities eligible for investment under Section 22300 shall be limited to those listed in Section 16430 of the Government Code and to bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR and the CITY.

ARTICLE 9. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between the CITY and the CONTRACTOR concerning the WORK consist of this Agreement and the following attachments to this Agreement:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Forms including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits
- Labor and Materials Bond
- Performance Bond
- Maintenance Bond
- General Conditions
- Supplementary General Conditions (if any)
- Specifications
- Special Provisions
- Drawings
- Federal Wage Rates dated _____ (if applicable)
- Form FHWA-1273 (if applicable)
- Addenda (if any)
- Change Orders which may be delivered or issued after Effective Date of the Agreement and are not attached hereto.

There are no Contract Documents other than those listed in this Article 9. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.5 of the General Conditions.

ARTICLE 10. INSURANCE

The applicable insurance requirements, as approved by the City's Risk Manager, are set forth in **Exhibit B**, attached hereto and incorporated by reference herein. *[City use: check one.]*

ARTICLE 11. INDEMNIFICATION

A. CONTRACTOR shall indemnify, defend with counsel acceptable to CITY, and hold harmless to the full extent permitted by law, CITY and its officers, officials, employees, agents and volunteers from and against any and all alleged liability, loss, damage, claims, expenses and costs (including, without limitation, attorney fees and costs and fees of litigation) (collectively, "Liability") of every nature arising out of or in connection with CONTRACTOR's performance of the WORK or its failure to comply with any of its obligations contained in this Agreement, except such Liability caused by the active negligence, sole negligence or willful misconduct of the CITY. Such indemnification by the CONTRACTOR shall include, but not be limited to, the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its subcontractors, employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, or agents;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's, or Supplier's own employees, or agents engaged in the WORK resulting in actions brought by or on behalf of such employees against the CITY and/or the ENGINEER;
3. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the CONTRACTOR, its subcontractors, employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its subcontractors, employees, or agents in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specified stipulated in this Agreement;
5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the CITY or any other parties by the CONTRACTOR, its subcontractors, employees, or agents;
6. Liability or claims arising directly or indirectly from the willful misconduct of the CONTRACTOR, its subcontractors, employees, or agents;
7. Liability or claims arising directly or indirectly from any breach of the obligations assumed in this Agreement by the CONTRACTOR;
8. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the CONTRACTOR, Subcontractors, Suppliers, or any of their employees or agents, and;
9. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the CITY, the ENGINEER, their consultants, subconsultants, and the officers, directors, employees and agents of each or any of them, to the extent caused by the CONTRACTOR's use of any premises acquired by permits, rights of way, or easements, the Site, or any land or area contiguous thereto or its performance of the WORK thereon.

B. The CONTRACTOR shall reimburse the CITY for all costs and expenses, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court costs of appeal) incurred by said CITY in enforcing the provisions of this Paragraph.

C. The indemnification obligation under this Article 11 shall be in addition to, and shall not be limited in any way by any limitation on the amount or type of insurance carried by CONTRACTOR or by the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts. The CONTRACTOR's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law.

D. Pursuant to California Public Contract Code Section 9201, City shall timely notify Contractor of receipt of any third-party claim relating to this Agreement.

ARTICLE 12. DISCLAIMER AND INDEMNITY CONCERNING LABOR CODE SECTION 6400

By executing this agreement the CONTRACTOR understands and agrees that with respect to the WORK, and notwithstanding any provision in this contract to the contrary, the CONTRACTOR, and/or its privities, including, without limitation, subcontractors, suppliers and other engaged by the CONTRACTOR in the performance of the WORK shall be "employers" for purposes of California Labor Code Section 6400 and related provisions of law, and that neither CITY nor its officials, officers, employees, agents, volunteers or consultants shall be "employers" pursuant to California Labor Code Section 6400 with respect to the performance of the WORK by the CONTRACTOR and/or its privities.

The CONTRACTOR shall take all responsibility for the WORK, shall bear all losses and damages directly or indirectly resulting to the CONTRACTOR, any subcontractors, the CITY, its officials, officers, employees, agents, volunteers and consultants, on account of the performance or character of the WORK, unforeseen difficulties, accidents, or occurrences of other causes predicated on active or passive negligence of the CONTRACTOR or of any subcontractor, including, without limitation, all losses, damages or penalties directly or indirectly resulting from exposure to hazards in performance of the WORK in violation of the California Labor Code. The CONTRACTOR shall indemnify, defend and hold harmless the CITY, its officials, officers, employees, agents, volunteers and consultants from and against any or all losses, liability, expense, claim costs (including costs of defense), suits, damages and penalties (including, without limitation, penalties pursuant to the California Labor Code) directly or indirectly resulting from exposure to hazards in performance of the WORK in violation of the California Labor Code, except such liability or costs caused by the active negligence, sole negligence or willful misconduct of the CITY.

ARTICLE 13. INDEPENDENT CONTRACTOR

It is understood and agreed that in the performance of this Agreement, CONTRACTOR (including its employees and agents) is acting in the capacity of an independent contractor, and not as an agent or employee of the CITY. CONTRACTOR has full control over the means and methods of performing said services and is solely responsible for its acts and omissions, including the acts and omissions of its employees and agents.

ARTICLE 14. SUBCONTRACTORS

CONTRACTOR must obtain the CITY's prior written consent for subcontracting any WORK pursuant to this Agreement. Any such subcontractor shall comply, to the extent applicable, with the terms and conditions of this Agreement. Any agreement between CONTRACTOR and a subcontractor pursuant to this Agreement shall provide that the subcontractor procure and maintain insurance coverage as required herein and which shall name CITY as an additional insured.

ARTICLE 15. COMPLIANCE WITH LAWS/NON-DISCRIMINATION

CONTRACTOR shall comply with all applicable local, state and federal laws, regulations and ordinances in the performance of this Agreement. CONTRACTOR shall not discriminate in the provision of service or in the employment of persons engaged in the performance of this Agreement on account of race, color, national origin, ancestry, religion, gender, marital status, sexual orientation, age, physical or mental disability in violation of any applicable local, state or federal laws or regulations.

ARTICLE 16. NOTICES

All notices required or permitted by this Agreement, including notice of change of address, shall be in writing and given by personal delivery or sent postage prepaid and addressed to the parties intended to be notified, as set forth herein. Notice shall be deemed given as of the date of delivery in person or as of the date deposited in any post office or post office box regularly maintained by the United States Postal Service, unless otherwise stated herein. Notice shall be given as follows:

CITY:

City Clerk
City of Petaluma
Post Office Box 61
Petaluma, California 94953
Telephone: (707) 778-4360

CONTRACTOR:

_____
(Contact Name)

_____
(Business Name)

_____
(Address)

_____
(City, State, Zip)

_____
(Telephone)

_____
(E-mail)

ARTICLE 17. GOVERNING LAW/VENUE

This Agreement shall be construed and its performance enforced under California law. Venue shall be in the Superior Court of the State of California in the County of Sonoma.

ARTICLE 18. NON-WAIVER

The CITY's failure to enforce any provision of this Agreement or the waiver of any provision in a particular instance shall not be construed as a general waiver of any part of such provision. The provision shall remain in full force and effect.

ARTICLE 19. THIRD PARTY BENEFICIARIES

The Parties do not intend, by any provision of this Agreement, to create in any third party any benefit or right owed by one party, under the terms and conditions of this Agreement, to the other party.

ARTICLE 20. ASSIGNMENT

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

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

ARTICLE 21. SEVERABILITY

If any term or portion of this Agreement is held to be invalid, illegal, or otherwise enforceable by a court of competent jurisdiction, the remaining provisions of this Agreement shall continue in full force and effect.

IN WITNESS WHEREOF, CITY and CONTRACTOR have caused this Agreement to be executed the day and year first above written.

CITY

_____
City Manager

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

CONTRACTOR _____

By_____
(CORPORATE SEAL)

Attest:_____

Address for giving notices:

_____

_____

Agent for service of process:

_____

_____

_____

_____
License Number

_____
Taxpayer I.D. Number

_____
Petaluma Business Tax Certificate Number

file name: 17- Agreement - Construction Agreement

END OF AGREEMENT

AGREEMENT CERTIFICATE
(if Corporation)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the _____ _____ a corporation existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to execute the Agreement dated _____, 20____, by and between this Corporation and _____ and that his/her execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this _____, day of _____, 20____.

_____
Secretary

(SEAL)

AGREEMENT CERTIFICATE
(if Partnership)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the _____
_____
a partnership existing under the laws of the State of _____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as the General Partner of the Partnership, be and is hereby authorized to execute the Agreement dated _____, 20___, by and between this Partnership and _____ and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____ day of _____, 20___.

_____
Partner

(SEAL)

AGREEMENT CERTIFICATE
(if Joint Venture)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the _____
_____
_____ a
joint venture existing under the laws of the State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as_____, of the joint venture, be and is hereby authorized to execute the Agreement dated _____, 20___, by and between this Joint Venture and _____ and that his/her execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Managing Partner

(SEAL)

FAITHFUL PERFORMANCE BOND

WHEREAS, the City Council of the City of Petaluma, State of California, and _____ (hereinafter designated as "Principal") have entered into an agreement whereby Principal agrees to install and complete certain designated public improvements, which said agreement, dated _____, 20_____, and identified as project _____, is hereby referred to and made a part hereof; and,

WHEREAS, said Principal is required under the terms of said agreement to furnish a bond for the faithful performance of said agreement.

NOW, THEREFORE, WE, the Principal and _____, duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the City of Petaluma, hereinafter called "City," in the penal sum of _____ Dollars ($_____) lawful money of the United States, for payment of which sum well and truly to be made, we bind ourselves, our heirs, successors, executors, and administrators, jointly and severally, firmly by these present. The conditions of this obligation are such that if the above-bound Principal, the Principal's heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City of Petaluma, its officers, agents, employees, and volunteers, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

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

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of this agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

And the said Surety, for value received, hereby stipulates and agrees that upon termination of the Contract for cause, the Obligee reserves the right to refuse tender of the Principal by the Surety to complete the Contract work.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above named, on _____, 20_____.

PRINCIPAL	SURETY
By_____	By_____
_____	_____
Name and Title	Name and Title
	_____
	Address
	_____
	City State Zip
	_____
	Phone Number

# # #

NOTE: No substitution or revision to this bond form will be accepted. Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also verify that Surety is an "Admitted Surety" (i.e., qualified to do business in California), and attach proof of verification (website printout from the California Department of Insurance website (http://www.insurance.ca.gov/docs/index.html) or certificate from County Clerk).

APPROVED AS TO AMOUNT:	APPROVED AS TO FORM:
_____	_____
City Manager	City Attorney

END OF FAITHFUL PERFORMANCE BOND

LABOR AND MATERIALS BOND

WHEREAS, the City of Petaluma, State of California, and _____ (hereinafter designated as "Principal") have entered into an agreement whereby the Principal agrees to install and complete certain designated public improvements, which said agreements, dated _____, 20_____, and identified as project _____, is hereby referred to and made a part hereof; and,

WHEREAS, under the terms of said agreement Principal is required before entering upon the performance of the work, to file a good and sufficient payment bond with the City of Petaluma, to secure the claims to which reference is made in Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code of the State of California.

NOW, THEREFORE, said Principal and the undersigned, duly authorized to transact business under the laws of the State of California, as corporate surety, are held firmly bound unto the City of Petaluma, and all contractors, subcontractors, laborers, materialmen and other persons employed in the performance of the aforesaid agreement and referred to in the aforesaid Civil Code of the State of California, in the sum of _____ Dollars ($_____) for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, that said surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by City in successfully enforcing such obligation, to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Title 15 (commencing with section 3082) of Part 4 of Division 3 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

THE SURETY hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of said agreement or the specifications accompanying the same shall in any

manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and surety above named, on _____, 20_____.

PRINCIPAL	SURETY
By_____	By_____
_____	_____
Name and Title	Name and Title
	_____
	Address
	_____
	City State Zip
	_____
	Phone

# # #

NOTE: No substitution or revision to this bond form will be accepted. Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also verify that Surety is an "Admitted Surety" (i.e., qualified to do business in California), and attach proof of verification (website printout from the California Department of Insurance website (http://www.insurance.ca.gov/docs/index.html) or certificate from County Clerk)..

