

**CITY OF PETALUMA
PETALUMA, CALIFORNIA**

**CONTRACT DOCUMENTS FOR
OAK HILL MUNICIPAL WELL PROJECT
C67501611**

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

CITY PROJECT NO. C66402245

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

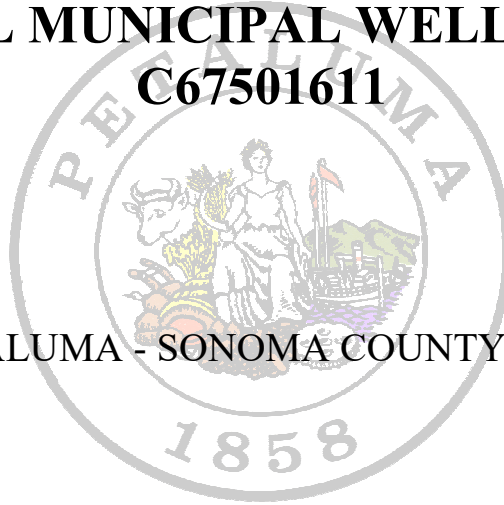
Office Hours: Monday thru Thursday - 8:00 to 5:00 p.m.
Friday – 8:00 to 4:00 p.m.

Bid Opening: Thursday August 17, 2023 at 2:00 p.m.

CITY OF PETALUMA
PETALUMA, CALIFORNIA

OAK HILL MUNICIPAL WELL PROJECT
C67501611

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA



Prepared by:

A handwritten signature in black ink, appearing to read 'Dan Herrera', written over a horizontal line.

Dan Herrera, P.E.

7/26/2023
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, CA 94952-2610, until 2:00pm (*enter time*) on Thursday, August 17, 2023, for the Oak Hill Municipal Well Project C67501611. 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 2:00pm (*enter time*) on Thursday, August 17, 2023 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 with 75 (seventy five) working days after the commencement date stated in the Notice to Proceed.
4. **DESCRIPTION OF WORK:** The WORK includes Drilling and aquifer testing of new groundwater well, development of new well, installation of well pump and appurtenances, installation of finished well head. .
5. **SITE OF WORK:** The site of the WORK is located: at Oak Hill Reservoir Site, adjacent to Oak Hill Park, at end of Park Avenue.
6. **OBTAINING CONTRACT DOCUMENTS:** The Contract Documents are entitled “Oak Hill Municipal Well Project C67501611”.

The Contract Documents may be obtained by 4:00 P.M., Monday through Thursday at the office of Public Works & Utilities, 202 North Mc Dowell Boulevard, Petaluma, CA 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

Submit 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 bis by email.

If you would like to purchase bid documents, please call Phone No. (707) 778-4585, Attention: Tiffany Avila, upon payment of \$25.00 (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, Ste 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 C57 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 pursuant to labor Code Section 1725.5, subject to limited legal exceptions.
9. **PREFERENCE FOR MATERIAL:** Any specification designating a material, product, thing, or service by specific brand or trade name, followed by the words "or equal" or "or equivalent" is intended only to indicate quality and type of item desired. 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 or 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. This provision does not apply to materials, products, things, or services that may lawfully be designated by a specific brand or trade name under Public Contract Code Section 3400(c).
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 PREVAILING 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 the 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 and is available to any interested party upon request. A copy of the prevailing rate of per diem wages are also online at <http://www.dir.ca.gov/DLSR>. Each Contractor and Subcontractor must pay no less than the specified rates to all workers employed to work on the Project. The schedule of per diem wages is based upon a working day of eight hours. The rate for holiday and overtime work must be at least time and one-half. 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 all workers employed by them in the execution of the WORK. The Contract will be subject to compliance monitoring and enforcement by the Department of Industrial Relations under labor Code Section 1771.4. Additionally, CONTRACTOR shall post job sit notices s required by Labor Code section 1771.4.

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 Division 2, Part 7, Chapter 1 of the Labor Code, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time 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 the 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 expense 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 their 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 9550, a payment bond must be filed if the expenditure for the WORK is in excess of Twenty-Five Thousand Dollars (\$25,000.00).

16. PRE-BID CONFERENCE VISITS: [At least one 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 N/A (*enter time*) on N/A, at the N/A, offices at N/A. 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 N/A (*enter time*) on N/A at the N/A. Following the conference 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.

18. FINDING OF SUBSTANTIAL COMPLEXITY: Pursuant to Public Contract Code Section 7201(b)(3) the CITY's Public Work's Director has found that the WORK is substantially complex due to: the amount of technical and scientific knowledge needed to complete the project; the amount of resources needed to complete the project including amount of days, workers, and labor; the urgency for project completion; the amount of tasks needed to complete the project; the number of organizational stakeholders needed to satisfy; the environmental complexity of the conditions; and in particular the number of tasks needed to complete the project; the number of resources and speciality contractor work needed to complete the project (including utility construction, number of days, workers, equipment, and labor); the size and impact of the project; the need for careful work to avoid existing infrastructure and sensitive areas.; and therefore this is a unique project that is not regularly performed and requires a higher retention amount than 5 percent.

Notwithstanding Public Contract Code Section 7201 or any other law or regulation that purports to provide otherwise, public contracting is a quintessential municipal affair, subject to charter cities' home rule power, and the California Constitution grants charter cities supreme authority over municipal affairs, which include public Works, procurement, and the mode of municipal contracting (See, Public Contract Code Section 1100.7 and e.g., *Bishop v. City of San Jose* (1969) 1 C3rd 56)., and it is the courts, not the legislature, that determines which matters are municipal affairs (see, e.g., *California Federal Savings and Loan v. City of Los Angeles* (1991) 54 C3d 1); and

Article X, Section 67 of the Petaluma Charter provides in pertinent part:

...no progressive payments can be provided for or made at any time which, with prior payments, if there have been such, shall exceed in amount at that time ninety percent of the value of the labor done and the materials used up to that time, and no contract shall provide for or authorize or permit or permit the payment of more than ninety percent of the contract price before the completion of the work done under said contract and the acceptance thereof...; and

City charters are documents of limitation and a restriction on the City Council's powers imposed by the voters (see, e.g., *City of Glendale v. Trondsen* (1957) 48 C2d 93) and, as a result, the City Council's contracting power is limited by the retention requirement in Article X, Section 67, and the City Council and City Council and City staff lack the power to provide for public works contract retention other than as specified in the City Charter.

19. GOVERNMENT CODE SECTION 1090: The successful Bidder may be precluded from competing for, or participating in, subsequent contracts that result from or relate to the WORK performed pursuant to this Bid. The ethics laws that apply to the City and all its consultants, contractors, and vendors include California Government Code Section 1090 and following, which prohibits government officials, employees, and contractors from participating in making government

contracts in which the official, employee or contractor has a financial interest. Because City contractors always have a financial interest in their City contracts, the Section 1090 prohibition regarding City contractors focuses on whether a contractor is or would be “making a government contract” in a quasi-governmental capacity for purposes of Section 1090. Section 1090 prohibits City contractors from using their role as a contractor to influence how the City spends the public’s funds in a way that benefits the contractor. Penalties for violating Section 1090 are severe, and may include felony criminal penalties, permanent disqualification from holding public office in California, disgorgement of any benefit received by the financially interested contractor, civil and administrative penalties, and voiding of the prohibited contract.

NAME: Dan Herrera
ADDRESS: 202 N McDowell Blvd
Petaluma CA, 94954
PHONE: (707) 778-4546

20. 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: July 26, 2023

END OF 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 state 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 (5th) 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)

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 data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

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 C57 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/Demobilization	1	Lump Sum		
2	Noise Attenuation (Sound Walls)	1	Lump Sum		
3	Standby Time	1	Hour		
4	Pilot Bore Hole Drilling	500	Feet		
5	Pilot Bore Hole Abandonment (Optional)	1	Feet		
6	Drilling Waste Disposal (solids)	1	Yard		
7	Drilling Waste Disposal (fluid/drilling mud)	1	Gallons		
8	Geophysical Logging	1	Lump Sum		
9	Caliper Survey	1	Lump Sum		
10	Aquifer Zone Sampling	2	Each		
11	Pilot Bore Hole Stabilization (Optional)	500	Feet		
12	20" O.D. x 3/8" Wall Conductor Casing and Sanitary Seal Drill and install	50	Feet		
13	Borehole Reaming	510	Feet		
14	Plumbness and Alignment Tests	1	Lump Sum		
15	10" Inside Diameter (ID) ASTM F480 PVC Well Blank Casing	303	Feet		
16	10" Inside Diameter (ID) ASTM F480 PVC Well Screen with 0.050" Milled Slots	200	Feet		
17	Monitoring Well Installation (Optional)	500	Feet		
18	3" Gravel Fill Pipe, Schedule 40, Black Carbon Steel	153	Feet		
19	2" Sounding Pipe, schedule 40 Black Carbon Steel	403	Feet		
20	Gravel Envelope	450	Feet		
21	Bentonite Seals	10	Feet		
22	Gravel Backfill Material	5	Feet		
23	Bentonite Transition Seal	5	Feet		
24	Annular Seal	150	Feet		
25	Initial Well Development by Swabbing and Air Lifting	40	Hour		
26	Final Pumping Development	20	Hour		

Oak Hill Municipal Well Project - City Project No. C67501611

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
27	Installation and Removal of Test Pump	1	Lump Sum		
28	Well and Aquifer Testing	36	Hour		
29	Well Disinfection	1	Lump Sum		
30	Video Camera Survey	1	Lump Sum		
31	Furnish and Install Submersible Turbine Pump	1	Lump Sum		
32	Well Head Finishing	1	Lump Sum		

\$ _____
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

Note: The award of the contract shall be awarded to the lowest price of the total of Base Bid

 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. 4 Signature Acknowledging Receipt: _____ Date: _____

Addendum No. 5 Signature Acknowledging Receipt: _____ Date: _____

Addendum No. 6 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
-----------------------------	-------------------------------------	--	--

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:

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

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

The apparent low Bidder shall submit a Statement of Qualifications as specified herein as a submittal to the City within 24 hours of the bid opening.

- 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 been 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. Experience on public works projects, with no history of default termination.
 3. Within the past five years, completed two construction projects of a similar nature (water well) and complexity with a contract dollar amount of at least \$100,000 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. Prime contractor (Bidder) shall perform at least 50% of the work. Provide percentage of work (by task) to the performed by sub consultants.
- 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.

**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

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 _____ 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

SECTION II
GENERAL CONDITIONS

CITY OF PETALUMA - GENERAL CONDITIONS

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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 not 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 rating 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 all 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. General

- 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 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 quantities of 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, expeditors, 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 the 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 in 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 discover 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 made 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 shall 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 work to be done consists, in general, of drilling one pilot borehole, collecting and logging formation samples, performing grain size analysis, performing geophysical and caliper logging, and conducting water quality zone sampling. After receiving written instructions on the final design, performing of pilot borehole reaming installation of well casing and screen, and construction of potable water supply well with a target production capacity of approximately 200-400 gallons per minute (gpm); and doing other work specified in these special provisions and as shown on the plans.
- 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 or delay to act 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) Plans/Exhibits
- 5) Technical Specifications
- 6) Standard Specifications (Current Caltrans Standard Specifications)
- 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, "Non-highway 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's attention is directed to the existence of a 12-inch gas main on Madison St. The CONTRACTOR shall notify PG&E prior to performing any excavation or other work close to existing structure. Notification to PG&E is not limited to the 12-inch gas main and it is the sole responsibility of the CONTRACTOR to notify PG&E before working close to any underground pipeline or conduit owned by PG&E.

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: 1 (800) 227-2600

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.

All work shall be performed Monday through Friday between the hours of 7:00 a.m. and 5:00 p.m.

In the case where “Night Hours” are required for 24-hour operations at the project site, the CONTRACTOR shall coordinate with the City for approval. The CONTRACTOR shall take all necessary precautions which include, but are not limited to: sound attenuation, resident notifications, and traffic control, in order to minimize the disturbance to the residents in the project area. The CONTRACTOR shall abide by all provisions of the technical specifications and these contract documents.

No work shall be done on designated legal holidays: 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.

- 3-6. PROJECT AND CONSTRUCTION AREA SIGNS – One (1) project sign with a minimum dimension of 5 feet wide by 4 feet high and 3/4” thick plywood bolted to two (2) 4-inch by 4-inch posts shall be furnished and installed by the CONTRACTOR. The location and format shall be submitted for the City’s approval. Letters and numbers shall be black on a white background. The sign information shall include the project title, project number, Funding Source: Water Fund, Contractor Name and emergency phone numbers.

Construction area signs will be installed prior to start of construction and maintained in place for the duration of the project by the CONTRACTOR. 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.