APPROVED AS TO AMOUNT:	APPROVED AS TO FORM:
_____	_____
City Manager	City Attorney

END OF LABOR AND MATERIALS BOND

MAINTENANCE BOND

WHEREAS, the City Council of the City of Petaluma ("City") and _____, (hereinafter designated as "Principal") have entered into an agreement whereby Principal agrees to install and complete certain designated public improvements, which said agreement, dated _____, 20_____, and identified as project _____, is hereby referred to and made a part hereof; and,

WHEREAS, said Principal is required under the terms of said contract to furnish a maintenance bond for the correction of any defects due to defective materials or workmanship in the work performed under said agreement.

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

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that if, during a maintenance period of one (1) year from the date of acceptance of the contracted work, the Principal upon receiving written notice of a need for repairs which are directly attributable to defective materials or workmanship, shall diligently take the necessary steps to correct said defects within seven (7) days from the date of said notice, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

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

The Surety hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of this agreement or to the work to be performed thereunder or the specifications accompanying the same shall in anywise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above named, on _____, 20_____.

PRINCIPAL	SURETY
By_____	By_____
_____	_____
Name and Title	Name and Title
	_____
	Address
	_____
	City State Zip
	_____
	Phone Number

# # #

NOTE: No substitution or revision to this bond form will be accepted. Be sure that all bonds submitted have a certified copy of the bonding agent's power of attorney attached. Also verify that Surety is an "Admitted Surety" (i.e., qualified to do business in California), and attach proof of verification (website printout from the California Department of Insurance website (http://www.insurance.ca.gov/docs/index.html) or certificate from County Clerk).

APPROVED AS TO AMOUNT:	APPROVED AS TO FORM:
_____	_____
City Manager	City Attorney

END OF MAINTENANCE BOND

NOTARIAL ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT OF SURETY

STATE OF CALIFORNIA)
) SS.
COUNTY OF SONOMA)

On _____ before me, a Notary Public, personally appeared _____, personally known to me (or 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.

WITNESS my hand and official seal.

_____
Notary Public

(Seal)

SECTION VI

PLANS

City of Petaluma, California

MANOR LANE TANK REHABILITATION

2805 MANOR LANE

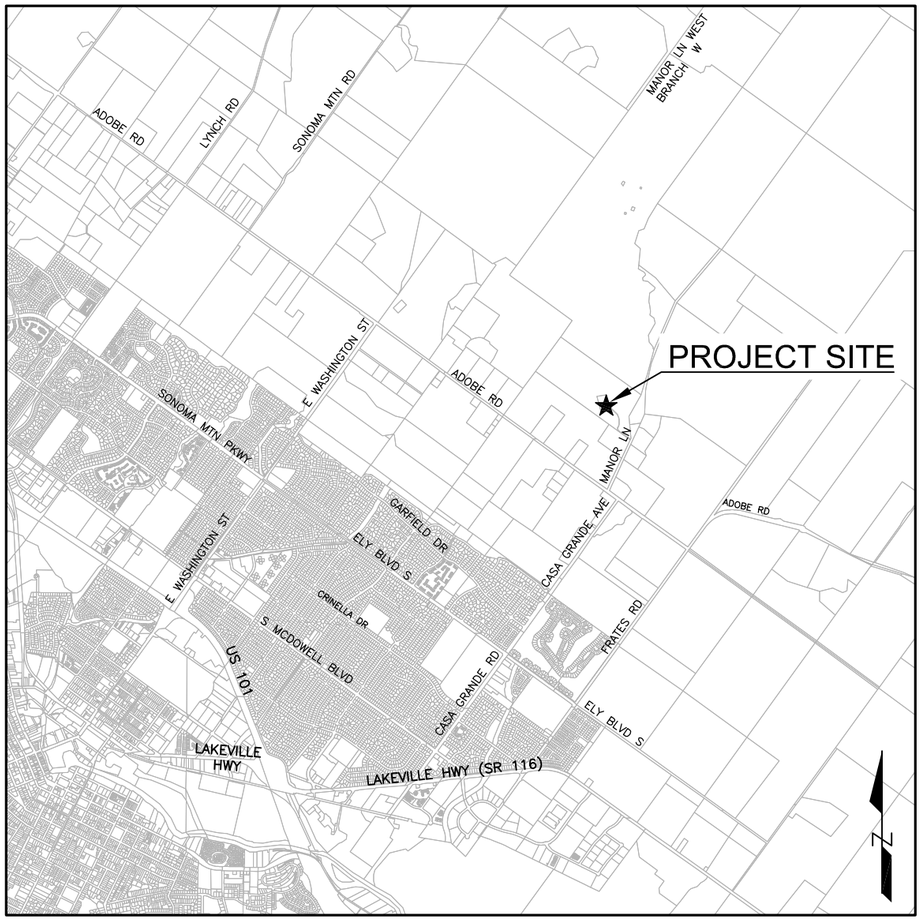
C67501007

MAYOR
Teresa Barrett

COUNCIL MEMBERS
Brian Barnacle, Vice Mayor
DLynda Fischer
Mike Healy
Dave King
Kevin McDonnell
Dennis Pocekay

CITY MANAGER
Peggy Flynn

DIRECTOR OF PUBLIC WORKS & UTILITIES
Chistopher Bolt



LOCATION MAP
SCALE: N.T.S.

RECORD PLAN

I _____ HEREBY STATE THAT THESE RECORD PLAN CHANGES ARE COMPLETE FROM INFORMATION FURNISHED BY THE PROJECT CONTRACTOR, SOILS ENGINEER AND MY OFFICE. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE THE THE WORK WAS DONE IN ACCORDANCE WITH THE FINAL APPROVED PLANS. THE ENGINEER AND THE CITY WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THIS DOCUMENT AS A RESULT. FIELD VERIFICATION OF CRITICAL FACTS AND DATA SHOULD BE MADE IF THESE DOCUMENTS ARE TO BE USED AS A BASIS FOR FUTURE WORK. ENGINEER'S SIGNATURE _____ DATE: _____

	SIGNATURE	DATE
CITY ENGINEER		
ENGINEERING MANAGER		
FIRE MARSHAL		
PARKS		
PLANNING		
POLICE		
UTILITY MANAGER		

INDEX OF SHEETS

☒ ALL PROJECT PLANS HAVE BEEN PREPARED AND REVIEWED TO COMPLY WITH CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS AND/OR THE CALIFORNIA BUILDING STANDARDS CODE (CBSC).

☐ THESE PROJECT PLANS CONTAIN ELEMENT(S) THAT ARE NOT "TECHNICALLY FEASIBLE" AND/OR CAN'T MEET THE APPLICABLE CBSC BECAUSE IT WOULD CREATE AN "UNREASONABLE HARDSHIP." PLEASE SEE THE WRITTEN ANALYSIS SUPPORTING THIS DETERMINATION FILED UNDER THE PROJECT FILE.

DESIGNED BY
SIGNATURE — DATE: 1/19/2022

APPROVED BY:

GINA PETNIC-BENEDETTI P.E. C42778
ASSISTANT DIRECTOR OF PUBLIC WORKS

DESIGNED BY:

M. SEAN JEANEZ P.E. C52402 EXP. 12/31/2022
SENIOR PRINCIPAL

DATE: OCTOBER 2021
DESIGNED BY: SMJ
DRAWN BY: SYK
CHECKED BY: JP

PROJECT NO.
C00500101

REGISTERED PROFESSIONAL ENGINEER — M. SEAN JEANEZ — No. C 52402 — EXP. 12-31-22 — CIVIL — STATE OF CALIFORNIA

Brelje & Race
CONSULTING CIVIL ENGINEERS
231 E. Alder St., Suite 300 Santa Rosa, CA 95404 (707) 545-3201
www.brelje.com

CITY OF PETALUMA
PUBLIC WORKS & UTILITIES
202 N. McDowell Blvd., PETALUMA, CALIFORNIA, 94954
PH. 707-778-4546 FAX. 707-778-4508

MANOR LANE TANK REHABILITATION
COVER

SHEET
G1
1 OF 10

TAB: 1--COVER
12--20--21 Pathed \4754\dwg\4754 00\4754.00 COVER.dwg

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
ADPT	ADAPTER
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
BM	BENCHMARK
BO	BLOWOFF
BV	BUTTERFLY VALVE
BW	BOTTOM OF WALL
B&R	BRELJE & RACE
CAV	COMBINATION AIR & VACUUM RELEASE VALVE
CB	CATCH BASIN
CBC	CALIFORNIA BUILDING CODE
CIPP	CAST-IN-PLACE PIPE
℄	CENTERLINE
CL	CLASS
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COND	CONDUIT
CP	CONTROL POINT
CPLG	COUPLING
CSP	CORRUGATED STEEL PIPE
CTR	CENTER
CY	CUBIC YARDS
C/C	CENTER TO CENTER
C&G	CURB AND GUTTER
DEG	DEGREES
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DR	DRIVE
DS	DOWNSTREAM
DWG	DRAWING
D/W	DRIVEWAY
E	EAST
(E)	EXISTING
ECC	ECCENTRIC
EG	EXISTING GROUND
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EW	EACH WAY
FC	FACE OF CURB
FCA	FLANGED COUPLING ADAPTER
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL (℄)	FLOWLINE
FL	FLOWLINE
FLG	FLANGE
FLEX	FLEXIBLE
FM	FORCE MAIN (PRESSURE)
FS	FAR SIDE
FT	FEET
GALV	GALVANIZED
GB	GRADE BREAK
GRD	GROUND
GSP	GALVANIZED STEEL PIPE
GV	GAS VALVE
GV	GATE VALVE
HB	HOSE BIBB
HDG	HOT DIPPED GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
HWY	HIGHWAY
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRR	IRRIGATION
JP	JOINT POLE
JT	JOINT TRENCH
L	LENGTH
LF	LINEAL FEET
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MFR	MANUFACTURE
MG	MILLION GALLONS
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MSL	MEAN SEA LEVEL
N	NORTH
(N)	NEW
NO	NUMBER
NA	NOT APPLICABLE
NPT	NATIONAL PIPE THREAD
NRS	NON RISING STEM
NS	NEAR SIDE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PD	PLANTER DRAIN
PE	PLANE END
PG	PAD GRADE
PIV	POST INDICATOR VALVE
POT	POINT ON TANGENT
PP	POWER POLE
PSI	POUND PER SQUARE INCH
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RADIUS
RC	RELATIVE COMPACTION
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED	REDUCER
REF	REFERENCE
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RT	RIGHT
RW	RECLAIMED WATER
R/W	RIGHT OF WAY
S	SOUTH
S	SLOPE
SCH	SCHEDULE
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDCO	STORM DRAIN CLEANOUT
SDDI	STORM DRAIN DROP INLET
SDE	STORM DRAIN EASEMENT
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SOF	SLIP ON FLANGE
SO	SIDE OPENING (SD)
SPEC	SPECIFICATION
SS	STAINLESS STEEL
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
SY	SQUARE YARDS
S/W	SIDEWALK
TB	TOP OF BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL	TELEPHONE
TEMP	TEMPORARY
TG	TOP OF GRATE
THD	THREADED
TW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W	WEST
W	WATER
WM	WATER METER
WNF	WELD NECK FLANGE
WS	WATER SERVICE
WT	WEIGHT
WV	WATER VALVE
°	DEGREES
'	MINUTES
"	SECONDS
Δ	DELTA
&	AND
@	AT
#	NUMBER
#	POUNDS
%	PERCENT

SYMBOLS

DETAIL REFERENCE — A / 13 — DETAIL; SHEET REFERENCE NUMBER

SECTION REFERENCE — 3 / 10 — SECTION NUMBER; SHEET REFERENCE NUMBER

LEGEND

LINES

BOUNDARY
PARCEL
CENTER
EASEMENT

UTILITY LINES

	EXISTING	PROPOSED
STORM DRAIN	24"SD	24"SD
WATER	8"W	8"W
SEWER	12"SS	12"SS
GAS	3"G	
ELECTRICAL	E	12 KV
TELEPHONE	T	
TELEVISION	TV	
JOINT TRENCH	JT	

TOPOGRAPHY

WATER METER
DROP INLET
WATER VALVE
BLOWOFF
FIRE HYDRANT
GAS METER
STORM DRAIN MANHOLE
STORM DRAIN CATCH BASIN
SEWER MANHOLE
SEWER CLEANOUT
JOINT POLE
LIGHT STANDARD
GUY/ANCHOR
CURB & GUTTER
AC DIKE
FENCE
CHAIN LINK FENCE
DITCH/SWALE
MONUMENT
TREE PROTECTION — TP
TREE TO BE SAVED
TREE TO BE REMOVED

RECORD DRAWING REFERENCE

NO.	DATE	DESCRIPTION	BY

GENERAL NOTES

1. ANY DISCREPANCY DISCOVERED BY CONTRACTOR IN THESE PLANS OR ANY FIELD CONDITIONS DISCOVERED BY CONTRACTOR THAT MAY DELAY OR OBSTRUCT THE PROPER COMPLETION OF THE WORK PER THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE OWNER IMMEDIATELY UPON DISCOVERY. SAID NOTIFICATION SHALL BE IN WRITING.
2. CONTRACTOR SHALL GIVE THE CITY OF PETALUMA 10 CALENDAR DAYS NOTICE BEFORE COMMENCING WITH THE WORK.
3. CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND CONTRACTOR FURTHER AGREES TO HOLD HARMLESS, INDEMNIFY AND DEFEND THE OWNER, THE ENGINEER AND HIS CONSULTANTS, AND EACH OF THEIR OFFICERS, EMPLOYEES AND AGENTS.
4. CONTRACTOR SHALL INDEPENDENTLY REVIEW GROUND, TOPOGRAPHY, AND EXISTING FACILITIES THROUGHOUT THE SITE, AND ASSUME WHOLLY AND UNCONDITIONALLY THE RISK OF COMPLETING THE WORK SET OUT ON THESE PLANS.
5. ANY EXCESS AND UNSUITABLE MATERIALS SHALL BE CONSIDERED THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AWAY FROM THE JOB SITE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
6. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING NOISE, ODORS, DUST AND DEBRIS TO MINIMIZE IMPACTS ON SURROUNDING ROADWAYS AND PROPERTIES TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF PETALUMA.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION EQUIPMENT IS EQUIPPED WITH MANUFACTURER APPROVED MUFFLERS/BAFFLES. WARM-UP TIMES SHALL BE MINIMIZED AND ANY EQUIPMENT NOT ACTIVELY IN USE SHALL BE SHUT DOWN IMMEDIATELY.
8. CONSTRUCTION HOURS SHALL BE LIMITED TO 7:00AM TO 5:00PM MONDAY THROUGH FRIDAY.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE OR DETERIORATION OCCURRING TO EXISTING PUBLIC IMPROVEMENTS AS A DIRECT RESULT OF CONSTRUCTION ACTIVITY RELATED TO CONSTRUCTION OF THE COMMON IMPROVEMENTS (GRADING, ROAD CONSTRUCTION, UTILITY INSTALLATION, ETC.). REQUIRED REPAIR MAY INVOLVE PATCHING, SEALING OR OVERLAYING AFFECTED AREAS AS APPROPRIATE TO RETURN THE ROADS AND/OR DRIVEWAYS TO AS GOOD A CONDITION AS THEY WERE IN PRIOR TO CONSTRUCTION. IF THE CONTRACTOR DOES NOT ACT PRUDENTLY IN A TIMELY MANNER, THE CITY MAY, AT ITS DISCRETION PERFORM THE CORRECTION AND CHARGE THE CONTRACTOR FOR ALL COSTS AND OVERHEAD INCURRED.
10. ALL PIPING, VALVES, FITTINGS AND APPURTENANCES REMOVED IN THE COURSE OF WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS INTENDED FOR REUSE WHERE INDICATED ON PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, STORAGE, TRANSPORTATION AND DISPOSAL OF ALL SUCH MATERIALS.
11. CONTRACTOR SHALL FOLLOW AND COMPLY WITH THE LATEST EDITION OF THE CITY'S STANDARDS, WHEREVER APPLICABLE.

PROJECT RESOURCE (FOR CITY USE)

PROJECT START	
PROJECT END	
PROJECT CONTRACTOR	
CONTRACTOR'S SUPER.	
UTILITY CONT.	
UTILITY CONT.	
UTILITY CONT.	
PROJECT MANAGER	
PROJECT INSPECTOR	
OTHER	

Brelje & Race
CONSULTING ENGINEERS
475 Aviation Boulevard, Suite 120
Santa Rosa, CA 95403
v: 707-576-1322
f: 707-576-0469
www.brce.com

REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA — Exp. 3-31-22

PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.

PROJECT	DATE
4754.00	DECEMBER 2021
DRAWN BY	CHECKED BY
PIT	SMJ

ABBREVIATIONS, LEGEND & NOTES

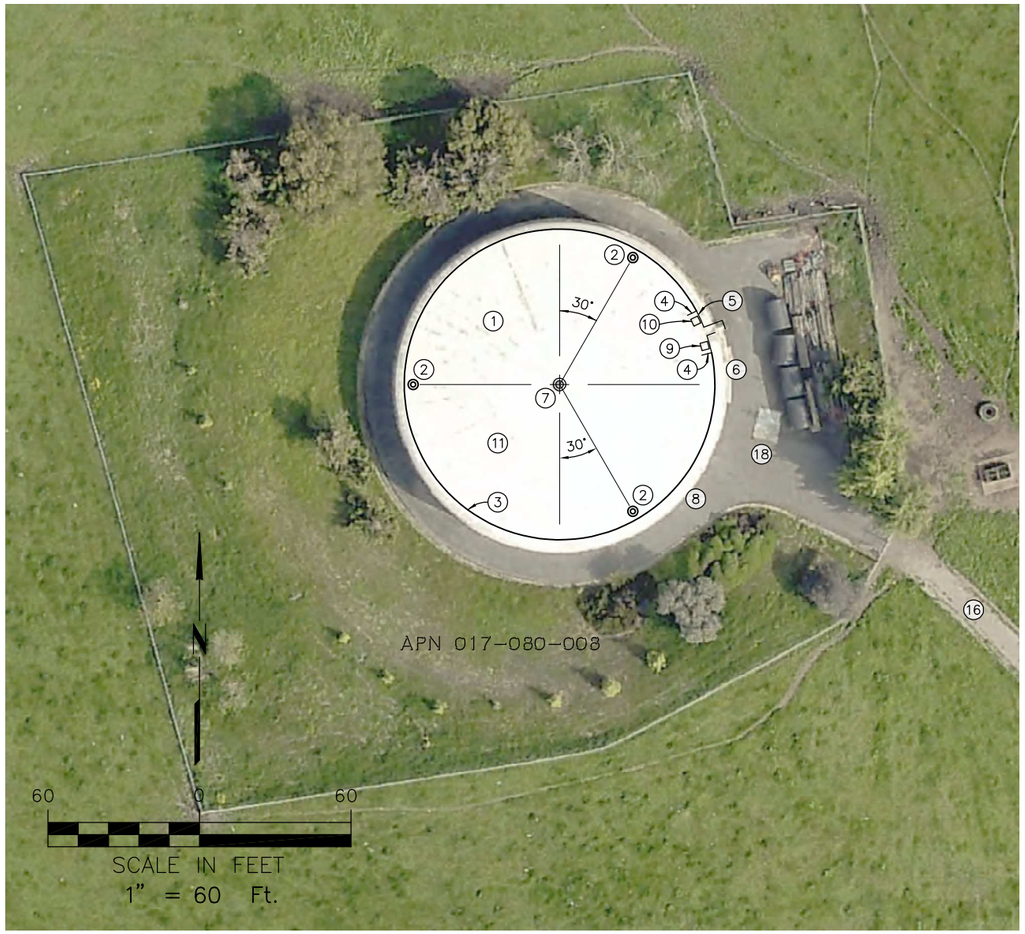
SHEET NO.
2 OF 10

WELDED STEEL TANK PARAMETERS

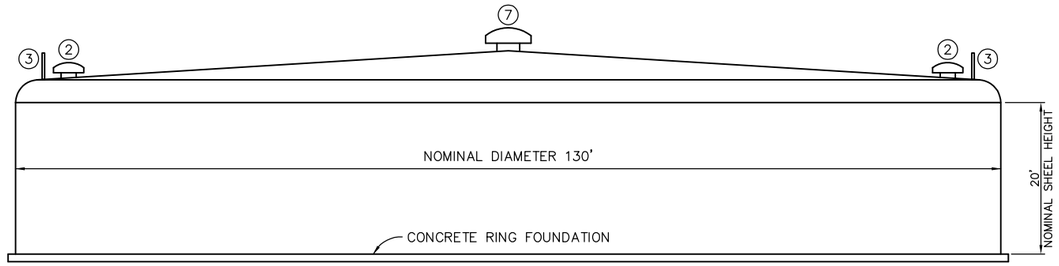
ERECTED:	1991
NOMINAL CAPACITY:	2 MILLION GALLONS
SHELL DIAMETER:	130'
SHELL HEIGHT:	20'
KNUCKLE RADIUS:	3'
FLOOR:	STEEL
SHELL MANWAYS:	2 EACH 30"
ROOF HATCHES:	2 EACH 30x30"

LEGEND

1. REMOVE EXISTING COATINGS ON TANK INTERIOR AND EXTERIOR, PREPARE STEEL SURFACES AND RECOAT. SEE SPECIFICATIONS.
2. INSTALL 24" PERIMETER ROOF VENTS. SEE DETAIL RV/4.
3. INSTALL GUARDRAIL (370 LF). 6" INSIDE TOP OF KNUCKLE. ATTACH TO EXISTING GUARDRAIL IN TWO PLACES. SEE DETAIL GR/4.
4. REMOVE 4' RETURN OF EXISTING GUARDRAIL (2 EACH).
5. EXISTING GUARDRAIL TO REMAIN. PROTECT IN PLACE.
6. EXISTING STAIRCASE, INTERMEDIATE LANDING AND ROOF PLATFORM TO REMAIN. PROTECT IN PLACE.
7. EXISTING CENTER ROOF VENT. REPLACE GALVANIZED EXPANDED STEEL AND STAINLESS-STEEL MESH SCREEN. SEE DETAIL CV/5.
8. REPLACE EXISTING FULL-HEIGHT LEVEL INDICATOR. SEE DETAIL LI/4.
9. REMOVE INTERIOR PLATFORM. SEE DETAIL PF/6.
10. REPLACE INTERIOR LADDER. STAINLESS STEEL LADDER ELECTRICALLY ISOLATED FROM ALL CARBON STEEL. IL/4 LE/4
11. REPLACE 24 EACH 6" DIAMETER ROOF HANDHOLE COVERS FOR CATHODIC PROTECTION SYSTEM. COVERS, LOCKBAR AND HARDWARE SHALL BE STAINLESS STEEL. REPLACE ALL GASKETS.
12. EXISTING ELECTRICAL CABINET. REFER TO ELECTRICAL DRAWINGS FOR IMPROVEMENT DETAILS.
13. EXISTING CATHODIC PROTECTION CABINET. REFER TO ELECTRICAL DRAWINGS FOR IMPROVEMENT DETAILS.
14. INSTALL STEEL BANDING ON EXTERIOR OF THE BOTTOM COURSE OF THE SHELL. SEE DETAIL SB/6. BANDING NOT SHOWN.
15. EXISTING OVERFLOW PIPE. ADD DUCKBILL CHECK VALVE. SEE DETAIL OF/4.
16. PRIVATE DRIVEWAY FROM MANOR LANE, TO REMAIN.
17. REVISE SENSING AND SAMPLING PIPING. SEE DETAIL PF/6.
18. EXISTING VALVE VAULT INTERIOR MODIFICATIONS. SEE DETAILS AC/5 CV/5.
19. REPLACE GASKETS ON 2 EACH SHELL MANWAYS.
20. REMOVE TANK MANUFACTURER'S NAMEPLATE. REPLACE AFTER STEEL BANDING IS COMPLETE.



SITE PLAN



TANK ELEVATION
SCALE: 1"=20'

MANOR TANK
NORTHEAST VIEW

Brelje & Race
CONSULTING ENGINEERS
475 Aviation Boulevard, Suite 120
Santa Rosa, CA 95403
v: 707-576-1322
f: 707-576-0469
www.brce.com

REGISTERED PROFESSIONAL ENGINEER — STEVEN M. JOHN — EXP. 12-31-22 — CIVIL — STATE OF CALIFORNIA

PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS		
NO.	DATE	DESCRIPTION

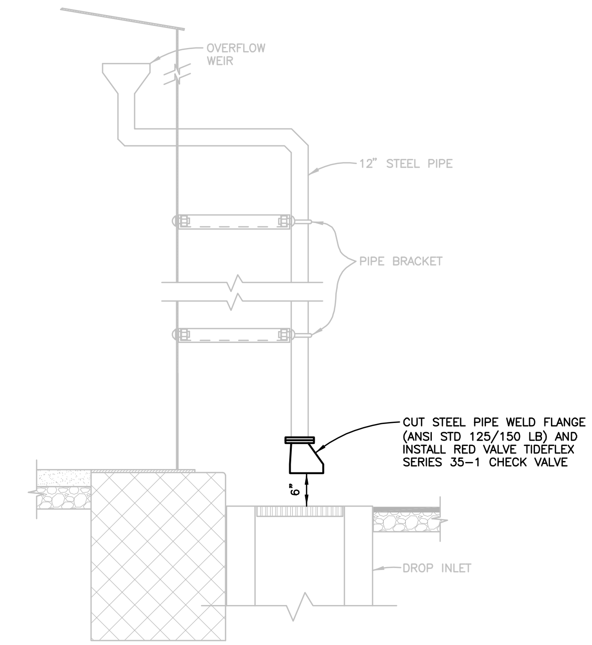
ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.