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

- 3-7. TRAFFIC REGULATIONS – 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 shall take all necessary steps to minimize inconvenience to the general public throughout all work under this Contract. No driveways or private roads shall be blocked without notifying the property owner and access must be restored during all non-working hours. Safe access must be maintained for pedestrian traffic throughout the work area at all times.

At least one lane of traffic in each direction must be kept open at all times unless prior approval is obtained from the City. No roads shall be blocked or made inaccessible, due to the CONTRACTOR’s work, without prior written approval of the City and the affected agencies. More stringent requirements may be imposed in the right-of-way permits.

- 3-8. TRAFFIC CONTROL Construction area traffic control devices shall be installed and maintained in accordance with the applicable sections of these Special Provisions, the Standard Specifications, the current edition of the Manual On Uniform Traffic Control Devices (MUTCD), and applicable California supplements to the MUTCD, and as directed by the Engineer.

Traffic control shall include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures, including sufficient flaggers to direct vehicular traffic through the construction areas.

No material or equipment shall be stored/parked where it will interfere with the free and safe passage of public traffic, and at the end of each day's work, and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from the public right-of-way.

TRAFFIC CONTROL PLAN

The CONTRACTOR shall submit to the ENGINEER for approval at least ten (10) working days prior to start of work three (3) copies of the traffic control plan minimum 11-inch x 17-inch drawing, which shall represent actual conditions. Traffic Control Plans

submittals will be reviewed and returned within five (5) working days. Plans deemed incomplete may be returned without review. The Traffic Control Plan shall contain a title block which contains the Contractor's name, address, phone number, project superintendent's name, dates and hours the traffic control will be in effect, along with a signature block for the Contractor, and for the Engineer.

The Traffic control plan shall include, but is 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 (with 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/bicycle traffic will be handled through the construction site.
- H. Show locations of night time 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.

The CITY Standard Work Traffic Control Plans 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.

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

- A. Notify all adjacent residents, City of Petaluma Police and Fire Departments, Waste Management Company (refuse service company), Petaluma Transit, Golden Gate Transit and Sonoma County Transit by written notices detailing the type, limits, date and the hours of work.
- B. Where required, post streets with temporary "No Parking/Tow Away" signs at 50-foot intervals at least seventy-two (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.

PEDESTRIAN / BICYCLE TRAFFIC CONTROL

The Contractor is directed to Chapter 6D and Part A, Pedestrian and Worker Safety and Traffic Control of Bicycle Facilities, in the MUTCD and applicable California supplements, the improvement plans and these Special Provisions.

Pedestrians shall be provided with a safe, convenient, and accessible path that at a minimum replicates the most desirable characteristics of the existing sidewalk, path, or footpath.

Unless specifically approved in writing, all accesses for local businesses and residents shall be maintained at all times. Approval of the ENGINEER shall be required for any changes from the previously approved traffic control plans.

Should the Contractor appear to be negligent in furnishing warning and protective measures, as above provided, the Construction Manager or representative permitting agency may direct attention to the existence of a hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor at its expense.

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 the various bid item and no additional compensation shall be allowed therefore.

- 3-9. WATERING - No Water is available at the Well Site. The Contractor may elect to use a hydrant meter on a City fire hydrant. 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.

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.

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. SAFETY REQUIREMENT - 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 first 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. PROJECT APPEARANCE – 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 – Generally, other than emergency work, there will be no night hours allowed for work on this project, with the exception for stability of the borehole.

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.

- 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. PERMITS - The CONTRACTOR shall secure a building permit, well drilling permit, and/or an Industrial Stormwater Discharge Permit or Sanitary Sewer Discharge permit. Fees for these permits shall be considered part of this contract and included in the lump sum bid price for mobilization.

- 3-28. SITE PROTECTION – The project site contains several areas that shall be protected throughout the duration of the work. The Contractor shall provide protection measure for rock labyrinth directly adjacent to the proposed well site. Contractor shall ensure no work shall encroach into labyrinth area. Contractor shall take special consideration for pedestrian traffic and that location is a functioning park. Contractor shall ensure all work areas are safe and secure.
- 3-29. STAGING AREA – The available staging area on site is restricted to the extents shown in the contract drawing figures. Any additional storage will need to be located off site. Access to the site for equipment and materials shall be from Park Avenue with no exceptions. The site and hauling route shall be submitted to the City for approval prior to the commencement of work. If off site staging is required, the Contractor shall obtain written confirmation from property owners for use of the site.
- 3-30. TEMPORARY FENCING – It is the responsibility of the Contractor to always keep the work area safe and secure, this may include temporary fencing. Temporary fencing and all other items necessary for the security of the work area is included in the various bid items and no additional allowance will be made.
- 3-31. SITE RESTORATION – Site restoration is the replacement or reconstruction of site improvements to rights-of-way, easements, public property and private property that are affected or altered by construction operations, with improvements restored to conditions which is equal to, or better than, that which existed prior to construction operations. The Contractor is responsible for all site restoration activities required due to their work. The contractor shall document all existing conditions of structures, landscaping, planting, irrigation, fences, and other existing conditions and ensure site is return to pre-construction conditions.
- 3-32. NOISE ABATEMENT – Noise abatement is of a special consideration for the site due to the nature of the park site and proximity to existing homes. The contract includes installation of sound attenuation around the construction site. The Contractor shall coordinate with the City for location of soundwall installation. The Contractor shall prepare a plan for erection and removal of the sound barriers and submit to City for approval. The Contractor shall coordinate with City code enforcement to demonstrate sound levels meet noise ordinate requirements.
- 3-33. CEQA MITIGATION MEASURES – The Contractor shall adhere to all mitigation measures shown in the Contract Documents. The Contractor shall maintain a copy of the contractor documents and mitigation measures on site and demonstrate capacity to meet each requirement.

SECTION IV
TECHNICAL SPECS

**SECTION 01110
SUMMARY OF WORK**

PART 1 - GENERAL

1.01 SUMMARY

- A. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles, and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents.
- B. The work shall be complete and all work, materials, and services not expressly shown or called for in the Contract Documents, which may be necessary for the complete and proper construction of the work in good faith shall be completed and performed, furnished, and installed by the Contractor as though originally so specified or shown, at no increase in cost to the Owner.
- C. Work covered by Contract Documents
 - 1. The municipal well construction site referred to as Oak Hill is located off Park Avenue, Petaluma, California and adjacent to Oak Hill Park. The project location is shown on Exhibit 1. A proposed well construction diagram for the purpose of providing a cost is shown on Exhibit 2. Proposed well construction details are shown on Exhibit 3.
 - 2. The work includes drilling one pilot borehole using conventional rotary drilling or similar method, collecting and logging formation samples, performing grain size analysis on formation samples, performing geophysical and caliper logging, and conducting water quality zone sampling. The information obtained during these activities will be used by the Engineer to develop the final design for the municipal well. After receiving written instructions on the final design of the municipal well, the work will be resumed by reaming the pilot borehole and constructing a potable water supply well with a target production capacity of approximately 200 gallons per minute (gpm).
 - 3. The municipal potable water supply well project will include but not be limited to the following items, which are described in detail in the Plans and Specifications:
 - a. Mobilize to provide temporary facilities and demobilize from site.
 - b. Contractor to obtain drilling permit from Sonoma County.
 - c. Furnish and install sound walls around drill site; up to 250-feet in total length.
 - d. Drill an 8-inch diameter pilot borehole to an anticipated depth of 500 feet using an approved method such as Sonic, reverse circulation, conventional mud rotary or air rotary method, collect the drill cuttings at a minimum 5-foot intervals and when changes in lithologic type are detected and conduct sieve test analyses on selected samples for future well design.
 - e. Conduct geophysical surveys of the pilot borehole.
 - f. Collect aquifer zone samples at intervals in the pilot borehole identified by the Engineer.
 - g. Backfill the pilot boring with pea gravel, bentonite or material approved by the Engineer to maintain borehole while the well design is being prepared. This may be waived by the Engineer if the casing designed for the well is immediately available.
 - h. Secure the well site while chemical analysis is performed by others on the aquifer zone samples (Contractor has the option to temporarily demobilize from the site during analysis and final well design).
 - i. Remobilize (if necessary) to the drill site when directed in writing by the Owner. Remobilization is scheduled to occur 15 working days after collection of the aquifer

zone samples. The Engineer will provide the Contractor with the final well design in writing at this time. The final design will be based on the lithologic log, sieve test results, geophysical logs, and aquifer zone sample results from the pilot borehole.

- j. Drill a conductor casing borehole as described in the Plans and Specifications; furnish and install conductor casing and place sealing material as required in the annulus.
- k. Ream the borehole to 18-inch diameter for the full depth of the well.
- l. Perform a caliper survey of the final borehole.
- m. Furnish and install 10-inch PVC well casing.
- n. Furnish and install 10-inch PVC well screen.
- o. Furnish and install the 3-inch gravel fill piping and 2-inch sounding tube piping in the annulus between the borehole wall and casing if determined necessary.
- p. Furnish and install gravel envelope in the annular space.
- q. Furnish and install bentonite seals at specified intervals.
- r. Install annular seal, including a 5-foot transition seal, from the top of the gravel pack to the ground surface.
- s. Furnish and install temporary discharge piping and settling tanks from the production well to the discharge location.
- t. Develop the well screen using swabbing, air lift, pumping and surging techniques.
- u. Furnish and install a deep well turbine pump for well development and test pumping. Continue development by pumping and surging.
- v. Perform a step test for approximately 12 hours.
- w. Perform a constant rate pumping test for approximately 24 hours and monitor water level recovery after pumping stops for 12-hours.
- x. Perform a plumbness and alignment survey of the pump chamber of the well.
- y. Perform a video camera survey of the well.
- z. Disinfect the well.
- aa. Provide and install threaded end caps for the gravel pipe if installed.
- bb. Furnish and install permanent pumping equipment to include, but not be limited to, vertical submersible turbine pump with electric motor.
- cc. Contractor to install subsurface utility vault to house the wellhead and production conveyance piping connection. City to provide vault detail.

1.02 PROJECT CONDITIONS

A. Activities by Others

- 1. The Contractor shall cooperate fully with all utility forces, regulating agencies, the ingress/egress landowner, and personnel of the Owner, and the Engineer.

B. Noise Abatement

- 1. The work shall be carried out as quietly as possible to prevent possible annoyance to adjacent residents. Unnecessary noise shall be avoided at all times. The Contractor shall comply with the requirements of any and all local ordinances and the instructions of the Owner/Engineer. Refer to Temporary Facilities, Section 01501.

C. Contractor Use of the Project Site

- 1. The Contractor's use of the project site shall be limited to the construction operations, including on-site storage of materials, sanitary facilities, and field offices.
- 2. The Contractor shall provide security fencing around the on-site rock maze structure and shall protect the maze from damage. No work, storage of materials, or other activities are allowed above or within three feet the maze.

3. The work area will be secured with temporary fencing to restrict access from the public.

D. Traffic Control

1. The Contractor shall submit a traffic control plan to the Owner, per Section 1501. The plan must specifically address pedestrian access around and near the drill site.

1.03 QUALITY ASSURANCE

A. Preconstruction Conference

1. Prior to the commencement of work at the site, a preconstruction conference will be held at a mutually agreed time and place that shall be attended by the Contractor, the Contractor's superintendent, and all subcontractors as appropriate.
2. Other attendees will include Engineer, Labor Compliance Officer, and other government representatives as appropriate or others as requested by the Contractor, Owner, or Engineer.
3. The Owner will preside at the pre-construction conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.
4. Purpose of conference
 - a. The purpose of this pre-construction conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the Contractor prior to the meeting date, which may include the following:
 - 1) Contractor's projected schedule.
 - 2) Transmittal, review, and distribution of the Contractor's submittals.
 - 3) Processing applications for payment.
 - 4) Maintaining record documents.
 - 5) Critical work sequencing.
 - 6) Field decisions and Change Orders.
 - 7) Use of project site, office and storage areas, security, housekeeping, and Owner's needs.
 - 8) Major equipment deliveries and priorities.
 - 9) The Contractor's assignments for safety and first aid.
 - 10) Labor compliance requirements and issues.

1.04 NOTIFICATION

- A. The Contractor shall give notice to the Engineer in writing, email or by telephone of specific operations as follows:
1. Forty-eight (48) hours advance notice of intent to start any well construction, well development or well testing operations.
 2. Twenty-four (24) hours advance notice of intent to conduct geophysical logging.
 3. Twenty-four (24) hours advance notice of intent to conduct the caliper log.
 4. Twenty-four (24) hours advance notice of scheduling the installation of casing, screens, and filter material in the production well.
 5. Twenty-four (24) hours advance notice of scheduling installation of grout seals. In addition, the Contractor is responsible for notifying the appropriate regulatory personnel within the time required prior to placing grout seals.