PROJECT 4754.00	DATE DECEMBER 2021
DRAWN BY SYK	CHECKED BY SMJ

SITE PLAN

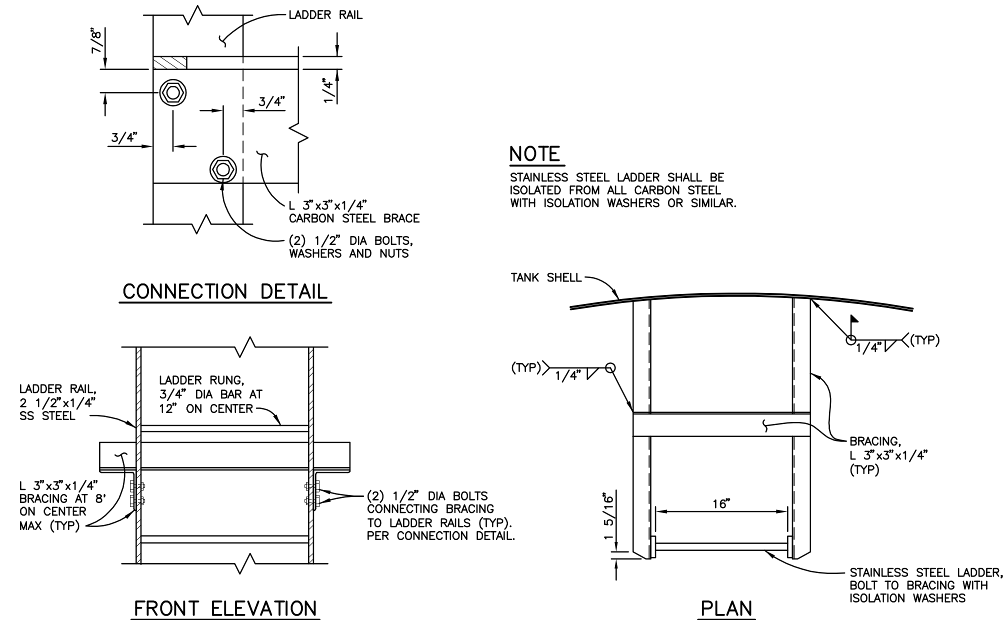
SHEET NO.
3 OF 10

12-21-21 Pothead \4754\dwg\4754 00\4754.00 PLAN.dwg TAB: 3 SITE PLAN



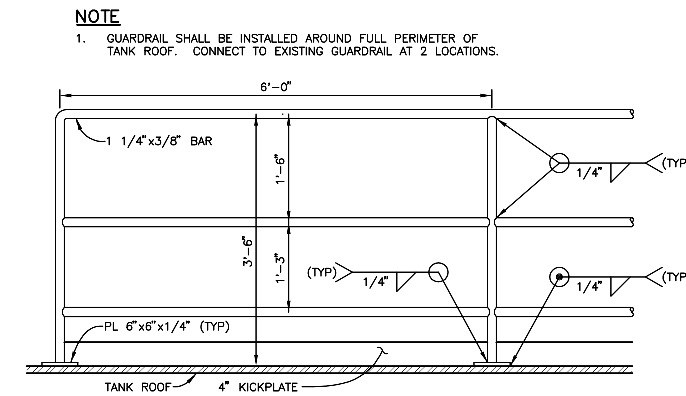
OVERFLOW MODIFICATION (OF/3)

NOT TO SCALE



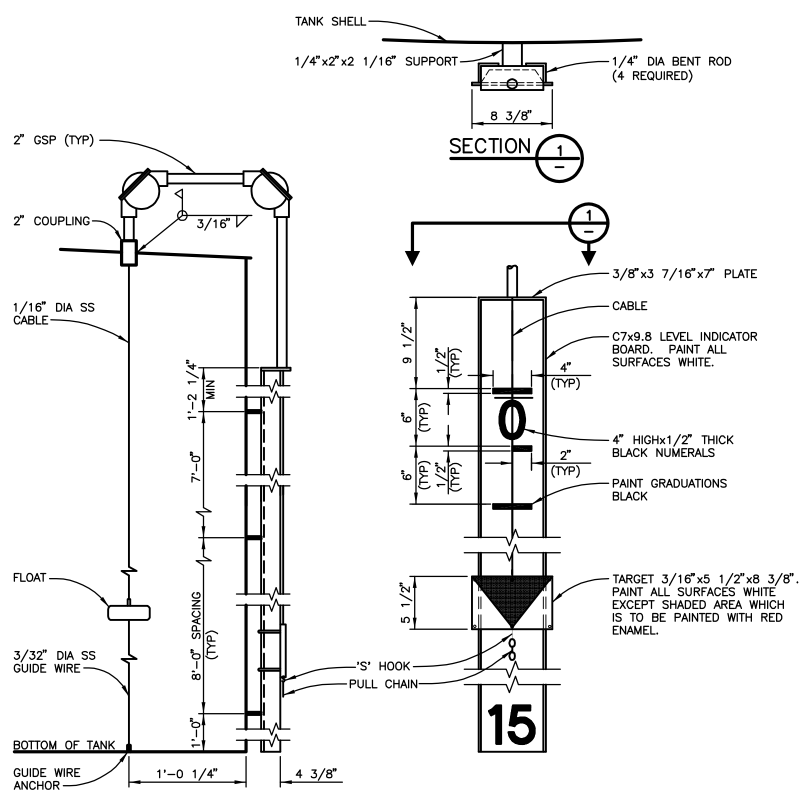
INTERIOR LADDER (IL/3)

NOT TO SCALE



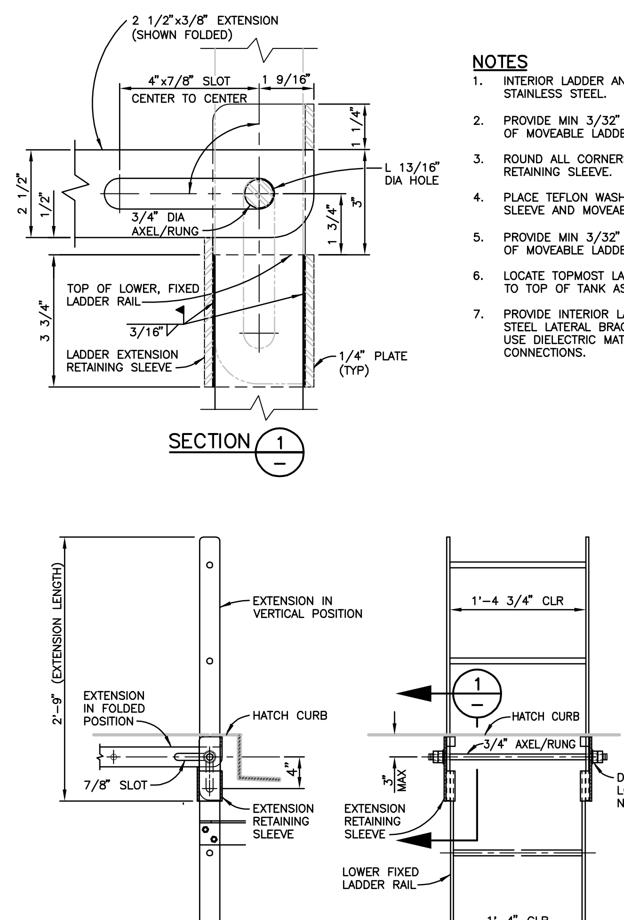
GUARDRAIL (GR/3)

NOT TO SCALE



LEVEL INDICATOR (LI/3)

NOT TO SCALE

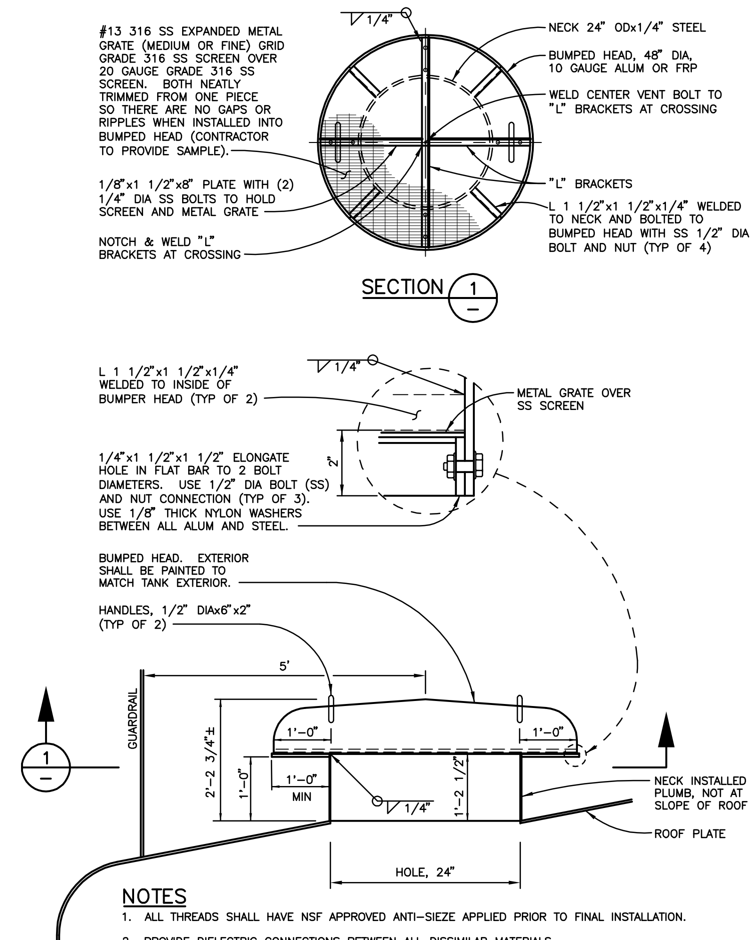


NOTES

1. INTERIOR LADDER AND EXTENSION SHALL BE STAINLESS STEEL.
2. PROVIDE MIN 3/32" GAP AROUND ALL SIDES OF MOVEABLE LADDER EXTENSION.
3. ROUND ALL CORNERS OF EXTENSION RETAINING SLEEVE.
4. PLACE TEFLON WASHER BETWEEN RETAINING SLEEVE AND MOVEABLE LADDER EXTENSION.
5. PROVIDE MIN 3/32" GAP AROUND ALL SIDES OF MOVEABLE LADDER EXTENSION.
6. LOCATE TOPMOST LADDER BRACE AS CLOSE TO TOP OF TANK AS POSSIBLE.
7. PROVIDE INTERIOR LADDER WITH CARBON STEEL LATERAL BRACING TO TANK SHELL. USE DIELECTRIC MATERIALS FOR BOLTED CONNECTIONS.

INTERIOR LADDER FOLDING EXTENSION (LE/3)

NOT TO SCALE



NOTES

1. ALL THREADS SHALL HAVE NSF APPROVED ANTI-SIEZE APPLIED PRIOR TO FINAL INSTALLATION.
2. PROVIDE DIELECTRIC CONNECTIONS BETWEEN ALL DISSIMILAR MATERIALS.

ROOF VENT (RV/3)

NOT TO SCALE

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PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.