6. Twenty-four (24) hours advance notice of scheduling development and testing of the completed production well.
7. Twenty-four (24) hours advance notice of performing the test for sand content after development of production well.
8. Twenty-four (24) hours advance notice of scheduling the plumbness and alignment test in the production well.
9. Twenty-four (24) hours advance notice of scheduling television surveys.
10. Twenty-four (24) hours advance notice of scheduling well disinfection activities.
11. If operations are suspended by the Contractor for any reason, notice shall be given at that time stating the reason for suspension; notice shall be given before work is resumed.

1.05 LICENSES, PERMITS AND REPORTS

- A. The well drilling contractor shall possess a valid C-57 California Contractor's license. The Contractor shall pay all costs to procure all permits and licenses required by law for the execution of his work including but not limited to drilling permits and well destruction permits from the Sonoma County, Environmental Health Division. Contractor shall have in possession, at the job sites, all required drilling and well destruction permits. Contractor shall comply with all State and local laws, ordinances, and rules and regulations relating to the performance of the work and shall file all reports as required by the State and local agencies in connection with the well drilling and construction within 30 days. Copies of all reports and the original permits and licenses shall be submitted to the Engineer.
- B. All work shall be performed as specified and in accordance with applicable sections of California Department of Water Resources bulletin 74-81 "Water Well Standards, State of California" and its supplement bulletin 74-90 and Sonoma County Code of Ordinances Chapter 25B "Water Well Construction Standards". Should the Contractor discover any discrepancies between the specifications and state/local requirements, the Contractor shall bring them to the attention of the City's Representative immediately.
- C. The Contractor shall be responsible for contacting Underground Service Alert (USA) to identify and avoid damaging existing utilities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01501
TEMPORARY FACILITIES**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Temporary facilities, utilities including but not limited to water, electrical power, drainage, sanitary facilities, lighting, noise control, and protection and security measures.

B. Measurement and Payment

1. THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR TEMPORARY FACILITIES. The Contractor is to furnish materials and/or equipment to complete all work as may be needed to provide temporary facilities as shown in the Drawings and described in this section.
2. The cost of providing such temporary facilities as needed to complete the work or furnishing materials or equipment not otherwise specified in the Special Provisions or Technical Specifications shall be included in the LUMP SUM price bid for the BID ITEM NO. 1 – MOBILIZATION/DEMobilIZATION and no additional compensation shall be paid.

1.02 SOUND ATTENUATION AND WORK HOURS

- A. The site work shall be carried out as quietly as possible to prevent possible annoyance to adjacent residents. Unnecessary noise shall be avoided at all times. The Contractor shall comply with the requirements of any and all local ordinances and the instructions of the Owner/Engineer.
- B. Sound attenuation measures (sound walls) providing construction equipment and performing construction activities in a manner that minimizes noise generation and conforms to the City of Petaluma Ordinance No. 2300, Section 21.040, Section A. Noise Regulations (Noise Ordinance). The noise ordinance is provided as Attachment A.
- C. To the extent feasible, construction activities shall be limited to 12-hour shifts between 7:00 a.m. and 7:00 p.m. 24-hour operations will only be allowed during the drilling, construction, gravel packing, and sealing of the production well. The Contractor shall arrange with the Engineer for any 24-hour operations intended and/or required for the successful completion of the project. Together, the Contractor and the Engineer must practice good neighborhood relations at all times.
- D. The Contractor's noise emissions shall be measured by the Contractor prior to drilling the 8-inch borehole. A full-scale drilling noise test simulating drilling activity will consist of noise level emissions measurements taken at the work area boundary, at the nearest sensitive receptor, and at 75 feet and 150 feet from the drilling location. Measured noise emission levels shall not exceed the levels defined in Paragraph 1.02.
- E. Drilling operations shall not proceed until noise emissions conform to these Specifications. No additional compensation will be made for an additional full-scale drilling test, or failed test.
- F. Construction noise levels measured by the Contractor at the nearest sensitive receptor shall not exceed 60 dBA without prior written approval of the Owner.
- G. Should noise levels exceed the above levels, appropriate noise attenuation measures shall be implemented, at the Contractor's cost, prior to resuming work, to reduce the offensive noise levels at the sensitive receptors.
- H. Night-time drilling operations, when allowed, shall be conducted in a manner to reduce noise peaks and avoid rapid changes in noise levels. All drilling personnel shall be advised to avoid

noise generation wherever possible. In particular, the changing of drill pipe and the throttling of the drill rig shall be done in such a manner that appreciably lessens the noise produced by these activities as compared to the daytime.

- I. Portable generators shall be whisper-quiet type with metal enclosure, exhaust silencer, and rated at no more than 75 dBA at 25 feet and 60 dBA at the nearest receptor.

1.03 WATER

- A. Provision of construction water of suitable quantity and quality for drilling shall be the sole responsibility of the Contractor.
- B. There is a water source provided by the City of Petaluma on the property (wharf hydrant) located on the south side of the current storage tank structure and approximately 225-feet from drill site for use by the Contractor. The Contractor shall provide a totalizer and backflow prevention device approved for use in the City of Petaluma for use in connecting to the City provided water source.
- C. No water supply piping nor hoses can be left in the public area unattended. All facilities must be removed from the public areas when work is not underway.
- D. The Contractor shall obtain a permit for construction water by contacting the City of Petaluma Department of Public Works and Utilities.
- E. Water used for well construction and human consumption shall be kept free from contamination and shall conform to the requirements of the federal, state and local authorities for potable water and water well drilling.

1.04 ELECTRICAL POWER

- A. The Contractor shall provide, at his own expense, all electric power required for construction, testing, general and security lighting, and all other purposes whether supplied through temporary or permanent facilities. The Contractor may arrange with the local utility to provide adequate temporary electrical service at a mutually agreeable location or provide his own generating equipment.
- B. When power cords are used at the site, the Contractor shall provide adequate job site electrical distribution facilities conforming to applicable codes and safety regulations.

1.05 STORMWATER BEST MANAGEMENT PRACTICES

- A. Contractor shall prevent any drilling fluid, and any fluids other than rain water from draining to the stormwater collection system unless otherwise specified.
- B. Erosion, Sediment and Water Pollution Control shall comply with the provisions of the City of Petaluma Code, Chapter 15.80, Stormwater Management and Pollution Control, and state, and federal requirements.

1.06 CONTROL OF CUTTINGS AND DRILLING FLUID

- A. All drill cuttings, drilling mud, and turbid water shall be contained and disposed by the Contractor as described in the following Paragraph 1.07 below.
- B. During drilling, all cuttings, drilling mud and fluids shall be controlled by the Contractor within the staging/construction area and shall not be allowed to run into adjoining gutters, storm drains, ditches or adjacent open areas. Temporary storage of uncontained cuttings on the ground surface will not be allowed.
- C. Mud tanks are to be used for the collection and settlement of drill cuttings. The construction of mud pits will not be allowed.
- D. Cuttings shall be containerized and shall be properly disposed.

1.07 DISPOSAL OF CUTTINGS MUD, SEDIMENT-LADEN FLUIDS

- A. All drill cuttings, mud, sediment-laden fluids, and other waste materials generated during this work shall be removed and disposed of from the site at the Contractor's expense in a lawful and accountable manner pursuant to the federal, state and/or local regulations, ordinances, and laws.
- B. Drill cuttings, mud, and sediment-laden fluids shall be contained and transported by the Contractor to the Owner's approved landfill facility. City owned facility may accept drill cuttings but must be arranged between the driller and the City.
- C. It is anticipated that all wastes other than drill cuttings, mud and sediment-laden fluid can be disposed at the Class III landfill. The Redwood Landfill is the closest disposal site. Address is 8950 Redwood Hwy, Novato, CA 94945. Telephone number is (415) 892-2851. The landfill selection and waste acceptance is the drillers responsibility.
- D. The Contractor is responsible for appropriate containment and transportation of wastes from the drill site to the disposal sites.

1.08 WATER DISPOSAL

- A. The Contractor shall dispose of groundwater generated during well development and test pumping in compliance with the Owner's sanitary sewer permit requirements. A baffled fluid containment tank(s) for solids settlement, flocculation procedures, on-site percolation, filtering devices such as sediment retention bags and/or a professional soil and water management services firm such as Thunder Mountain Enterprises, Inc. (916-381-3400) shall be employed to prevent turbid fluids from entering the Owner's storm drain system. The Contractor shall be responsible for conveying the fluids to disposal points in a safe manner.
- B. Solid matter will be separated from the effluent prior to disposal. The remaining clean water will be conveyed via pipeline to the storm drain inlet shown on Figure 1. The City will provide a connection from the site to the sanitary sewer located on Park Avenue. Some modifications by the driller may need to be made to the City provided inlet.
- C. The effluent produced by drilling, developing and testing the well will not be discharged into streets, gutters or into any facilities such as stormwater or sanitary sewer systems, except as specified in this section.
- D. Contractor shall provide the temporary discharge piping and temporary settling tanks required to convey drilling, development and testing water to the discharge point. All facilities and piping shall be sized and constructed by the Contractor to accommodate flow requirements during drilling, development and testing.
- E. Temporary storage tanks used to remove sand and other sediments shall be furnished by the Contractor.
- F. No waste shall be introduced into the discharged water.
- G. The discharge shall not interfere with water courses or wetlands.
- H. The discharge shall not cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
- I. Best Management Practices (BMPs) shall be used to prevent erosion during discharge of water. BMPs shall meet all federal, state and local requirements.

1.09 SANITARY FACILITIES

- A. The Contractor shall provide and maintain suitable chemical toilets or water closets and a hand washing station (cleaned a minimum of twice a week) at the site or locations reviewed by the Engineer within 24 hours after work begins at the site. Upon completion of the contract work,

the Contractor shall remove such toilets and disinfect the premises in the event of a spill or leakage.

1.10 LIGHTING

- A. The Contractor shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by California OSHA standards. When used, lighting shall be shielded so that adjacent property owners are not adversely impacted.

1.11 NUISANCE WATER

- A. It is anticipated that nuisance water, such as drilling water, rainfall, groundwater or surface runoff may be encountered within the construction site during the period of construction under this contract. The Contractor shall at all times protect the work from damage by such waters and shall take all due measures to prevent delays in progress of work caused by such waters. The Contractor shall dispose of nuisance water at his own expense and without adverse effects upon the Owner's property or any other property.

1.12 WELL AND SITE SECURITY

- A. All open excavations shall have temporary fencing around their perimeter if the site is to be unmanned.
- B. Except when drilling is in progress, the top of the well shall be kept securely capped, both night and day, in such a manner as to effectively prevent either tampering with the well or entrance of foreign matter.
- C. During times when work is not being conducted at the site, the Contractor shall secure the site to protect the public and to prevent unauthorized access, vandalism and theft.
- D. Contractor is responsible for the temporary fencing and the protection of the rock maze within the drilling area from damage.
- E. The Contractor shall provide temporary fencing around the drill site and sensitive areas as required to protect materials, equipment and miscellaneous items from theft, vandalism, unauthorized access and/or harm.
- F. The Contractor shall provide, install, and maintain barricades, warning devices and other protection required.
- G. Fences, barricades, warning signs, and lights shall conform to CAL-OSHA regulations, other State of California and local codes, rules, regulations, and ordinances for the protection of workers and public and private property. Security fencing shall be placed around the completed well by the driller.

1.13 HEALTH AND SAFETY

- A. It is understood and agreed that the Contractor shall establish, maintain, and abide by its own safety program and that it is solely responsible for the safety of its own subcontractors, workers, and operations.
- B. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. All persons 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 the rock maze, trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

1.14 TRAFFIC CONTROL

- A. The contractor shall provide and submit for approval, by the Owner, its traffic and pedestrian control plan for the drilling site. The plan shall include an access plan to minimize impacts to adjacent property and shall be in accordance with California Department of Transportation traffic control standards.
- B. Traffic and pedestrian control shall include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures, including sufficient flaggers to direct traffic through the construction areas.
- C. No material or equipment shall be stored or parked where it will interfere with the free and safe passage of public traffic and pedestrians. At the end of each day's work, and other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from the public right-of-way.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01506
MOBILIZATION/DEMobilIZATION**

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes:

1. Mobilization/demobilization including obtaining all permits; the transportation of personnel, equipment, materials, temporary facilities, site cleanups, and/or operating supplies to and from as required for the proper performance and completion of the work; mobilization/demobilization includes but not be limited to the following principal items:
 - a. Transporting and setting up the Contractor's equipment, materials, and supplies required for work to commence.
 - b. Installing, operating, maintaining, and removing temporary facilities including but not limited to discharge piping for well development and testing, construction water, electrical power, communications (telephone), security (fencing and other as required to protect the project site and the rock maze structure), traffic control, portable sanitary facilities, and lighting.
 - c. Obtaining all required permits and posting all OSHA required notices and establishment of safety programs.
 - d. Having a designated Contractor's Superintendent and/or foreman at the job site full time.
 - e. Submittal and updating of the Projected Construction Schedule as directed by the Owner or Engineer.
 - f. Performing site cleanup.
 - g. Demobilizing from the project site.
2. Temporary demobilization/remobilization will be allowed during the period in which the Owner has water quality testing performed by a third-party laboratory and while the Engineer finalizes the design of the municipal well. This period is assumed to be 15 working days.

B. Measurement and Payment

1. Measurement

- a. Mobilization for water well drilling on the site will be paid for at the applicable lump sum price stated in the BID FORM for the items listed below:

1) Bid Item No. 1 – Mobilization/Demobilization

2. Payment

- a. Progress estimates for Bid Item No. 1 will be made in accordance with the following schedule:

1) Set Up Drilling: 50 percent

2) Set Up Test Pump: 20 percent

3) Demobilization from Site: 30 percent

- C. Sound attenuation measures will be required due to the proximity of the work area to dwellings and park areas. Furnish and provide work necessary to design, furnish, install, maintain, and remove a temporary sound attenuation wall (sound walls), and conduct a full-scale sound test in a manner that minimizes noise generation and conforms to the City of Petaluma General Noise Regulations and instructions of the Owner/Engineer.

D. Measurement and Payment

1. Measurement and payment

- a. Installation and removal of a Sound Walls for noise attenuation on the site will be paid for at the applicable lump sum price stated in the BID FORM for the items listed below:
 - 1) Bid Item No. 2 – Noise Attenuation (Sound Walls)

1.02 SUBMITTALS

- A. Submit the following at or before the preconstruction conference for the review and approval of the Owner:
 1. Construction schedule consistent with the contract time of completion.
 2. Sequence of work
 3. Methods of access to the construction site
 4. Drilling water source permit or authorization
 5. Disposal of water from development and testing procedures
 6. Methods of cuttings and water quality sample collection
 7. Drilling fluid standards
 8. Temporary facilities to be established
 9. Drilling permits
 10. Filter pack gradation documentation
 11. Product data sheets for drilling fluid proposed
 12. Physical and chemical properties of products, casing, screens, sounding port and sealing material.
 13. Cut sheets for submersible well pump and motor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 MOBILIZATION SEQUENCE

- A. The Contractor shall perform project Mobilization as follows:
 1. Mobilize to well site and begin work.
 2. Upon completion of Pilot borehole Drilling, Aquifer Zone Sampling, and authorization from the Owner, Contractor has the option to temporarily demobilize from the site.
 3. Upon completion of the water quality testing, final design of the well by the Engineer, and notification from the Owner, Contractor shall remobilize (if necessary) to the site. Analytical testing and final well design to be provide to the Contractor within 21 days after water sample submittal to the laboratory.
 4. Upon substantial completion of work at well and authorization from the Owner, the Contractor shall commence project demobilization.

END OF SECTION

**SECTION 01508
STANDBY TIME**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Standby Time – It may be necessary for the Owner to perform work that will require the drilling crew and equipment to stand idle. In such an event, the Owner shall request of the Contractor in writing to cease operations and shall state the anticipated extent or duration thereof. The Contractor shall promptly furnish assistance, cease operations and take all steps necessary to prevent loss or damage to the bore hole and well. This idle time shall be considered Standby Time.
2. Idle time of the drilling crew and equipment not ordered in writing by the Owner's representative and time for repair and maintenance of Contractor's equipment will not be reimbursable under this contract.
3. The time period during which the water samples are being tested and a final design of the well is completed is expected to be approximately 15 working days. This time period will not be considered Standby Time. The Contractor has the option to temporarily demobilize and remobilize to the site during this time at Contractor's own expense.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is hours of time as recorded by the Engineer in intervals not less than 1/2 hour.

2. Payment

- a. Unit prices for Standby Time shall be as set forth in the BID FORM for Bid Item No. 3 - Standby Time.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01560
ENVIRONMENTAL CONTROLS**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contractor shall keep the work site clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary on a daily basis as directed by the Owner. All cables, slings and other materials used to set the pipe and equipment shall be removed from the project site. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.
- B. Contractor shall restrict worker, vehicle and equipment access from areas not designated for construction. Contractor shall erect temporary fences or signs to restrict access to sensitive areas outside the construction areas such as the rock maze adjacent to the drill site. Restrictions shall be enforced at all times including non-work hours, i.e., lunch and after hours.
- C. Limit vehicle access to existing roads and work area as much as practical.
- D. Contractor shall restrict construction related parking, including worker parking of private vehicles to areas designated by the Owner. No vehicles or equipment of any kind shall be parked or operated within restricted areas including protected zones of oak trees.
- E. Fueling of equipment shall not take place adjacent to drainage areas.
- F. Contractor shall locate staging areas in developed areas and shall avoid sensitive habitat areas. All staging plans must receive the prior approval of the Construction Manager.
- G. Contractor shall maintain the construction site as a fire-safe environment. All construction equipment that normally includes a spark arrestor shall be equipped with a spark arrestor in good working order. Contractor shall keep staging and work areas clear of combustible materials and maintain a firebreak. All construction vehicles shall be equipped with a fire extinguisher in good working condition.
- H. Contractor shall comply with all permits and environmental regulations applicable to this project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 WATER POLLUTION CONTROL

- A. To reduce potential water-borne erosion impacts, the Contractor shall incorporate the following best management practices into the project:
 - 1. Provide and maintain all necessary erosion and sediment control measures throughout the construction period as required to minimize storm water pollution control from the Contractor's work area. Erosion and sediment control measures may include, but are not limited to sand bag dikes, silt fences, drainage swales, pipe drains, sediment traps, protective sheets, jute matting, hydro-seeding, and appropriate surface contouring. The Contractor shall notify the City if erosion and sediment control measures do not operate properly and shall take all necessary protective action.
 - 2. The Contractor shall secure erosion control devices at the end of each work shift during the period from November 1 to April 30, or when rain is forecast prior to the next work day.

3. Grading activities shall be prohibited during the period when rain is falling and runoff is observed at the site. The Contractor shall immediately secure the site for erosion control and storm water runoff.
4. Prepare drainage ways that handle concentrated or increased runoff from disturbed areas by using riprap or other lining materials to control erosion.
5. Reduce erosion by limiting the area and time of exposure and by the provision of diversion channels.
6. Use temporary plant cover, mulching, and/or structures to control runoff and protect areas subject to erosion during construction.
7. Minimize soil exposure during the rainy season by proper timing of grading and construction and be prepared to shut down all earthwork if heavy precipitation occurs.
8. Have erosion control equipment and materials on site if needed in an emergency to quickly construct temporary collectors, diversion channels, intercept drains, berms, dikes or filters.
9. Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance. Such dams shall be removed from the site as soon as they are no longer necessary.
10. Contractor shall take measures to treat or filter water pumped for the purposes of dewatering during construction to ensure that it is free from contamination and turbidity. Contractor shall comply with all local, State and Federal regulations pertaining to discharge of water from dewatering operations.
11. Native vegetation shall be retained and protected wherever possible. Limit exposure of soils to the immediate area required for construction operations.
12. Construction and grading areas shall be clearly marked. Prohibit vehicles and equipment from disturbing slopes or drainages outside of the grading area.

3.02 AIR POLLUTION CONTROL

- A. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. The Contractor shall abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water in amounts which result in excessive mud on roads is not acceptable.
- B. Provide a water truck and operator on-site during excavation, grading, backfill and other activities with the potential to cause dust. Regularly water roads and other areas of soil disturbance to prevent dust.
- C. Cover or regularly water stockpiles of soil or imported materials to prevent dust.
- D. Trucks used to haul dirt, debris and other dust-generating material shall be covered.
- E. The Owner shall review the Contractor's dust control program and monitor compliance of the program. The Contractor shall increase watering or take other measures to control dust if directed by the Owner or Engineer.

3.07 HAZARDOUS MATERIALS

- F. Contractor shall comply with all regulations and guidelines regarding the transportation, storage and handling of construction-related hazardous materials, including those recommended and enforced by the California Department of Transportation (Caltrans), the California Regional Water Quality Control Board, and the Owner.

- G. Contractor shall immediately notify the Owner and other agencies as required by law if a spill of hazardous materials occurs. The Contractor shall control the source of the leak and contain any spill utilizing appropriate spill containment and countermeasures.
- H. Contractor shall forward to the Owner copies of reports, permits, receipts, and other documentation required as a result of remedial work.
- I. If contaminated soil or groundwater is encountered, the Contractor shall halt work in the area of hazardous materials and notify the Owner and Engineer. The Owner shall determine the type and extent of the contamination and determine whether or not to obtain the services of a qualified expert is required to evaluate such contamination and recommend remedial action. Requests for changes to Contract Time or Contract Price shall be made in accordance with the General Conditions. Contractor shall minimize delays by performing work in areas of the project not impacted by the hazardous or contaminated areas and remedial operations.

END OF SECTION

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**SECTION 01600
MATERIALS AND EQUIPMENT**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Materials, equipment and products incorporated into the work.

1.02 MATERIAL AND EQUIPMENT REQUIREMENTS

- A. Specifications are minimum requirements and manufacturers' standard products may require modifications to meet the specified requirements.
- B. Provide products and equipment with all accessories, trim, finish, safety guards and other devices needed for a complete and operational installation.
- C. Products to be supplied in quantity shall be the same product from a single source to provide standardization and interchangeability.

1.03 DEFINITIONS

- A. Named Products: Items identified by manufacturer's product name and model number as indicated in the manufacturer's published product data.
- B. Materials: Products that are shaped, cut, worked, finished or otherwise fabricated or installed to form a part of the Work.
- C. Equipment: A product with working parts, whether motorized or manually operated, that requires connections such as wiring or piping.

1.04 PACKAGING AND MARKING

- A. Equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.
- B. Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or sub-assembled units where possible.
- C. Vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by dust and dirt.

1.05 SHIPPING AND DELIVERY

- A. Plan, order, coordinate and deliver materials and equipment in accordance with the construction schedule to avoid delays and conflicts with the Work.
- B. Unload products in accordance with the manufacturer's handling instructions. Promptly inspect for completeness and evidence of damage during shipment.

1.06 HANDLING AND STORAGE

- A. During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.
- B. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground.

- C. Store loose granular products in well-drained area on a solid surface to prevent mixing with foreign matter. Cover products that are subject to erosion or deterioration with plastic sheeting.
- D. Store electrical, instrumentation and control products in a water-tight enclosure to protect against damage from moisture, dust and corrosion.

1.07 PROTECTION OF EQUIPMENT AFTER INSTALLATION

- A. After installation, protect equipment from damage from, including but not limited to, dust, abrasive particles, debris and dirt generated by the placement, cutting, finishing new concrete, and metal; and from the fumes, particulate matter, and splatter from welding, brazing and painting of new or existing piping and equipment.
- B. As a minimum, vacuum cleaning, , protective shielding, and other dust suppression methods will be required at all times to adequately protect all equipment.
- C. When finishing concrete, all equipment that may be affected by cement dust shall be completely covered. Electrical switchgear, substations and motor load centers shall not be installed until after all concrete work in those areas have been completed and accepted and the ventilation systems installed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to installation, inspect materials and equipment for signs of corrosion and other effects of storage. Do not install material or equipment showing such effects.
- B. Remove damaged material from the site and expedite delivery of replacement material or equipment. Delays to the Work resulting from material or equipment damage that necessitates procurement of new products will be considered delays that are within the Contractor's control.

3.02 INSTALLATION

- A. Handle, install, connect, clean and adjust products in accordance with the manufacturer's instructions.
- B. Use lubricants recommended by the manufacturer of the equipment.
- C. Recoat painted surfaces that are damaged prior to final acceptance of the Work.

END OF SECTION

**SECTION 01782
OPERATION AND MAINTENANCE INFORMATION**

PART 1 - GENERAL

1.01 GENERAL

- A. O&M information shall be provided for each maintainable piece of equipment, equipment assembly or subassembly, and material provided or modified under this Contract.
- B. Contractor shall be responsible for:
- C. Compiling product data and related information appropriate for the Owner's operation and maintenance of products furnished under the Contract.
- D. Preparing operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of specifications for products furnished under the Contract.