PROJECT	DATE
4754.00	DECEMBER 2021
DRAWN BY	CHECKED BY
SYK	SMJ

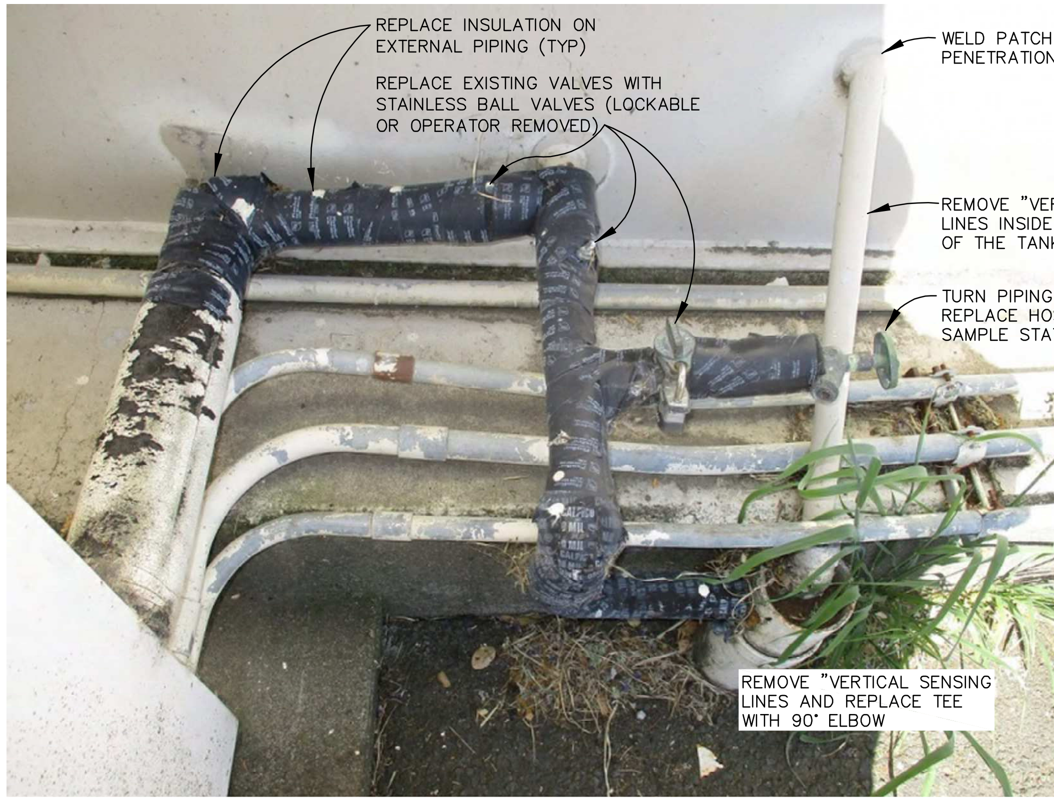
DETAILS

SHEET NO.

4 OF 10

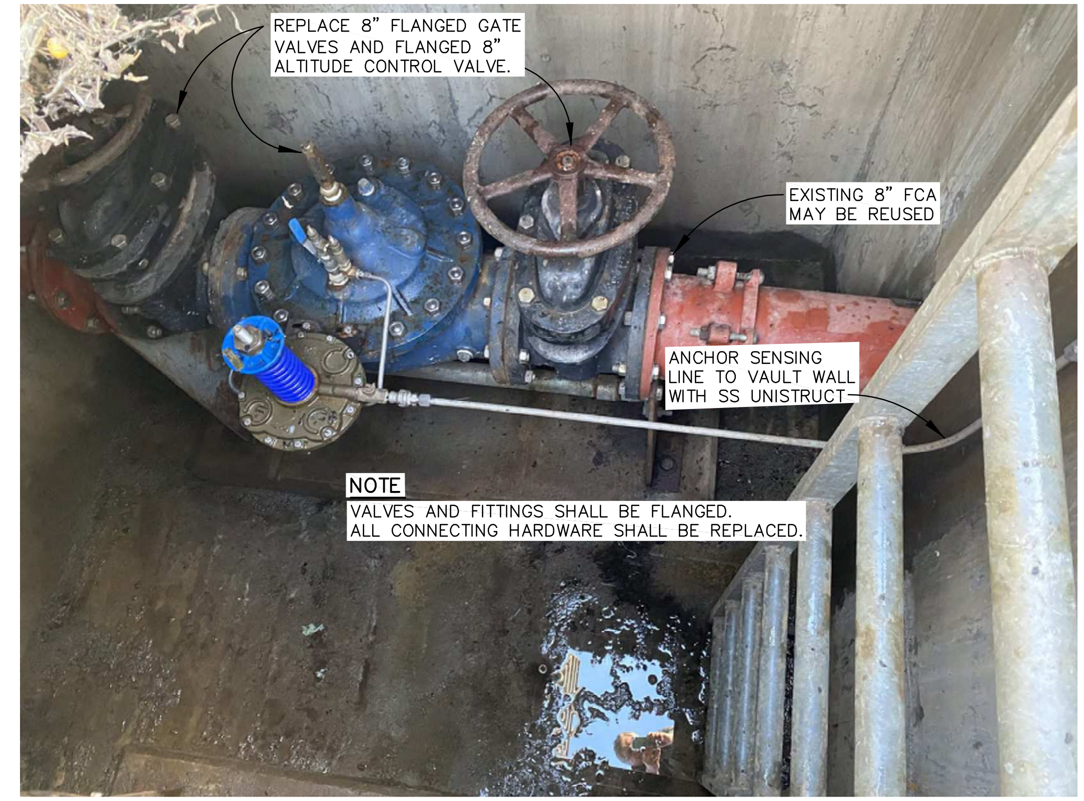
TAB: 4 DETAILS

12-21-21 Potheal \4754\dwg\4754.00\4754.00 DETAIL.dwg



SMALL PIPING MODIFICATIONS AT TANK EXTERIOR

NOT TO SCALE

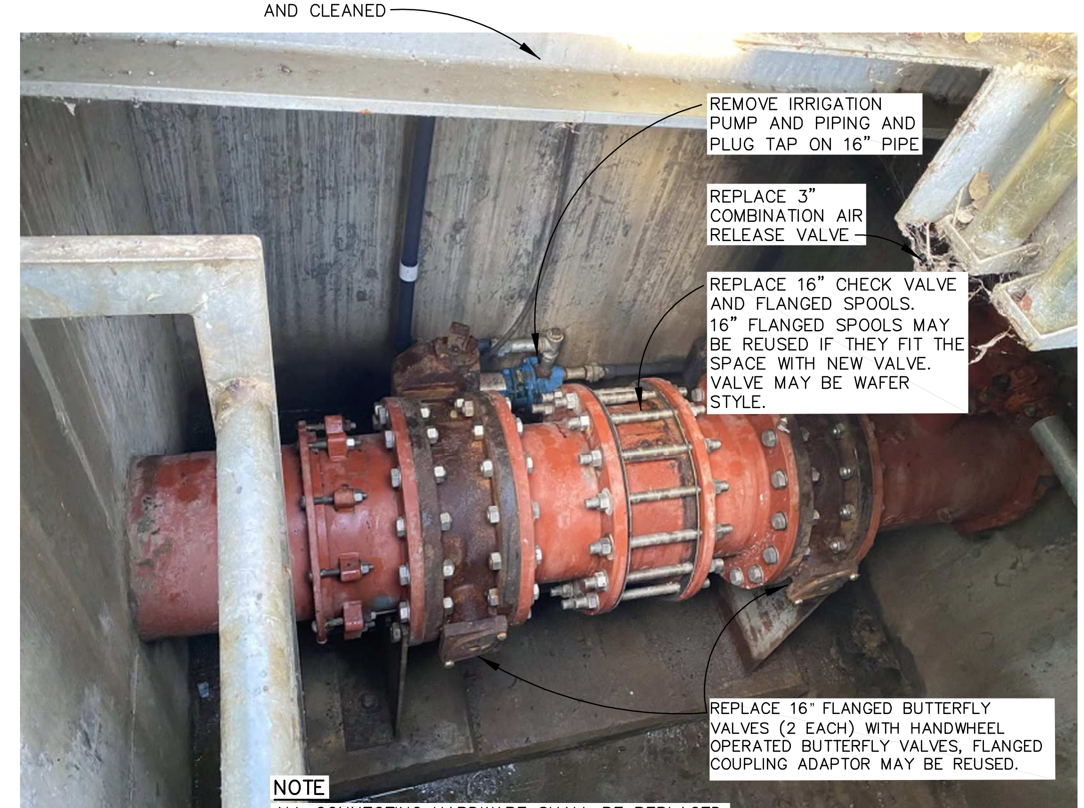


VALVE VAULT – 8" ALTITUDE CONTROL VALVE (AC 3)

NOT TO SCALE

CENTER VENT SCREEN (CV 3)

NOT TO SCALE



VALVE VAULT – 16" CHECK VALVE (CV 3)

NOT TO SCALE

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MANOR LANE TANK REHABILITATION

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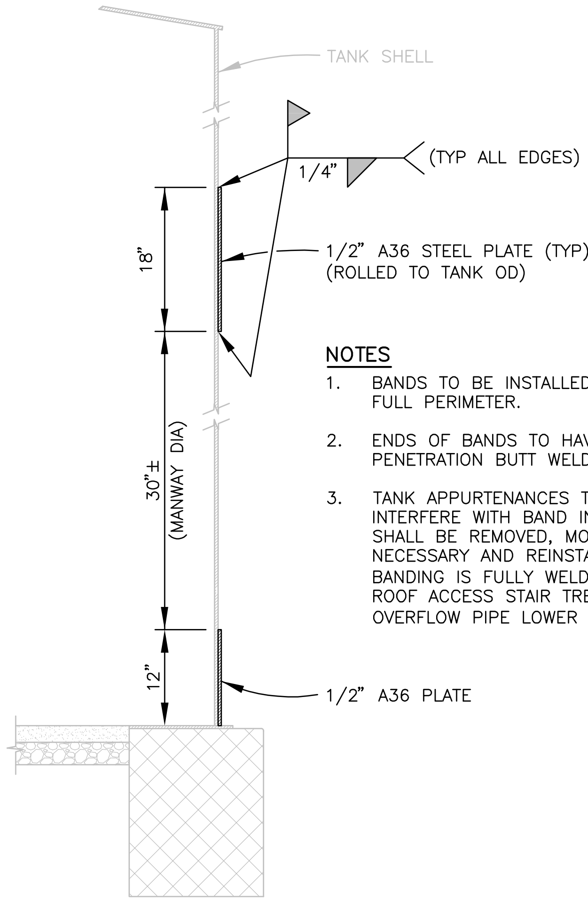
PROJECT	DATE
4754.00	DECEMBER 2021
DRAWN BY	CHECKED BY
SYK	SMJ

DETAILS

SHEET NO.

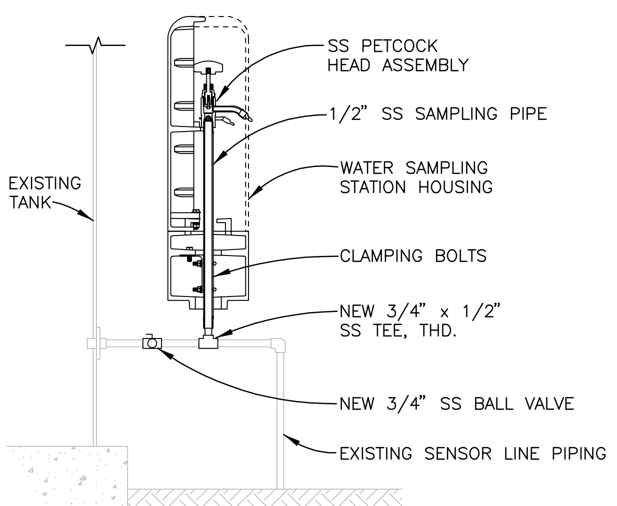
5 OF 10

12-21-21 Potheal \4754\dwg\4754 00\4754.00 DETAIL.dwg TAB: 5 DETAILS



NOTES
1. BANDS TO BE INSTALLED AROUND FULL PERIMETER.
2. ENDS OF BANDS TO HAVE FULL PENETRATION BUTT WELDS.
3. TANK APPURTENANCES THAT MAY INTERFERE WITH BAND INSTALLATION, SHALL BE REMOVED, MODIFIED AS NECESSARY AND REINSTALLED AFTER BANDING IS FULLY WELDED. (E.G. ROOF ACCESS STAIR TREADS AND OVERFLOW PIPE LOWER SUPPORT)

BOTTOM COURSE STEEL BANDING (SB/3)
NOT TO SCALE



NOTES
1. REFER TO "SMALL PIPING MODIFICATIONS AT TANK EXTERIOR DETAIL ON SHEET 5 OF 10.
2. EXISTING TEE TO HOSE BIB TO BE REMOVED AND REPLACED WITH NEW WATER SAMPLING STATION ASSEMBLY.
3. WATER SAMPLING STATION ASSEMBLY TO BE KUPFERLE MODEL 88WC–SS OR AN APPROVED EQUAL.
4. CONTRACTOR SHALL PROVIDE ALL OTHER MODIFICATIONS AS NECESSARY, FOR A COMPLETE AND FUNCTIONING SAMPLING STATION.

WATER SAMPLING STATION (SS/5)
NOT TO SCALE

INTERIOR PLATFORM (PF/3)
NOT TO SCALE

INTERIOR LADDER (IL/3)
NOT TO SCALE

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MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS

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DRAWN BY	CHECKED BY
SYK	SMJ

DETAILS

TAB: 6 DETAILS
12-21-21 Potheal \4754\dwg\4754_00\4754.00 DETAIL.dwg

MISCELLANEOUS ELECTRICAL & INSTRUMENTATION ABBREVIATIONS

&	AND	HTR	HEATER	PRR	POWER RELAY
@	AT	HZ	HERTZ (CYCLES PER SECOND)	PS	PRESSURE SWITCH, POWER SUPPLY
A	AMBER, AMPERES	HZD	HAVARDOUS AREA, EXPLOSION PROOF	PT	POTENTIAL TRANSFORMER
AC	ALTERNATING CURRENT	I	INTERLOCK	PTT	PUSH TO TEST
AFF	ABOVE FINISHED FLOOR	I/O	INPUT/OUTPUT	PV	PROCESS VARIABLE
AI	ANALOG INPUT	ICR	INSTRUMENTATION CONTROL RELAY	PVC	POLY VINYL CHLORIDE
AIC	AMP INTERRUPTING CAPACITY SYMMETRICAL	INCAN	INCANDESCENT	PWM	PULSE WIDTH MODULATION
ALT	ALTERNATOR	INST	INSTANTANEOUS	PWR	POWER
AM	AMMETER	ISC	SHORT CKT INTERRUPTING CURRENT (SYMM)	R	RED
ATS	AUTOMATIC TRANSFER SWITCH	ISR	INTRINSICALLY SAFE RELAY	RCT	REPEAT CYCLE TIMER
AO	ANALOG OUTPUT	J	JUNCTION BOX	REF	REFERENCE
AWG	AMERICAN WIRE GUAGE	K	KILO, PREFIX	RIO	REMOTE I/O
B	BLUE	L	LINE	RTD	RESISTANCE TEMPERATURE DETECTOR
BC	BARE COPPER	LA	LIGHTNING ARRESTOR	RTM	RUN TIME METER
BFC	BELOW FINISHED CEILING	LC	LIGHTING CONTACTOR	RTU	REMOTE TELEMETRY UNIT
BOD	BIOCHEMICAL OXYGEN DEMAND	LCD	LIQUID CRYSTAL DISPLAY	RVNR	REDUCED VOLTAGE NON-REVERSING
BLK	BLANK	LED	LIGHT EMITTING DIODE	(R)	REWIRE, RELOCATE, REVISE, REUSE, REPLACE
BKR	BREAKER	LEL	LOWER EXPLOSIVE LIMIT	SC	SHORTING CONTACTOR
C	CONDUIT	LGT	LIGHT	SCH	SCHEDULE
CAP	CAPACITOR	LO	LOW	SEC	SECONDARY
CB	CIRCUIT BREAKER	LOR	LOCAL-OFF-REMOTE	SECS	SECONDS
CBL	CABLE	LOS	LOCK-OUT STOP SWITCH	SEL	SELECTOR
CH	CHANNEL	LP	LIGHTING PANELBOARD	SFA	SERVICE FACTOR AMPS
CKT	CIRCUIT	LPU	LINE PROTECTION UNIT	SP	SETPOINT
COAX	COAXIAL CABLE	LR	LATCHING RELAY	SPD	SURGE PROTECTIVE DEVICE
COMM	COMMUNICATION PORT	LS	LEVEL SWITCH	SPEC	SPECIFICATION
CP	CONTROL PANEL	M	MOTOR CONTRACTOR	SS	STAINLESS STEEL
CPT	CONTROL POWER TRANSFORMER	MAX	MAXIMUM	SSS	SOLID STATE SOFT STARTER
CR	CONTROL RELAY	MCC	MOTOR CONTROL CENTER	STT	START
CT	CURRENT TRANSFORMER	MCM	THOUSAND CIRCULAR MILS	STP	STOP
CTQ	CONSTANT TORQUE	MCP	MOTOR CIRCUIT PROTECTOR	SV	SOLENOID VALVE
CU	COPPER	MH	MANHOLE	SW	SWITCH
DC	DIRECT CURRENT	MHD	METAL HALIDE	SWBD	SWITCHBOARD
DET	DETAIL	MIN	MINIMUM	SWGR	SWITCHGEAR
DI	DIGITAL INPUT	MINS	MINUTES	SYMM	SYMMETRICAL
DIA	DIAGRAM	MISC	MISCELLANEOUS	T	TRIP
DISC	DISCONNECT	MNFR	MANUFACTURER	TB	TERMINAL BLOCK
DIV	DIVISION	MODEM	MODULATOR/DEMODULATOR	TC	TIME CLOCK
DO	DIGITAL OUTPUT	MOV	MOTOR OPERATED VALVE	TDOD	TIME DELAY ON DE-ENERGIZATION
DPDT	DOUBLE POLE DOUBLE THROW	MPS	MOTOR PROTECTION SYSTEM	TDOE	TIME DELAY ON ENERGIZATION
DWG	DRAWING	MS	MOISTURE SENSOR/SWITCH	TEL	TELEMETRY
ELEV	ELEVATION	MTR	MOTOR	TELCO	TELEPHONE COMPANY
EMT	ELECTRICAL METALLIC TUBING	MTS	MANUAL TRANSFER SWITCH	TEMP	TEMPERATURE
ETM	ELAPSED TIME METER	MUX	MULTIPLEXER	TM	THERMAL MAGNETIC
(E)	EXISTING	MV	MEDIUM VOLTAGE	TOC	TOTAL ORGANIC CARBON
F	FRAME	N	NEUTRAL	TR	TIME DELAY RELAY
FC	FAIL CLOSED	NC	NORMALLY CLOSED	TRIAD	TWISTED & SHIELDED 3 CONDUCTOR
FCS	FIELD CONTROL STATION	NEC	NATIONAL ELECTRICAL CODE	TS	TEMPERATURE SWITCH
FLA	FULL LOAD AMPS	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	TSPR	TWISTED & SHIELDED PAIR
FLP	FAIL LAST POSITION	NIC	NOT IN CONTRACT	TYP	TYPICAL
FO	FAIL OPEN	NO	NORMALLY OPEN	UG	UNDERGROUND
FLEX	FLEXIBLE, METAL LIQUID TIGHT CONDUIT	NP	NAMEPLATE	UL	UNDERWRITERS LABORATORIES
FS	FLOW SWITCH OR FULL SPEED	NTS	NOT TO SCALE	UON	UNLESS OTHERWISE NOTED
FV, FVNR	FULL VOLTAGE NON-REVERSING	(N)	NEW	UPS	UNINTERRUPTIBLE POWER SUPPLIES
FVR	FULL VOLTAGE REVERSING	OC	ON CENTER	V	VOLTAGE
FWD	FORWARD	OI	OPERATOR INTERFACE	VA	VOLT AMPS
(F)	FUTURE	OL	OVERLOAD	VAR	VOLT AMP REACTIVE
G	GREEN	ORP	OXIDATION REDUCTION POTENTIAL	VFD	VARIABLE FREQUENCY DRIVE
GALV	GALVANIZED	P	PHASE, POLE	VLV	VALVE
GEN	GENERATOR	PB	PULL BOX	VM	VOLTMETER
GFI	GROUND FAULT CIRCUIT INTERRUPTER	PC	PERSONAL COMPUTER	VTQ	VARIABLE TORQUE
GND	GROUND	PE	PHOTOCELL	W	WHITE, WATTS
GRS	GALVANIZED RIGID STEEL CONDUIT	PF	POWER FAIL	WHM	WATT-HOUR METER
GRS-PVC	PVC COATED GRS CONDUIT	PFR	POWER (PHASE) FAIL RELAY	WM	WATTMETER
HC	PUSHBUTTON	PH	HYDROGEN ION CONCENTRATION	WP	WATERPROOF, WEATHER PROOF
HI	HIGH	PLC	PROGRAMMABLE LOGIC CONTROLLER	WS	TORQUE SWITCH
HID	HIGH INTENSITY DISCHARGE	PM	POWER MONITOR	XFMR	TRANSFORMER
HIM	HUMAN INTERFACE MODULE	PMP	PUMP	XS	MISCELLANEOUS SWITCH
HOA	HAND-OFF-AUTO	PNL	PANEL	Y	YELLOW
HOR	HAND-OFF-REMOTE	PR	PAIR, TWISTED & SHIELDED CABLE	Z	IMPEDANCE
HP	HORSEPOWER	PRESS	PRESSURE	ZS	LIMIT SWITCH
HPS	HIGH PRESSURE SODIUM	PRI	PRIMARY		
HS	HAND SWITCH	PROVIDE	FURNISH, INSTALL & CONNECT		

SWITCHES – PROCESS

SYMBOL	DESCRIPTION
FS	FLOW SWITCH – CLOSES UPON INCREASING FLOW
FS	FLOW SWITCH – OPENS UPON INCREASING FLOW
LS	LEVEL SWITCH – CLOSES UPON INCREASING LEVEL
LS	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
PS	PRESSURE SWITCH – CLOSES UPON INCREASING PRESSURE (INCREASING VACUUM)
PS	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
TS	TEMPERATURE SWITCH – CLOSES UPON INCREASING TEMPERATURE
TS	TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE
ZS	LIMIT SWITCH – CLOSES AT SET LIMIT
ZS	LIMIT SWITCH – OPENS AT SET LIMIT
ZS	PROXIMITY SWITCH – CLOSES UPON DECREASING DISTANCE
ZS	PROXIMITY SWITCH – OPENS UPON DECREASING DISTANCE
WS	TORQUE SWITCH – CLOSES UPON INCREASING TORQUE
WS	TORQUE SWITCH – OPENS UPON INCREASING TORQUE

DEVICES – RELAY

SYMBOL	DESCRIPTION
CR 1 — 28, 111	CONTROL RELAY CR1 WITH NORMALLY OPEN CONTACT ON LINE 28 & NORMALLY CLOSED CONTACT ON LINE 111
TR 1	TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN
TDOE / TDOD	TIME DELAY ON ENERGIZATION / TIME DELAY ON DE–ENERGIZATION
M1	CONTACTOR OR STARTER M1
SV	SOLENOID
CR1 (105)	NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105
CR1	NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE–ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS DE–ENERGIZED
TR2	CONTACT OPENS AND CLOSES IN A TIMED REPEAT CYCLE

COMPONENTS

SYMBOL	DESCRIPTION
RES	RESISTOR
	POTENTIOMETER
	CAPACITOR, FIXED
	CAPACITOR, ADJUSTABLE
	DIODE
	DIODE, ZENER
	VARISTOR TRANSIENT VOLTAGE SUPPRESSOR
	VOLTAGE SURGE SUPPRESSOR, AC
	RESISTANCE TEMPERATURE DETECTOR (RTD)
	THERMOCOUPLE (T/C)

DEVICES – MISCELLANEOUS

SYMBOL	DESCRIPTION
	AUDIBLE ALARM
	BATTERY
HTR	HEATER
	3 PHASE HEATER
G	GENERATOR
# HP	3 PHASE MOTOR # = MOTOR HP
# HP	SINGLE PHASE MOTOR
	TRANSFORMER
	LINE REACTOR

WIRING – CONNECTIONS

SYMBOL	DESCRIPTION
	PANEL OR EQUIPMENT WIRING
	FIELD WIRING
	CONDUCTORS – NOT CONNECTED
	CONDUCTORS – CONNECTED
	GROUND
	CHASSIS OR FRAME GROUND
	PLUG AND RECEPTACLE
	INCOMING LINE
	TERMINAL BLOCKS
	TERMINALS
SHIELD / CONDUCTOR	SHIELDED CABLE