1.02 SUBMITTALS

- A. Submit 2 manuals for review for each piece of equipment or system. Engineer and Owner will review the manuals and both will be returned to the Contractor. Make additions and revisions in accordance with the review comments and submit 4 final O&M Manuals.
- B. O&M Manuals must be submitted and accepted before on-site training may start.
- C. If the manufacturer's standard brochures and manuals are used to describe O&M procedures, modify or annotate these published documents to identify only the model or series of equipment installed on the project. Neatly cross out, eliminate or otherwise annotate extraneous material.
- D. Submittals that are not fully indexed and tabbed with sequentially numbered pages shall be returned without review.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Operation and maintenance data shall be provided in the form of an instructional manual for use by Owner's personnel.
- B. Format
 - 1. Size: 8½-inch by 11-inch. (except drawings)
 - 2. Text
 - a. Manufacturer's printed data properly edited for project. Cross out all data that does not apply to the equipment to be furnished.
 - b. All documents shall be machine typed; hand written documents are not acceptable. All documents shall be legible and original size, documents that cannot be read or have been reduced will be returned for correction.
 - 3. Drawings
 - a. Provide drawings in a separate reinforced punched binder tab-bind in with text.
 - b. Drawings larger than 11-inch by 17-inch shall be placed in an 8½-inch by 11-inch envelopes bound in text.
 - c. Drawings shall be suitably identified on the Drawings binder.
 - d. Drawings shall be referenced in text.
 - 4. Binders: Commercial quality, permanent, all white in color, three-ring, durable, cleanable plastic covers with inserts, insertable full height and width, front, back, and spine, with full-

page sheet lifters. Size of binder shall be appropriate for the quantity of material it will contain.

5. Indexing: The manuals shall be fully indexed by use of side tabs.
6. All of these sets of O & M manuals shall be made up of "original" (no copies or reproductions) documents. No photo or fax copies are allowed of standard published manuals available from manufacturers.

2.02 CONTENTS OF MANUAL

A. Presentation of Data

1. Include only those sheets that are pertinent to the specific product.
2. Annotate each sheet to:
 - a. Clearly identify the specific project or part installed.
 - b. Clearly identify the data applicable to the installation.
 - c. Cross-out references to inapplicable information.

B. Drawings

1. Supplement product data with Drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems. Include individual parts list with exploded views for all equipment.
 - b. Control and flow diagrams.
2. Electrical/instrumentation coordinate drawings with information in project contract documents to assure correct illustration of completed installation.
3. "As Constructed" set of submittal shop documents, data sheets, and drawings. . Contract documents shall not be used as "As Constructed" drawings.

C. Written text as required to supplement product data for the particular installation:

1. Organize in a consistent format under separate headings for different procedures.
2. Provide a logical sequence of instructions for each procedure.

D. Provide the index and information layout in the operation and maintenance manual for each unit of equipment, and system, including electrical, and electronic items as follows:

1. Cover sheet including the following:
 - a. Volume ___ of ___.
 - b. Operation and Maintenance Manual.
 - c. Project title.
 - d. Owner project number.
 - e. Manufacturer: Name, addresses, and telephone numbers of the manufacturer and the nearest representative of the manufacturer.
 - f. Date.
2. Document Index: Neatly typewritten document index for each volume, arranged as indicated in Appendix "A". Master Table of Contents shall be placed in Volume 1 itemizing all of the information included in the O&Ms and the corresponding volume location of that information.
3. Equipment Record Sheet for Electrical/Instrumentation Equipment
 - a. Equipment record sheet for electrical/instrumentation equipment.
 - b. A complete list of items supplied, including serial numbers, ranges, options, and other pertinent data necessary for ordering replacement parts.

- c. Name and location of nearest parts supplier for all equipment.
4. Theory of Operation.
5. Description: Provide description of units and components parts function, normal operating characteristics, and limiting conditions.
 - a. Include general descriptive bulletins, brochures, or catalog sheets to describe the equipment.
 - b. Performance curves, engineering data, and tests.
6. Operating Instructions: Complete, detailed, written description of the sequence of operating sequence for all control system and operations in all modes. The description shall be specifically prepared for this work, and shall be fully referenced to control diagrams and system components:
 - a. Recommended step-by-step startup, adjustment, calibration and break-in operating instructions.
 - b. Routine and normal operating instructions. Include summer and winter operating instructions as applicable. Also include special operating instructions.
 - c. Recommended step-by-step regulation, control, starting, and shut-down instructions.
 - d. No photocopies are allowed of standard published manuals available from manufacturers.
 - e. Recommended step-by-step emergency instructions. Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency operations of all utility systems including valve locations and portions of systems controlled.
 - f. Current and desired control settings.
7. Maintenance Instructions
 - a. Detailed service, maintenance and operation instructions for each item supplied. Preventative maintenance to include routine operation, alignment, adjusting, and checking. Include illustrations, assembly drawings, and diagrams required for maintenance. Preventative maintenance procedure and schedule for all equipment over a five-year cycle.
 - b. Corrective maintenance to include disassembly, repair, overhaul and re-assembly.
 - c. Schematic diagrams of all electronic devices shall be included. A complete parts list with stock numbers shall be provided on the components that make up the assembly.
 - d. Special maintenance requirements particular to this system shall be clearly defined, along with special calibration and test procedures.
 - e. No photocopies are allowed of standard published manuals available from manufacturers.
 - f. Include Maintenance Program data entry forms.
8. Shipping and Installation
 - a. Receiving and handling.
 - b. Long-term storage and short-term storage.
 - c. Complete step-by-step installation instructions of all components.
9. Safety Procedures
 - a. Manufacturer's safety procedures for operating and maintaining all equipment and materials used. List personnel hazards and safety precautions.
10. Parts Identification

- a. Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification.
 - b. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-reference the illustrated part to the listed part.
 - c. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies.
11. List of recommended spare parts:
- a. Original manufacturer's parts list with manufacturer's current prices. Include complete nomenclature and commercial numbers of replaceable parts.
 - b. Predicted life of parts subject to warranty.
 - c. Items recommended to be stocked as spare parts.
 - d. Complete nomenclature and commercial number of all replaceable parts.
12. Testing Equipment and Special Tool Information
- a. Provide information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.
13. Test Data
- a. Include all test data and forms from factory and field testing.
14. Troubleshooting instructions.
15. Equipment catalogue sheets and submittals.
- a. Include copy of all approved submittals.
16. Electrical and Instrumentation Drawings
- a. Electrical & Instrumentation Drawings shall include as-built information As-built drawings shall be signed and stamped by an electrical engineer registered in the State of California.
 - b. At the end of the project these manuals shall be updated to show "as-built" or "as-installed" conditions.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

**SECTION 01825
EQUIPMENT AND SYSTEM TESTING**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements for the Contractor's testing of mechanical, electrical, and instrumentation equipment and systems provided under this Contract.
- B. The requirements contained in this Section supplement, but do not supersede, specific testing requirements found elsewhere in the Contract Documents.

1.02 COORDINATION

- A. Coordinate with the equipment suppliers for functional and performance testing and facility startup. Minimum levels of on-site installation and testing assistance required of the equipment suppliers is described in separate Sections.
- B. Coordinate the activities of subcontractors and equipment suppliers to implement the requirements of this Section.

1.03 SUBMITTALS

- A. Independent Testing Labs: When testing by an independent laboratory is specified, provide credentials and certifications to demonstrate capabilities.
- B. Test Instruments Calibration: Certification that test instruments used in the testing procedure have been calibrated to an acceptable and recognized standard.
- C. Testing Schedule: For each piece of equipment or system, provide a testing schedule and updates as appropriate. Submit at least 20 working days prior to the scheduled start of testing. Confirm the test schedule, or provide an updated schedule 4 days prior to the start of testing.
- D. Testing Plan: Describe step by step procedure that will be utilized to systematically test equipment and systems.
- E. Test Results:
 - 1. Factory Test Results: Results of equipment tests performed by the equipment supplier at the point of manufacture and prior to shipping the equipment to the site.
 - 2. Results of the Pre-Operational Test.
 - 3. Results of the Functional Test.
 - 4. Results of the Operational and Performance Tests.

1.04 DOCUMENTATION REQUIREMENTS

- A. Develop and implement a records keeping system to document compliance with the requirements of this Section.
- B. Document date of test, equipment number or system name, nature of test (performance or operational), test objectives, test results and test instruments used during the test. Provide signature spaces for the Engineer and the Contractor.

1.05 TEST PLANS

- A. Develop test plans detailing the coordinated, systematic testing of each item of equipment and system provided under this Contract.

- B. Make test plans specific to the item of equipment or system to be tested. Identify by specific equipment or tag number each device or control station to be manipulated, observed or tested during the test procedure and the specific results to be observed or obtained.
- C. Identify the responsibility of subcontractors and suppliers who will participate in the tests and list the names of manufacturers' representatives to be present during the duration of the test.
- D. Provide step-by-step procedures for testing control and electrical circuits to affirm that the circuit is properly identified and connected to the proper device.
- E. Undertake performance tests in a manner that will duplicate the actual operating conditions that will be encountered.

1.06 TESTING SCHEDULE

- A. Prepare a testing schedule setting forth the sequence contemplated for performing the test work. Identify the contemplated start date, duration of the test and completion of each test.

1.07 TEST RESULTS

- A. Test results shall be within the tolerances set forth in the detailed specification sections of the Contract Documents. If no tolerances have been specified, test results shall conform to tolerances established by recognized industry practice.
- B. Retesting: If any portion of the work should fail to fulfill the Contract requirements and is adjusted, altered, renewed, or replaced, tests on that portion, together with all other portions of the work as are affected thereby, shall be repeated within reasonable time and in accordance with the specified conditions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. The objective of the testing program is to demonstrate, to the Engineer's complete satisfaction, that the systems and equipment provided under this Contract meet the specified performance requirements.
- B. Testing program also provides a base-line operating condition for the Owner to use in a preventative maintenance program.
- C. Testing sequence consists of Pre-Operational Checkout, Functional Tests, Performance Testing and Operational Testing. These tests are required regardless of whether Factory Tests were conducted on the same piece of equipment or system.
- D. Each item of mechanical, electrical, and instrumentation equipment installed under this Contract shall be tested by the Contractor to demonstrate compliance with the performance requirements of this project.
- E. Provide labor, outside services, materials, test equipment and other items required to complete the specified testing and startup requirements. Furnish power, water chemicals, fuel, oil, grease and other materials needed to conduct the specified tests.
- F. Install temporary valves, gauges, piping and other materials required to conduct the specified tests.

3.02 PRE-OPERATIONAL CHECKOUT

- A. Pre-Operational Checkout shall be undertaken by the Contractor or manufacturer's field representative.

- B. Pre-Operational Checkout includes basic checks of the equipment installation prior to starting the equipment to determine if the equipment and related components have been correctly installed and is ready for starting.
- C. Pre-Operational Checkout includes the following:
 - 1. Alignment of equipment, shafts and shaft couplings, and drives.
 - 2. Filling and checking lubrication reservoirs.
 - 3. Checking shaft seals, packing and seal lubrication system.
 - 4. Manufacturer's recommendations for pre-start preparation.
 - 5. Proper motor rotation
 - 6. Circuit continuity testing, electrical
 - 7. Demonstrate operational controls function as intended.
 - 8. Calibration and adjustment of electrical and instrumentation devices.
- D. Verify tanks, pipes, conduits, vessels and equipment are clean and free of debris that may interfere with the testing or operation of the equipment. Remove debris prior to start of testing.
- E. Following completion of the Pre-Operational Checkout, the Contractor or manufacturer's field representative shall complete and sign a field certification form and submit to the Engineer.

3.03 FUNCTIONAL TESTS

- A. After successful completion of the Pre-Operational Checkout, start individual items of equipment and systems and operate under simulated operating conditions to determine as nearly as possible whether the equipment and systems meet the requirements of these specifications.
- B. Operate the equipment for a sufficient period of time to determine machine operating and characteristics, including noise, temperatures and vibration; to observe and document performance characteristics; and to permit initial adjustment of operating controls.
- C. Obtain baseline operating data on all equipment with motors greater than 10 horsepower to include amperage draw, bearing temperatures, and vibration as required. This baseline data will be collected for the Owner to enter in their preventive maintenance system.
- D. Post-Test Inspection: When Functional Tests have been completed, recheck equipment for proper alignment, unacceptably loose connections, unusual movement, or other indications of improper operating characteristics. Correct any deficiencies to the satisfaction of the Engineer.
- E. Machines or devices which exhibit unusual or unacceptable operating characteristics shall be disassembled and inspected. Repair any defects found during the course of the inspection and identify and correct the cause of such defect. Replace specific parts, or the entire equipment item, to the complete satisfaction of the Engineer at no cost to the Owner.

3.04 OPERATIONAL AND PERFORMANCE TESTS

- A. After successfully completing functional tests, conduct an operational test of installed submersible pump system to verify correct operation. During the operational test, conduct performance testing to verify that the system complies with the performance requirements contained in the individual equipment specifications.
- B. Owner's operating personnel will provide access to discharge locations to allow the Contractor to conduct the operational tests.
- C. Operate all parts of each system for a continuous, uninterrupted period of not less than 8 hours. During this period, the Contractor and shall undertake performance testing and shall monitor

- the characteristics of each machine according to manufacturer information and specifications and report any unusual conditions to the Engineer.
- D. Undertake performance tests of mechanical and electrical to demonstrate and confirm compliance with the performance requirements specified in the individual equipment specifications.
 - E. Should the operational testing be halted for any reason related to the facilities constructed or the equipment furnished under this Contract, the operational testing program shall be repeated until the specified continuous period has been accomplished without interruption.
 - F. Following successful completion of the Operational Test, commissioning of the system may begin.

END OF SECTION

**SECTION 02523-140
PILOT HOLE DRILLING**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Products, materials, and procedures associated with the drilling of a pilot borehole, collecting formation samples, and maintaining circulation, by the reverse circulation or conventional rotary drilling method, one (1) borehole to a depth of 500 feet below ground surface.
2. The method of drilling shall be by Sonic, reverse circulation or conventional rotary drilling in which the uncased wall of the drill hole is held in place at all times with a circulating drilling fluid.

B. Referenced Sections

1. Section 02523-160: Drilling Fluid
2. Section 02523-180: Geophysical Logs
3. Section 02523-200: Caliper Survey
4. Section 02523-210: Aquifer Isolation Zone Sampling

C. References:

1. This Section contains references to the following documents. They are a part of this Section as specified and modified. In case of conflict between this Section and the listed documents, the requirements of this Section shall prevail.

State of California Department of Water Resources (DWR) Bulletin 74-81	Water Well Standards, State of California, December 1981
DWR Bulletin 74-90	Water Well Standards, State of California, June 1991
Sonoma County Department of Environmental Health Standards	

D. Measurement and Payment

1. Measurement

- a. The unit for this work is Linear (vertical) Feet of pilot borehole drilled. The value for payment shall be as measured to the nearest foot. Measurement shall be as taken from the ground surface to the bottom of the borehole as specified and as verified by the caliper survey and shall include all incidentals.
- b. Abandonment of the borehole shall be as measured to the nearest foot. A separate line item and payment will be made for abandonment.

2. Payment

- a. Unit price for payment shall be as set forth in the BID FORM for Bid Item No. 4 – Pilot Bore Hole Drilling, and Bid Item No. 5 – Pilot Bore Hole Abandonment.

1.02 SUBMITTALS

- A. The Contractor shall submit a drilling equipment schedule listing proposed equipment with sizes and rated capacities to the Engineer upon award of the Contract.

- B. The Contractor shall submit the sealing material mix design.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Drilling Fluid

1. The Contractor shall maintain controlled drilling fluid material characteristics per Section 02523-160.
2. The Contractor shall record these measurements on their daily drilling report.

B. Sealing Material

1. Well sealing material shall be a sand-cement grout. Cement used for sealing mixtures shall meet requirements, including the latest revision thereof, of ASTM C150 "Standard Specification for Portland Cement." The grout mix shall consist of not more than two parts by weight of sand, one part by weight of cement, to 7 gallons of water per sack of cement. Water used for sealing mixtures shall be clean and of potable quality.

2.02 EQUIPMENT

A. Drill Rig:

1. The Contractor shall provide a complete reverse circulation, conventional rotary or an alternative approved method drilling unit of sufficient size and capacity to conduct the drilling operations required in these Specifications.
2. The drilling unit(s) and associated equipment shall be in good condition and sufficient capacity to lower the specified casing assemblies to the specified depths without the use of flotation devices or "float plugs".
3. The drilling pipe shall be of adequate size to conduct drilling, shall be in good condition, and shall be connected by standard tool joints. Each pipe shall be measured and recorded in a tally book available for review at all times by the Engineer. Mast capacity should be at least 150% of the casing load anticipated and the rig capacity shall not be limited by insufficient power train components (engine and clutch).
4. The Contractor shall supply and use equipment necessary for:
 - a. Reading the weight, dial weight indicator, of the drill string assembly and casing loads.
 - b. Reading and charting the drill penetration rate.
5. Provide tools, accessories, power, lighting, water, other equipment, and experienced personnel necessary to conduct efficient drilling operations at the project site at all times.

B. Mud Tanks/ Mud Pits

1. Above ground mud tank(s) shall be of a volume and shape to allow proper settlement and removal of cuttings from the drilling operations and return of drilling fluid suitable for reverse circulation drilling. If required, the above ground tanks shall be cleaned to maintain proper drilling fluid characteristics.
2. For conventional mud rotary, the Contractor shall use a suitable size shaker and sand cones to separate sand and cuttings from the drilling mud.
3. Mud pits may not be constructed or used on the project site.

C. Drift Survey

1. The use of mechanical drift indicator equipment is recommended during drilling. Eastman mechanical drift indicator available from the Eastman Oil Well Survey Company or

equivalent is recommended (a 3-degree unit shall be used with the indicator). This equipment is recommended but not required.

PART 3 - EXECUTION

3.01 PREPARATION

A. Equipment Cleaning

1. All equipment used down hole or that comes into contact with materials or equipment down hole shall be thoroughly cleaned prior to use.

3.02 CONSTRUCTION

A. Pilot borehole Drilling

1. A minimum 8-inch diameter pilot borehole shall be drilled with diligence and without undue delay in a continuous operation to an approximate depth of 500 feet or other depth as directed by the Engineer.
 - a. Drilling fluid properties must conform to those specified in Section 02523-160.
 - b. Formation samples shall be collected as specified in this Section.
2. The Engineer will be onsite at the times necessary during the drilling operations to direct the Contractor as to the exact drilling depth. The exact depth will be dependent upon cuttings and lithology from the borehole.
3. The Contractor shall not drill below a depth of 500 below ground surface unless directed by the Engineer.
4. The Contractor shall maintain a record indicating the time and depth when drilling fluid additives are mixed. The Contractor shall also record the approximate amount of water added to the drilling fluid during each shift. The Contractor shall record the depth to the drilling fluid within the borehole at the start of each day and record volume of loss.
5. The Contractor shall keep records providing the following information during pilot borehole drilling:
 - a. A log of drill bit, stabilizer, collar, and drill pipe lengths (i.e., a "pipe tally")
 - b. A log of drilling bit types and depths at which drill bit changes are made.
 - c. All measurements for depths shall be referenced to existing ground surface at the well site. All drilling records shall be delivered to the Engineer upon completion of the boring.
6. Upon completion of the pilot borehole, a geophysical survey shall be conducted per Section 02523-180, a caliper survey shall be conducted per Section 02523-200, and aquifer zone sampling shall be conducted per Section 02523-210.

B. Formation Sampling and Sieve Test Analysis

1. The Contractor shall collect representative formation samples during the drilling of the 8-inch pilot borehole. Samples will be collected at each formation change in addition to samples taken at a minimum 5 (5) foot intervals.
 - a. The Contractor shall provide a sample collection splitter box in the discharge pipe to the mud tanks.
 - b. The Contractor shall place each sample in a quart-size zip-lock freezer plastic bag. All containers will be labeled to indicate the well owner, well name, date, time, and depth interval of the collected sample, and stored in a manner so as to prevent breakage or loss. The Contractor shall furnish containers.
 - c. The Contractor shall be responsible for sieve tests to determine grain size distribution on up to 15 cuttings samples selected by the Engineer. No additional payment shall be

made for performing the sieve testing. Sieve tests shall be performed either by the Contractor (if the Contractor operates an in-house qualified soil laboratory) or by an independent qualified soils laboratory subcontracted to the Contractor. Analyses shall be performed in accordance with ASTM D-422, "Standard Method for Particle-Size Analyses of Soils" as applicable to drill cuttings. Grain size distribution data shall be reported as a function of a cumulative weight retained on the following sieve sizes:

U.S. Standard Size of Openings			
Sieve No.	Inches	Sieve No.	Inches
1/4	0.250	20	0.0331
4	0.187	30	0.0232
6	0.132	50	0.0117
8	0.0931	100	0.0059
12	0.0661	140	0.0041
16	0.0469	PAN	0.0000

- 1) The grain size distribution analyses results shall be submitted to the Engineer within 72 hours of performing the geophysical log.
- d. The Contractor shall prepare a "drillers log" of the formation samples indicating the type of sediments encountered and the associated formation changes.

3.03 FIELD QUALITY CONTROL

A. Reports

1. A daily report with a drilling log including shift records of construction activities shall be prepared by the Contractor for the Engineer. The report shall include but shall not be limited to:
 - a. A copy of a continuous chart showing the drill penetration rate shall be kept by the Contractor and shall be submitted to the Engineer upon request and shall be made part of the daily report.
 - b. Results of each drift survey shall be recorded and furnished to the Engineer within 24-hours of completion of each survey. Each survey shall be recorded in the daily report.
 - c. The Contractor shall record drilling fluid measurements, volume and time of added bentonite/ polymers, and volume of water added to the drilling fluid on the daily report.

END OF SECTION

**SECTION 02523-160
DRILLING FLUID**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Products, materials, and procedures associated with the drilling fluid used throughout the construction of the well to facilitate the removal of formation cuttings and to stabilize the borehole wall. This work includes all materials, labor, tools, and equipment to maintain and utilize the drilling fluid.

B. Measurement and Payment

1. Measurement - no measurement shall be made for Drilling Fluid.
2. Payment - no payment for Drilling Fluid will be made in this Contract. Progress payments and final payment for any Drilling Fluid work or costs shall be included under work specified in Section 02523-140.

C. Referenced Sections

1. Section 01501: Temporary Facilities
2. Section 2523-140: Pilot Borehole Drilling

1.02 REFERENCES

- A. Standard 13-A, Drilling Fluid Materials, American Petroleum Institute, API.
- B. Standard 13-B, Recommended Practice for Field Testing Water-based Drilling Fluids, API.

1.03 SUBMITTALS

A. Drilling Fluids Program

1. The Contractor shall submit to the Engineer for approval prior to the preconstruction meeting a Drilling Fluids Program that will include but not be limited to:
 - a. Selected bentonite powder to be used with manufacture product sheet that includes analysis of their product.
 - b. A list of all additives other than potable water that are proposed or anticipated to be used to stabilize the borehole or otherwise aid in drilling operations. Safety Data Sheets shall be submitted with each proposed additive.
 - c. A list and schematic diagram of a surface system used to meet the requirements to maintain the drilling fluid properties.
 - d. A list of equipment/instrumentation proposed to measure the drilling fluid properties including viscosity, sand content, and mud weight measurements.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Drilling Fluid

1. Only potable water shall be used in drilling fluids whether employed alone or in combination with drilling additives. The Owner shall provide a point-of-connection at the site for potable water for drilling fluid purposes. See Section 01501.
2. Drilling additives, when approved to be used by the Engineer, shall meet or surpass Standard 13-A, Drilling Fluid Materials, API.

3. All drilling fluid additives used will comply with industry standards and practices for use in the construction of a municipal water supply well. The additives shall be applied and used as prescribed by the manufacturer and shall be reviewed with respect to the impact they may impose of the successful development of the well.
4. The drilling fluid shall possess such characteristics that it can be readily removed from the borehole during the placement of the gravel pack and during development of the well. The drilling fluid shall be a polymer system such as Poly-Bore, Aquapak, HEC, Drispack, DUO-VIS, if necessary, linked with an adequate amount of bentonite to form an engineered fluid system, providing the properties specified below (in Paragraph 3.01-A) that can be maintained to the satisfaction of the Engineer. The Contractor is advised that excessive water loss can lead to swelling, loss of shear strength, substantial caving, hole stability problems, and formation damage. The drilling fluid to be utilized shall possess properties to inhibit these conditions.

2.02 EQUIPMENT

A. Drilling Fluid Control Equipment

1. To maintain drilling fluid density and viscosity, the Contractor shall employ the necessary equipment to facilitate a relatively rapid dropout or removal of cuttings. The Contractor shall utilize equipment such as shakers, desanders/desilters, and other as required to remove cuttings from the drilling fluid to maintain drilling fluid properties.
 - a. For polymeric fluid systems without mechanical separation, the Contractor must have a minimum of two separate tanks connected in series and internally baffled to effectively settle and remove solids from the fluid prior to recirculation down the borehole. The tanks shall have a minimum combined capacity to provide adequate retention time of the fluid at the surface to allow effective settling of solids. The Contractor shall maintain tank capacity throughout the drilling process by routinely removing cuttings from the settling tanks.
 - b. It is the Contractor's sole responsibility to ensure that the sizing and configuration of the fluid system and settling tanks are adequate to meet the drilling fluid properties outlined below (in Paragraph 3.01-A). If drilling fluid properties as outlined below are not met, the Contractor will be issued a warning of noncompliance by the Engineer. Failure to meet the specified conditions may result in the suspension of further drilling until fluid properties are brought within specifications and system capacity and configuration is corrected to the satisfaction of the Engineer.