PLAN – SYMBOLS

SYMBOL	DESCRIPTION
	CONDUIT, EXPOSED
	CONDUIT, IN SLAB OR BELOW GRADE
	CONDUIT STUBBED OUT & CAPPED
	CONDUIT BENDS TOWARD OBSERVER
	CONDUIT BENDS AWAY FROM OBSERVER
	CONDUIT ENDS
	CONDUIT CHANGE IN ELEVATION
G	BARE COPPER GROUND WIRE
	GROUND CONNECTION BOLTED TYPE
	GROUND CONNECTION EXOTHERMIC WELD TYPE
	PULL BOX
	DISCONNECT SWITCH
	FIELD CONTROL STATION WITH JUNCTION BOX
#A	FIELD CONTROL STATION WITH #AMP DISCONNECT SWITCH
	SPECIAL RECEPTACLE
J	JUNCTION BOX
T	THERMOSTAT
# A a	LIGHTING, FANS, HEATERS # – CIRCUIT BREAKER NUMBER A – FIXTURE SCHEDULE REF. a – CONTROL SWITCH REFERENCE
#	DUPLEX RECEPTACLE # – CIRCUIT BREAKER NUMBER
# $ 2 a	TOGGLE SWITCH # – CIRCUIT BREAKER NUMBER SUBSCRIPT – CIRCUIT CONTROLLED SUPERSCRIPT – BLANK = 1 POLE 2 = 2 POLE 3 = 3 WAY
#	CONDUIT #
##	EQUIPMENT NUMBER

SWITCHES – OPERATOR

SYMBOL	DESCRIPTION
SW	TOGGLE OR DISCONNECT SWITCH
PB	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION
PB	PUSHBUTTON – NORMALLY CLOSED, MOMENTARY ACTION
PB	PUSHBUTTON, MECHANICALLY INTERLOCKED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN, MAINTAINED ACTION
H O A / 2–1 1–2	SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS AT POSITION OF H–HAND, O–OFF, OR A–AUTO
	SELECTOR SWITCH, 2 POSITION – CONTACT STATUS SHOWN EXISTS AT POSITION AS SHOWN

DEVICES – FRONT PANEL

SYMBOL	DESCRIPTION
X	INDICATING LIGHT, LETTER "X" INDICATES COLOR: R=RED G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
PTT X	INDICATING LIGHT, PUSH TO TEST
AM	AMP METER
VM	VOLT METER
ETM	ELAPSED TIME METER
RTM	RUN TIME METER
XS	MULTI–POSITION SWITCH WHERE LETTER "X" IS FUNCTION: A=AMP, V=VOLT

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
	DISCONNECT, 3 POLE
	CIRCUIT BREAKER, 3 POLE THERMAL MAGNETIC (TM) OR MOTOR CIRCUIT PROTECT (MCP)
OL	THERMAL OVERLOAD CONTACT
	THERMAL OVERLOAD ELEMENT
	FUSE WITH BLOWN FUSE INDICATING LIGHT
	FUSE
52	MEDIUM VOLTAGE DRAWOUT BREAKER
	LOW VOLTAGE DRAWOUT CIRCUIT BREAKER

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REGISTERED PROFESSIONAL ENGINEER — M. SEAN JEANE — No. 52402 — Exp. 12-31-22 — CIVIL — STATE OF CALIFORNIA

PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

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PROJECT	DATE
4754.00	NOVEMBER 2021
DRAWN BY	CHECKED BY
ZKV	SMK

ELECTRICAL SYMBOLS & ABBREVIATIONS, E1

SHEET NO.
7 OF 10

T.E.E.m.
(916) 457–8144

REGISTERED PROFESSIONAL ENGINEER — SHARON M. KING — No. 19696 — Exp. 6-30-2022 — ELECTRICAL — STATE OF CALIFORNIA

11/4/2021

Z:\ACADDWG\2021\2105d\2105de001.dwg 11/3/2021 4:48 PM ATEEM

DWG REF: E2 | MOUNTING: SURFACE | VOLTS: 120 / 240 | BUS AMPS: 100A | ENTRY: BOTTOM
NAMEPLATE: | PHASE: 1 | MAIN BKR: 100A | NEMA: 1
LOCATION: CONTROL CABINET | WIRE: 3 | KAIC RATING: 10 | TVSS: NO

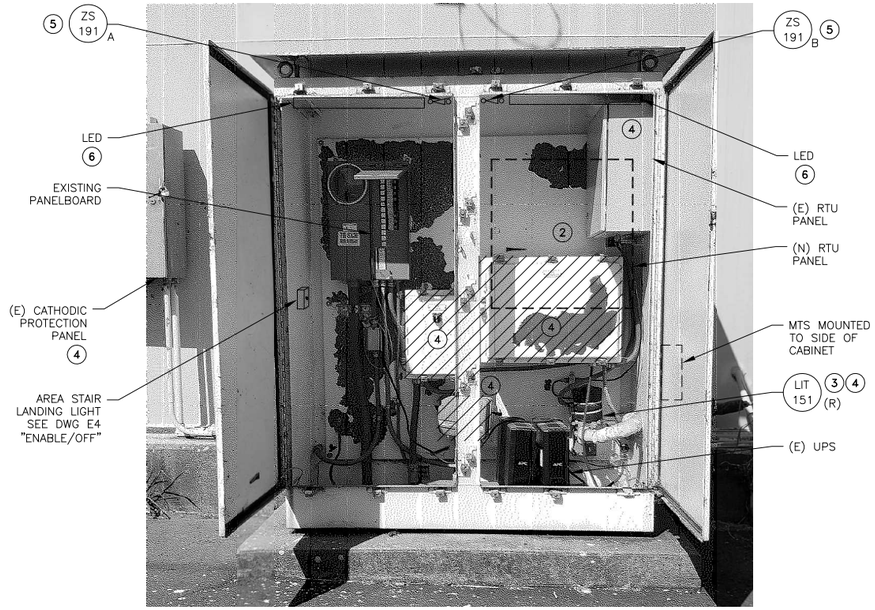
BKR NO.	LOAD DESCRIPTION	LOAD VA	LINE AMPS	BKR AMP/ POLE	BKR NO.	PHASE
1/2	~~IRRIGATION~~ **VAULT & AREA LTG**	500	4	~~40/2~~ **20/1**	1/2	A
3/4	~~PUMP~~ **TANK ROOF LIGHTING**	150	1	**20/1**	3/4	B
5/6	CATHODIC PROTECTION	500	4	15/1	5/6	A
7/8	DUPLEX RECEPT	180	2	20/1	7/8	B
9/10	MAIN		0	100/2	9/10	A
11/12	BREAKER		0		11/12	B
13/14	~~IRRIG CTRLER~~ **SPARE**	0	0	20/1	13/14	A
15/16	~~LVL XMTR~~ **ELECTRICAL CABINET LIGHTS**	100	1	20/1	15/16	B
17/18	SPARE	0	0	20/1	17/18	A
			0			B
			0			A
			0			B
			0			A
			0			B

NEW WORK (TYP)

PHASE	A	B	
LEFT SIDE AMPS	8	4	
LEFT SIDE KVA	1.00	0.43	NEUTRAL
TOTAL KVA	0.00		GROUND
TOTAL AMPS @ 240V, 1P	0.0		
DIVERSITY FACTOR	0.90		
LOAD KVA	0.00		

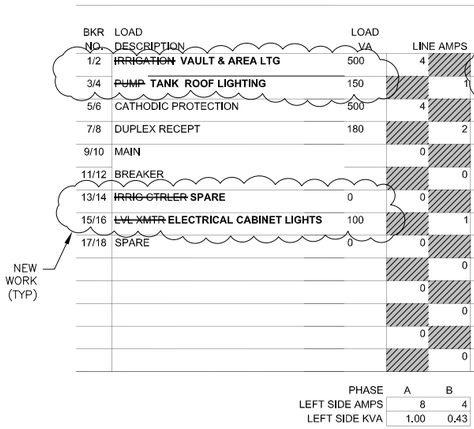
NOTES: 1. MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210.5
2. (G) INDICATES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY
3. (H) INDICATES HACR RATED BREAKER.
4. (L) PROVIDE PADLOCKING PROVISION IN ORDER TO LOCK BREAKER IN THE OFF POSITION.

EXISTING PANELBOARD



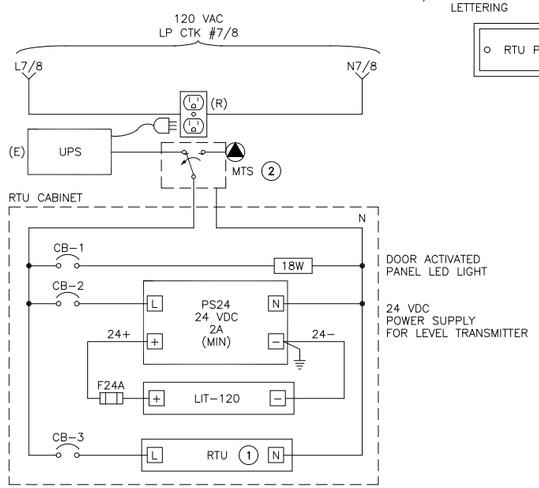
ELECTRICAL CABINET PHOTO (A / 1)

NOTES:
1. REMOVE ALL EQUIPMENT & CABINET. INSTALL NEW NEMA 4X 72"H x 60"W x 24"D CABINET WITH SUNSHIELD, PADLOCAKABLE DOORS AND FULL HEIGHT BACKPAN, PROVIDE SHELF FOR (E) UPS. REINSTALL PANELBOARD, UPS AND RECEPTACLE. RECONNECT PANELBOARD WIRES PER REVISED SCHEDULE.
2. NEW RTU PANEL SEE DETAIL "B", RECONNECT EXISTING I/O TO TERMINAL BLOCKS.
3. REPLACE (E) LEVEL/PRESSURE TRANSMITTER (LIT120).
4. TURN OVER TO OWNER.
5. NEW INTRUSION SWITCHES. TERMINATE SIGNALS TO RTU TERMINAL BLOCKS.
6. NEW 2' LED DOOR ACTIVATED PANEL LIGHTS CKT #15/16.



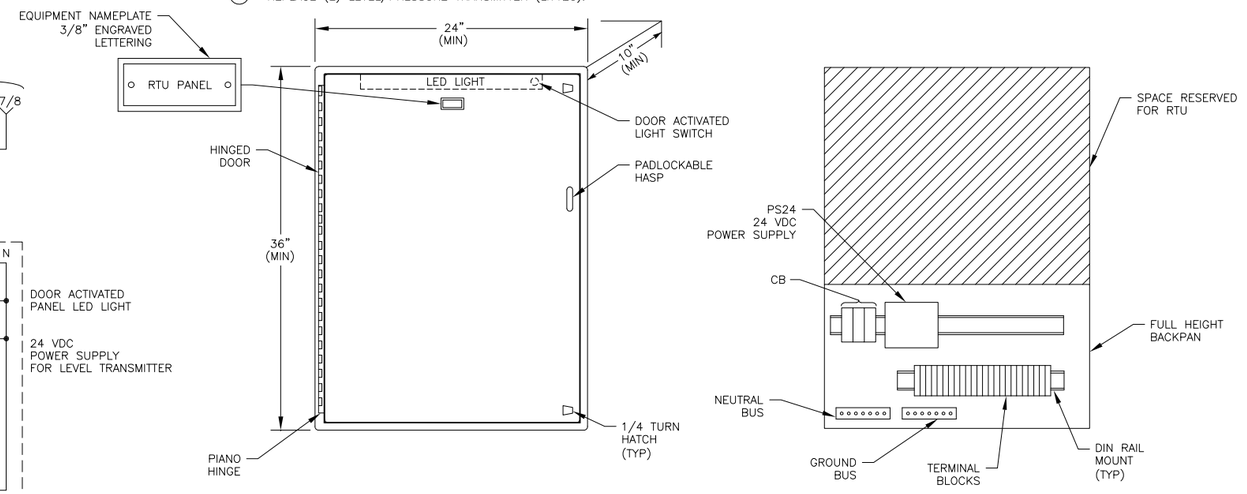
ELECTRICAL SERVICE ONE LINE DIAGRAM

NOTES: 1. RE-INSTALL IN NEW ELECTRICAL CABINET.



120 VAC POWER DISTRIBUTION

NOTES: 1. PROVIDED AND INSTALLED BY OTHERS.
2. MANUAL TRANSFER SWITCH MTS WITH BUILD-IN RECEPTACLE.



PANEL FABRICATION METHODS

1. NEMA 12 FOR INSIDE INSTALLATION.
2. ALL OUTER DOORS SEALED WITH PERMANENT TYPE GASKETING.
3. EXTERIOR FABRICATED FROM HOT DIPPED GALVANIZED SHEET STEEL.
4. 12 GAUGE CONSTRUCTION.
5. ALL SEAMS CONTINUOUS WELDED.
6. OUTER DOOR TO BE PADLOCKABLE.
7. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE STAINLESS STEEL.
10. EXTERIOR FULL HEIGHT PANEL COLOR: LIGHT GREY.
11. PHENOLIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH PANEL.