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Drilling Fluid

1. The Contractor shall maintain controlled drilling fluid characteristics during the entire operation of well drilling and construction.
2. The methods and materials that the Contractor shall utilize in the event of borehole stability problems and/or loss of circulation must be approved by the Engineer. Appropriate materials to address such contingencies shall be maintained on-site per recommendations of the Mud Engineer. In no case shall materials be added to the drilling fluid system or borehole without prior approval of such materials by the Engineer. Addition of unapproved materials to the drill hole or fluid system may be cause for rejection of the well.
3. Should loss of circulation or other drilling problems require the addition of bentonite or other additives, prior approval of the Engineer is required. The Contractor shall take into consideration additional development procedures to insure the complete removal of additives should they be used.

4. If proper control of the drilling fluid is not maintained to the satisfaction of the Engineer, the Contractor shall be required to retain or employ, at his own expense, an experienced qualified mud engineer on the job during all operations to design, supervise and maintain drilling fluid characteristics to the satisfaction of the Engineer.
5. During the drilling or reaming operations, the Contractor shall maintain the drilling fluid properties, in accordance with API Code RP 13B (or recent modification) "Recommended Practice for Field Testing Water-based Drilling Fluids", as follows:

Parameter	Criteria	Units
Weight (Fluid Density)	maximum 9.0	Pounds per gallon, lb./gal.
Viscosity, Marsh Funnel	minimum 32	Seconds per quart, sec./qt.
Sand Content	maximum 1	Percent (%) by Volume

6. The Contractor is cautioned to maintain the minimum viscosity of the drilling fluid that will raise cuttings and adequately condition the wall of the hole. The Contractor shall remove all mud cake on the wall of the borehole during the development of the well.

B. Drill Cuttings

1. Containment
 - a. The use of excavated pits will not be allowed. Mud tanks must be used for the collection and settlement of drill cuttings.
2. Disposal
 - a. All drill cuttings and drilling mud shall be disposed of by the Contractor at a licensed landfill or City-owned land if available and approved by the City in accordance with the applicable ordinances and regulations of governmental agencies having jurisdiction.
 - b. The cost of disposal shall be included in Bid Item No. 6 - Drilling Waste Disposal (Solids) and Bid Item No. 7 - Drilling Waste Disposal (Fluid/Drilling Mud). If the City provides a City owned location for disposal, a reduction in compensation will be expected from the Contractor for disposal of cuttings or drilling fluids at the bid line-item cost.

3.02 FIELD QUALITY CONTROL

A. Drilling Fluid Properties Records

1. The Contractor must provide at the drilling site at all times Standard API measurement devices in proper working order to determine the following drilling fluid properties:
 - a. Drilling fluid weight
 - b. Drilling fluid viscosity
 - c. Drilling fluid sand content
2. Drilling fluid properties shall be tested, measured, and recorded after adding bentonite and water to the drill fluid and once during each 60 feet of borehole or reaming drilled or 2 hours of circulation time, whichever is more frequent. The recorded results shall be included in the daily report. The Engineer may also periodically measure drilling fluid properties.
3. Failure by the Contractor to test, measure, record, or provide such drilling fluid data to the Owner or the Engineer in accordance with this specification may result in delay of work at no cost to the Owner.

END OF SECTION

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**SECTION 02523-180
GEOPHYSICAL LOGS**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. This Section describes the electric and gamma ray logs to be run by a firm specializing in Digital Geophysical Logging retained by the Contractor and approved by the Engineer.
2. Geophysical logs shall be run upon completion of the pilot borehole.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is Lump Sum for all work associated with the Geophysical Logs.

2. Payment

- a. Payment shall include full compensation for furnishing and operating geophysical logging equipment as specified, and providing whatever evaluation and assistance may be required to accomplish the geophysical logging in accordance with the standard of practice for such work. Lump sum price for Geophysical Logs shall be as set forth in the BID FORM for items:

- 1) Bid Item No. 8 - Geophysical Logging

- b. There will be no additional payment for rig time or idle time while logging is being run.

1.02 SUBMITTALS

- A. The Contractor shall submit the name and qualifications of the firm proposed to conduct the electric logs to the Engineer within 10 days of the Notice of Award.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Geophysical Log

1. The geophysical logging company is required to use digital logging equipment recording both in real time and on analog paper during the actual logging. The digital information is to be stored on suitable digital storage media. The digital information shall be stored in ASCII, DXF, or another format approved by the Engineer. Data shall be provided in a DXF format in one-to-one scale. As a minimum, one data point for every one foot logged shall be recorded.
2. The American Petroleum Institute (API) standards for calibration of equipment, report format headings, including but not limited to proof of last equipment calibration date, applicable temperatures or other pertinent equipment and borehole data.
3. The geophysical logging suite shall consist of natural gamma, spontaneous potential, 16-inch normal, and 64-inch normal resistivity and single point resistivity, caliper and deviation unless otherwise specified by and/or approved the Engineer.
4. The vertical scale for all logs shall be 50 feet per inch. The vertical adjustment required to determine the true depth for each of the electric log curves shall be indicated on the plot.

PART 3 - EXECUTION

3.01 PROCEDURES

A. Logging

1. Prior to logging, the logging contractor must evaluate conditions of the borehole prior to implementing the logging survey. Based on information from the evaluation, the Contractor shall note where the changes in the log response are anticipated. During the logging survey, the log response must be observed and any deviations in anticipated log response shall be noted. The evaluation shall include but not be limited to:
 - a. Conducting discussions with the Driller concerning borehole conditions,
 - b. Reviewing description of the cuttings, samples or cores recovered from the borehole,
 - c. Compiling notes of drilling penetration rates, depths to formation changes and zones of loss circulation, as well as other conditions which could cause changes in log response.
2. Upon completion of the borehole, geophysical logs shall be run in the fluid filled, open borehole within one hour after the removal of the drill rods. Removal of the drill rods are dependent upon reaching borehole termination depth, conducting adequate circulation, when necessary, to achieve consistent drilling mud properties throughout the borehole (circulation time is borehole dependent and shall be minimized), and other borehole stability factors evaluated by the Contractor and/or Engineer. The time interval between drilling and logging should be minimized; this reduces the possibility of logging when the borehole and formation fluids become too electrically equalized.
3. The logs will be run in the presence of the Engineer. The geophysical logs shall become the property of the Engineer at the time logging is completed.
4. The Contractor shall provide, immediately upon completion, three field copies of the geophysical logs to the Engineer for interpretation. The Contractor shall provide the Engineer with four final copies of each electric log and one digital copy stored on suitable digital storage media at no additional cost within 14 calendar days of completion of the well. This will include a DXF electronic file readable in AutoCAD.
5. The logging speeds shall be constant throughout the survey.
6. The Owner reserves the right to terminate further work on the exploration borehole based on logging information and/or formation samples. Such termination may be verbal from the Engineer.
7. The Contractor shall be required to provide whatever assistance may be necessary to accomplish the geophysical logging.

END OF SECTION

**SECTION 02523-200
CALIPER SURVEY**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Caliper Survey to be completed by the geophysical logging firm retained by the Contractor and approved by the Owner to accurately measure the borehole diameter from the bottom of the conductor casing to the bottom of the borehole.

B. Purpose

1. The purpose of the caliper survey is to measure the borehole diameter for evaluating whether the borehole is acceptable, under or oversized, unacceptable, and to determine final gravel pack and/or annular sealing material volumes.

C. Referenced Sections:

1. Section 02523-180: Geophysical Logs

D. Measurement and Payment

1. Measurement – The unit for this work is Lump Sum and measurement is for completion of survey.
2. Payment
 - a. Payment for the Caliper Survey will be based on the Lump Sum price. Payment shall include full compensation for furnishing and operating caliper survey logging equipment as specified, and providing whatever evaluation and assistance may be required to accomplish the caliper survey logging in accordance to the standard of practice for such work. Lump sum price for the Caliper Survey shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 9 - Caliper Survey
 - b. There will be no additional payment for rig time or idle time while surveys are being conducted. Any additional surveys required due to nonconformance of the specification shall be provided at no additional cost to the Owner.

1.02 SUBMITTALS

- A. The firm retained by the Contractor for Caliper Surveying shall listed in the BID PACKAGE as a Subcontractor and shall be the same as that used to conduct geophysical surveys per Section: 02523-180.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Caliper

1. The caliper tool used to perform the survey shall have a minimum of three arms and be capable of indicating a borehole diameter to 36 inches.
2. The horizontal scale for the caliper plot shall be 4-inches diameter per inch and the vertical scale shall be 20 feet per inch.

PART 3 - EXECUTION

3.01 FINAL REAMED BOREHOLE

A. Sequences of Operations

1. Survey (general)

- a. Upon completion of the final borehole, a second caliper survey shall be conducted.
- b. The caliper survey shall become the property of the Owner at the time the logging is completed. The log will be run in the presence of an Engineer.
- c. The Contractor shall provide, immediately upon completion, three (3) field copies of the log to the Engineer for interpretation upon completion of logging. The Geophysical and Caliper surveys may be combined in a single original.
- d. The logging speed for the caliper survey shall be a maximum of 20 feet per minute.

2. Survey Evaluation

- a. The Owner shall evaluate the caliper survey as given below:

1) Undersized Borehole

- a) If at any point in the borehole the minimum annular space between the proposed well casing and/or screen sections and the borehole wall is less than four (4) inches, the borehole will be considered unacceptable for completion.
- b) If the borehole is determined to be undersized by the Engineer, the Contractor shall ream the borehole at no additional cost to the Owner to achieve an acceptable borehole diameter at all locations.
- c) At the completion of the reaming or re-reaming, a caliper survey shall be conducted and the borehole evaluated once again by the Engineer.
- d) Reaming and caliper surveying shall continue, at no additional cost to the Owner, until the borehole has been deemed either acceptable or permanently unacceptable to the Engineer.

2) Oversized Borehole

- a) If after assessment by the Engineer of any caliper survey and with the concurrence from Owner Engineer the borehole is judged to be oversized which could jeopardize successful filter pack placement or well development, the borehole may be considered permanently unacceptable.
- b) The borehole shall be considered oversized if the caliper survey shows the diameter to be greater than the diameter of the borehole as shown on the Plans plus ten (10)-inches.

3) Permanently Unacceptable Borehole

- a) If in the judgment of the Owner, a borehole is deemed permanently unacceptable, the Contractor shall be required to drill a replacement well at a new location on the site.
- b) The Contractor shall bear all additional costs for the proper abandonment of the permanently unacceptable borehole and the drilling of the new borehole.
- c) The Contractor shall be required to provide whatever assistance may be necessary to the firm conducting the survey to accomplish the caliper survey.

END OF SECTION

**SECTION 02523-210
AQUIFER ISOLATION ZONE TESTING**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Aquifer isolation zone testing will be conducted in the pilot borehole at depths selected based on the findings of the lithologic and geophysical logging. Portions of the pilot borehole will be used for aquifer isolation zone testing to evaluate water quality. A total of two sampling intervals may be selected between approximately 100 to 500 feet below ground surface. The Engineer shall make arrangements with a State of California certified laboratory to analyze aquifer samples for any regulated and unregulated constituents listed in Chapter 15, Title 22 of the California Code of regulations and selected by the Engineer (requested analytes). The Engineer shall be responsible for ensuring that the samples are collected, preserved, transported, and analyzed in accordance with the applicable chemical analysis method for each constituent. The Contractor shall collect the samples as described in this section. The Owner will pay for the laboratory testing.

B. Referenced Sections:

1. Section 02523-140: Pilot Borehole Drilling
2. Section 02523-300: Gravel Fill and Sounding Seal

C. Measurement and Payment

1. Payment for the aquifer isolation zone aquifer test shall be included in Bid Item No. 10 – Aquifer Zone Sampling. The unit price for each respective depth sampled includes full compensation for furnishing all materials, labor and equipment.

1.02 SUBMITTALS

- A. The Contractor shall submit copies of product information of materials to be used, including the gravel pack gradation, sealing material, and a dimensioned sketch of the isolation zone aquifer tool to be used to the Engineer within 20 days of the Notice of Award.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aquifer Isolation Zone Testing

1. The sampling tool for the test shall be a 20-foot length of 4-inch minimum diameter steel casing with 0.060-inch mill slot perforations, having an open area of at least 5.5 square inches per foot. The tool shall be threaded to connect to conventional drill rods.
2. The sand used to surround the sampling tool shall have a gradation of 8x16 and shall conform to Section 2523-300. Material to be used to fill the annular space of the borehole where testing is not required shall be approved in advance by the engineer.
3. The sealing material shall be "Holeplug" by Bariod, or equivalent.