RTU PANEL ELEVATION DETAIL (B / E2)

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REGISTERED PROFESSIONAL ENGINEER — JOSEPH M. KIMKOWSKI — No. 15698 — Exp. 6-30-2022 — ELECTRICAL — STATE OF CALIFORNIA

11/4/2021

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REGISTERED PROFESSIONAL ENGINEER — M. SEAN JEANE — No. 52402 — Exp. 12-31-22 — CIVIL — STATE OF CALIFORNIA

PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS		
NO.	DATE	DESCRIPTION

ON A FULL-SCALE DRAWING, LENGTH OF BAR BELOW IS 1-INCH. IF BAR MEASURES LESS THAN 1-INCH, THIS SHEET WAS PLOTTED AT A REDUCED SCALE, WHICH MAY REQUIRE ADJUSTMENT OF SCALE(S) SHOWN ON DRAWING.

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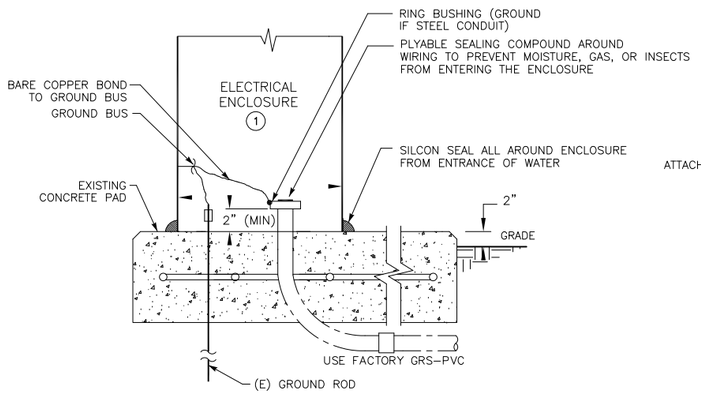
ELECTRICAL CABINET, E2

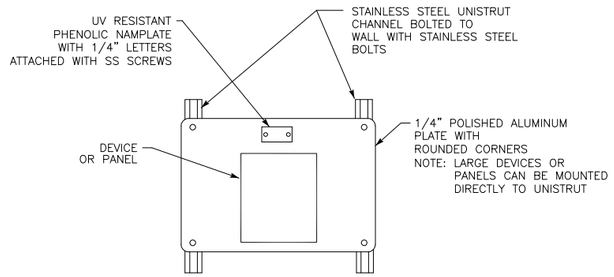
SHEET NO.
8 OF 10



CONCRETE PAD DETAIL (A / E3)

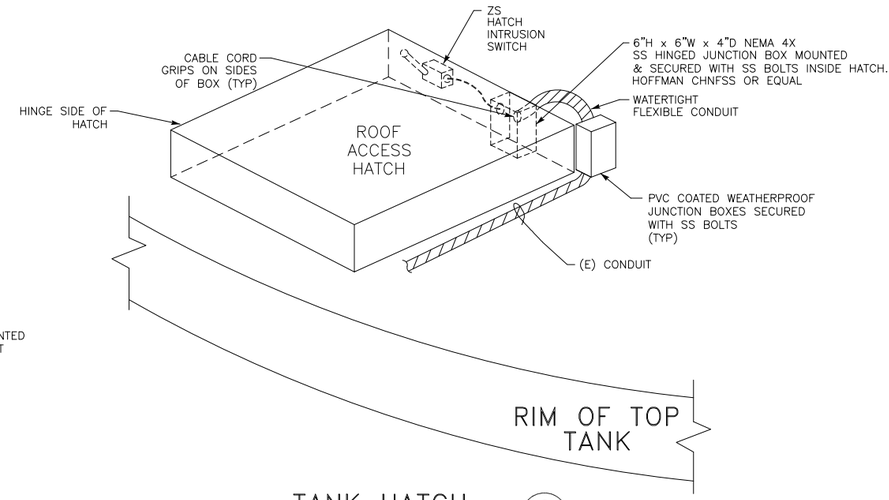
NOT TO SCALE

NOTES: (1) INSTALL SS ANCHORS SIZED FOR SEISMIC ZONE 4.



WALL PLATE SUPPORT DETAIL (B / E3)

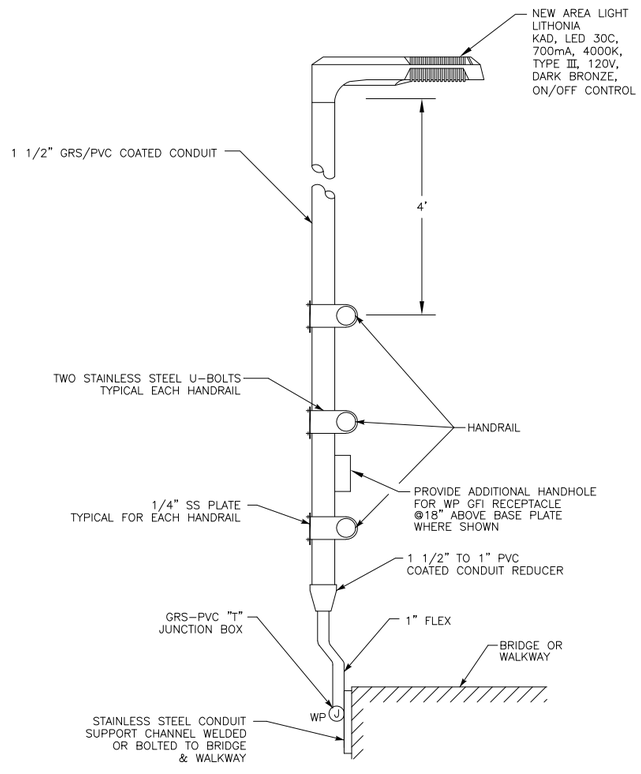
NOT TO SCALE



TANK HATCH DETAIL (C / E3)

NOT TO SCALE

NOTES: (1) THIS DETAIL SHOWS GENERAL INSTALLATION REQUIREMENTS. ADJUST ACCORDINGLY FOR HATCH ARRANGEMENT SHOWN ON CIVIL DWGS.



STANCHION MOUNTED LIGHT FIXTURE DETAIL (D / E3)

NOT TO SCALE

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REGISTERED PROFESSIONAL ENGINEER — GREGORY M. KING — No. 15699 — Exp.6-30-2022 — ELECTRICAL — STATE OF CALIFORNIA

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REGISTERED PROFESSIONAL ENGINEER — M. SEAN JEANE — No. 52402 — Exp. 12-31-22 — CIVIL — STATE OF CALIFORNIA

PETALUMA 1858

MANOR LANE TANK REHABILITATION

PETALUMA, CALIFORNIA

REVISIONS

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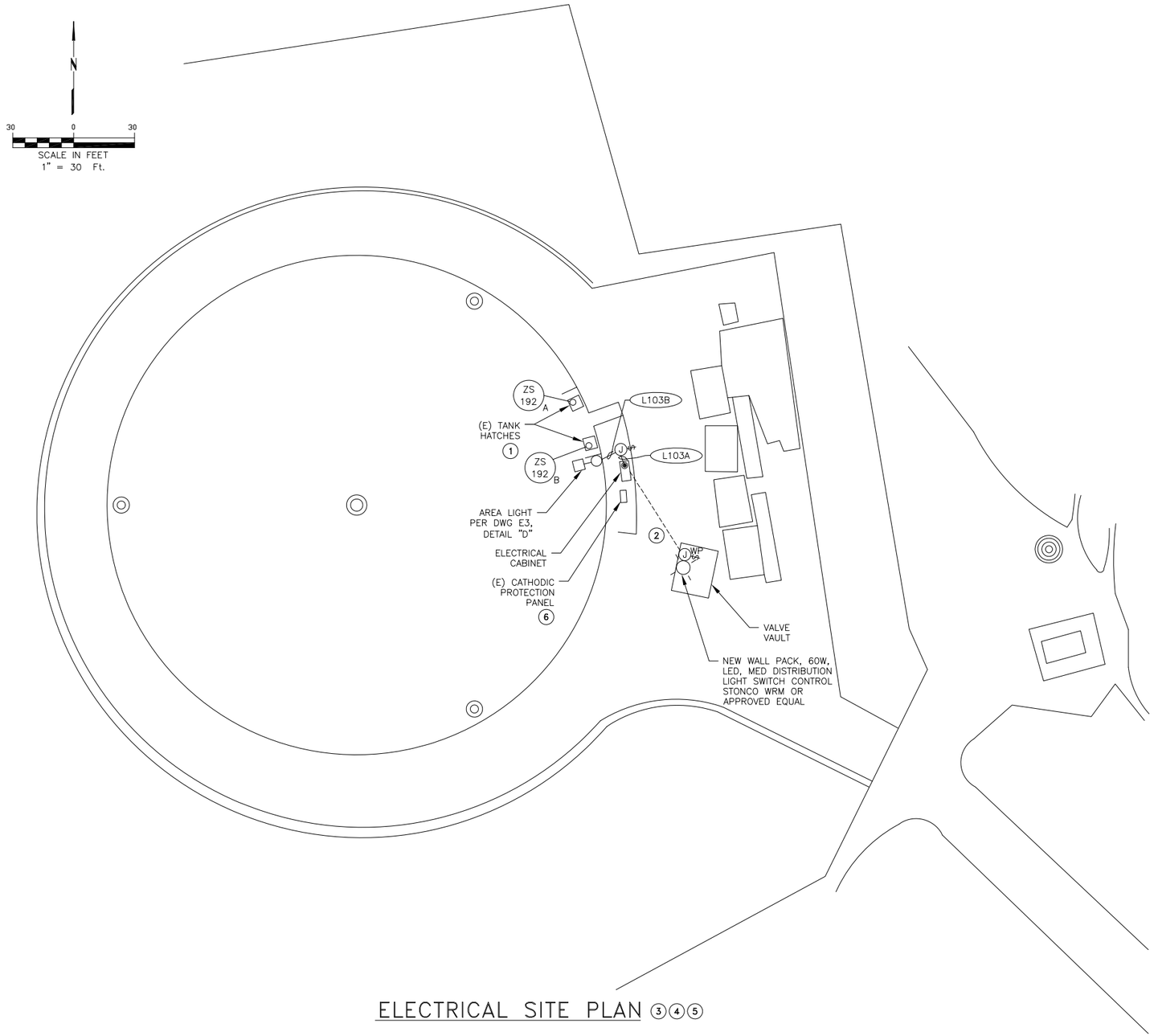
TYPICAL ELECTRICAL DETAILS, E3

SHEET NO.

9 OF 10



ELECTRICAL SITE PLAN ③④⑤

NOTES:
1. REPLACE (E) TANK HATCH SWITCHES (2 EACH) PER DWG E3, DETAIL "C" & RECONNECT WIRES.
2. REUSE (E) PUMP CONDUIT & WIRE.
3. THERE ARE EXISTING CONDUITS, PIPES AND GAS LINES, NOT SHOWN WHICH SHALL BE PROTECTED FROM DAMAGE. REPLACE OR REPAIR ALL DAMAGED EXISTING UTILITIES AT NO ADDITIONAL COST TO OWNER.
4. NOT ALL EXISTING CONDUITS SHOWN. CONDUITS SHOWN ARE THOSE ASSOCIATED WITH NEW WORK.
5. ALL JUNCTION BOXES (J-BOX) AND SWITCHES SHALL BE PVC COATED WEATHERPROOF (WP) BOXES.
6. EXISTING CATHODIC PROTECTION PANEL, CONDUITS, WIRES AND OTHER COMPONENTS ARE TO BE REUSED. REMOVE TO ACCOMMODATE OTHER SITE WORK, THEN REPLACE.

STAIRWAY LIGHT PHOTO A

NOTES:
1. COORDINATE WITH OWNER TO LOCATE TANK ROOF LIGHT SWITCH AT PLATFORM. WEATHERPROOF ENCLOSURE WITH LIGHT SWITCH AND GFI RECEPTACLE MOUNTED ON HANDRAIL. ADD NEW LIGHTING CONDUIT & WIRE.
2. TURN OVER TO OWNER.

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REGISTERED PROFESSIONAL ENGINEER — BRADON M. KINKADE — No. 15695 — Exp.6-30-2022 — ELECTRICAL — STATE OF CALIFORNIA

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PETALUMA 1858

MANOR LANE TANK REHABILITATION

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ELECTRICAL SITE PLAN, E4

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10 OF 10

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