PART 3 - EXECUTION

3.01 PROCEDURES

A. Testing

1. Within 24-hours of completion of the geophysical logging the Engineer will supply a written schedule for aquifers zones to be isolation zone tested. Testing will proceed from the lower most zone selected upward.
2. The Contractor shall backfill the bottom of the borehole with approved material to 10 feet below the bottom of the lowermost zone selected. The Contractor shall then place on top of the pea gravel a minimum 5-foot thick bentonite seal. The tool will be positioned about 10-feet above the bentonite and surrounded by the graded sand. The sand shall extend about 10 feet above the top of the perforations, followed by 5 feet of bentonite clay. The bentonite seals will be allowed to hydrate for at least one hour. The depths to the tops of the bentonite seals and filter packs will be measured and recorded.
3. The Contractor shall supply an air compressor (with sufficient ratings for psi and cfm) and equipment to airlift water from the sampling tool. The airlift shall be capable of producing 100 gpm from a depth of 500 feet below ground surface with a non-pumping water level of about 50 feet below ground surface.
4. The Contractor shall measure the depth to groundwater once per hour during airlifting to verify that a tight seal has been obtained.
5. The airlift will continue in each zone for 12 hours, or until the water is visibly clear and the following conditions are met:
 - a. The Contractor shall collect a water sample from the discharge every 1-hour and measure and record the electrical conductivity, pH and temperature. After the discharge is clear and the electrical conductivity, pH and temperature have stabilized (last three measurements within 10% for each parameter) the Contractor shall notify the Engineer.
6. The Contractor shall then remove the airlift equipment from the sampling string and install a submersible sampling pump capable of pumping 30 gpm from a depth of 300 feet. The submersible pump and riser pipe shall be thoroughly steam-cleaned prior to placement in the pipe that connects to the sampling tool. The Contractor shall pump for a minimum of 2 hours, or until field measurements of electrical conductivity, pH and temperature have stabilized, as described below.
7. The Engineer shall obtain electrical conductivity, pH and temperature measurements at 15-minute intervals from the pump discharge during the last hour of pumping. If the electrical conductivity, pH and temperature have stabilized (last three measurements within 10% for each parameter), the Contractor shall then collect a sample of the water from the discharge pipe.
8. Upon completion of testing of each zone the Contractor shall pull the sampling tool free and move to the next test interval. The procedures shall be repeated as described above.
9. No payment shall be made for any aquifer zone test in which a water quality sample is not obtained as a result of the Contractor's failure to provide an acceptable seal as determined by the Engineer, based on the measured depth to water, electrical conductivity, pH and temperature.
10. It shall be the Contractor's responsibility to maintain borehole integrity during the zone sampling and to seal the pilot borehole per Section 02523-140 after completing aquifer zone sampling.

END OF SECTION

**SECTION 02523-211
TEMPORARY STABILIZATION OF PILOT BOREHOLE (OPTIONAL)**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary stabilization of the pilot borehole while the final production well design is completed. This work is dependent on the subsurface lithology encountered and need to stabilize the bore hole during design.

1.02 MEASUREMENT AND PAYMENT

- A. Payment for borehole stabilization will be based on vertical feet of pilot borehole filled at the unit price shall be as set forth in the BID FORM for Bid Item No. 11 – Pilot Bore Hole Stabilization.
 - 1. No standby time or mobilization/demobilization charges will be paid during the time period between pilot borehole stabilization and commencement of redrilling/reaming of the filled pilot borehole.
- B. No payment will be made for redrilling the pilot borehole to eliminate bridging of the fill material.

PART 2 - PRODUCTS

2.01 FILL MATERIAL

- A. Use fill pea gravel conforming to the specifications provided below. The volume of fill material used shall not be less than the calculated volume of the pilot borehole. Provide the devices necessary to measure the volume of fill material placed in the pilot borehole.

2.02 PEA GRAVEL

- A. The pea gravel shall be uniformly graded from coarse to fine with a maximum particle size of 3/4-inch and a maximum of 15 percent by weight passing a No. 4 sieve.

PART 3 - EXECUTION

3.01 FILLING PILOT BOREHOLE

- A. Upon notification by the City's representative, fill the pilot borehole up to a depth specified by the city's representative.
- B. Place the pea gravel in the pilot borehole through a construction tremie pipe. A gravel pump may be used for installing the gravel.
- C. If the volume of the fill material is significantly less than that specified in Paragraph 2.01 above, redrill the pilot borehole to eliminate bridging of fill material and refill with material specified herein.
- D. Whenever there is an interruption in the work, the pilot borehole and/or the production well shall be covered in a manner that will preclude injury to animals and individuals. Furthermore, the work area shall be securely protected at all times when the Contractor's employees are absent from the work area in order to preclude entry into the construction area by animals and unauthorized individuals. It shall be the Contractor's responsibility to select an appropriate and effective means to provide the necessary protection.

END OF SECTION

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**SECTION 02523-220
CONDUCTOR CASING AND SANITARY SEAL**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment required to drill a conductor casing borehole, install a conductor casing, and place sealing material for the sanitary seal.

B. Measurement and Payment

1. Measurement for this item shall be in Linear (vertical) Feet as successfully installed.
2. Payment
 - a. Unit prices shall be as set forth in the BID FORM for Bid Item No. 12 – 20” OD x 3/8” Wall Conductor Casing and Sanitary Seal unless otherwise agreed upon by the Owner in writing.

1.02 REFERENCES

- A. AWS - American Welding Society Standards
- B. ASTM - American Society of Testing and Materials
- C. Water Well Standards, State of California, Bulletin 74-90 (Supplement to Bulletin 74-81), June 1991 or latest applicable edition/revision.

1.03 DEFINITIONS

- A. Conductor Casing—A conductor casing is a tubular retaining structure installed in the upper portion of a well between the wall of the drilled borehole and the inner well casing. The conductor casing is installed to stabilize the upper borehole while drilling, provide containment for a permanent sanitary seal, and create a permanent foundation for well casing and screen sections.
- B. Sanitary Seal—A seal made from an impervious (low permeability) sealing material in the annular space between the borehole and the outside of the conductor casing.
- C. Sealing Material—Sealing materials consist of sand/cement grout.

1.04 SUBMITTALS

A. Quality Assurance

1. Test Reports

- a. Certified test reports to show compliance with both the physical and chemical properties of the steel proposed to be installed for the conductor casing and delivery tickets shall be submitted to the Owner for approval prior to installation by the Contractor.
- b. Delivery receipts for commercially prepared and supplied sealing material placed for the sanitary seal shall be provided to the Owner for approval prior to installation by the Contractor.

B. Procedure

1. A sealing material placement procedure, including type of material and additives if any, shall be prepared and submitted to the Owner or Engineer for approval prior to Mobilization by the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Conductor Casing

1. The steel plate used in the fabrication of the conductor casing shall be new and have a minimum thickness of 3/8-inch (0.3750 inch), and shall meet the requirements of ASTM A 53, Grade B or ASTM A 139, Grade B.
2. No hydrostatic testing of the conductor casing is required for this project.
3. The steel conductor casing shall have the following dimensions and/or properties:
 - a. 20-inch outside diameter (OD).
 - b. The conductor casing shall be in lengths of not less than 20 feet unless a short piece is required to obtain the specified casing amount.
 - c. The pipe shall be manufactured with collars for field welding.
 - d. Welding during casing construction shall be done with shielded arc electrodes of the proper composition for the material and shall be performed in accordance with American Welding Society Standards.
 - e. All casing ends shall be machined flat and perpendicular to the axis of the sections. Joints shall be round such that neither the largest or smallest outer diameter differs from that specified by more than one eighth (1/8) inches. The ends of all sections shall not vary more than ten one-thousandth (0.010) inches at any point from a true plane perpendicular to the casing, as specified and certified by the manufacturer.

B. Casing Centralizers

1. Casing centralizers shall be provided as specified below:
 - a. Centralizers shall be of the same chemical and physical properties as the conductor casing.
 - b. Centralizers shall be welded to the conductor casing. There shall be a minimum of two (2) sets of centralizers.
 - c. The centralizers shall be constructed of 3/8-inch thick by 2-inch wide steel strips with a minimum height of 4-inches from the conductor casing. Each centralizer shall provide at least one (1) linear foot of bearing surface to interface with the borehole wall.
 - d. A minimum of three (3) centralizers (120° apart) shall be provided at each specified location.

C. Sealing Material

1. Sand-Cement Sealing Material: A sand-cement sealing material shall be used for the sanitary seal.
 - a. Sand-Cement "grout": Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) to about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a "10.3 sack mix".
 - b. Cement: Cement used shall meet the requirements of American Society for Testing and Materials C150, Standard Specification for Portland Cement, including the latest revisions thereof.
 - c. Water: Water used to prepare sealing mixtures or added on site should generally be of drinking water quality, shall be compatible with the type of sealing material used, be free of petroleum and petroleum products, and be free of suspended matter. The quality of water to be used for sealing mixtures shall be determined were unknown.

- d. Mixing: Cement-based sealing materials shall be mixed thoroughly to provide uniformity and ensure that no lumps exist.
2. Variations: Special cement setting accelerators and retardants and other additives may be used in some cases. Additives for Portland cement mixtures shall meet the requirements of ASTM C494, Standard Specification for Chemical Admixtures for Concrete, including the latest revisions thereof. ASTM C150 Type I cement is equal to API Class A cement. Owner and Environmental Management Department (Lead Owner for Permit) approval of variations must be received prior to Mobilization.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Conductor Casing and Borehole

1. The Contractor shall not start drilling without the Owner or Engineer on site to confirm the location of the well.
2. The Contractor shall drill a hole not less than 30-inches in diameter to depths as shown on the Plans.
3. The conductor casing will be set at depths as shown on the Plans.
4. The Contractor shall arrange for a County of Sonoma, Environmental Health Department (EHD) inspector to observe installation of the sanitary seal. A minimum of 24 hours' notice is required for scheduling an inspection:
 - a. EHD Inspection Services for Wells: (707) 565-6523.

B. Conductor Casing

1. When the drilling operation has been completed to the satisfaction of the Engineer, the 20-inch OD steel conductor casing shall be installed to depth as specified in the drawings or by the Engineer based on encountered lithology.
2. All joints shall be properly lap-welded during installation with a minimum of two passes per circumference.
3. Welders shall be certified in accordance with AWS B2.1:2000, Specification for Welding Procedure and Performance Qualification (supersedes AWS 010.9-80) for level AR-1 and shall be qualified in the 2G and 5G positions or the 6G position.
4. All joints shall be watertight. Special care shall be exercised to ensure that the casing is straight and plumb.
5. A minimum of two (2) sets of steel centralizers (bottom and top) consisting of three (3) centralizers at 120 degrees apart horizontally and shall be welded in the same vertical plane to the exterior of the conductor casing. The centralizers shall be fabricated and placed as shown on the plans:
 - a. The first set of centralizers shall be placed 5 feet from the bottom of the conductor casing.
 - b. The second set shall be placed 5 feet below the top of the conductor casing.
6. The conductor casing shall be held in a plumb position and shall be placed on the bottom of the borehole in a clay or low permeability unit. If now low permeability unit is observed, the conductor will be bedded in a minimum 5-foot-thick hydrated bentonite plug.

C. Sealing Material

1. After the conductor casing has been installed and aligned properly, the annular space between the conductor casing and the conductor casing borehole shall be filled with sealing

material from the bottom of the hole to within approximately 48 inches below existing ground surface.

2. When sealing material is supplied to the project site via commercial vendor, all onsite water additions to the mixture shall be metered, documented, and submitted to the Engineer prior to or during placement. Water quantities for sealing material mixed onsite shall be metered, documented, and submitted to the Engineer.
3. The placement of sealing materials procedure shall receive approval of the Owner or Engineer prior to installation of the sanitary seal by the Contractor.
4. The sealing material shall be pumped or injected into the annular space through a tremie-pipe set within five (5) feet of the bottom of the borehole at the start of the placement. The tremie pipe shall be gradually raised during seal placement to avoid excessive pump pressures. The end of the tremie pipe must remain submerged in the sealing material and the tremie pipe shall be kept full of sealing material at all times during placement. The Contractor shall take all precautions to prevent the collapse of the conductor casing during placement of the sealing material.
5. The Contractor shall not perform any work on the well during the 24-hour period after the sanitary seal is installed.
6. In the event the casing or the borehole collapses prior to completion of the sanitary seal, the Contractor shall take whatever steps are necessary to reopen the hole and reinstall a conductor casing and sanitary seal as specified. Any such remedial action shall be conducted at the Contractor's expense and in accordance with these Specifications.

END OF SECTION

**SECTION 02523-241
REAMING FINAL BOREHOLE**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Reaming of the pilot borehole to the final borehole diameter or any other reaming required in completion of the work as specified.

B. Referenced Sections:

1. Section 02523-160: Drilling Fluid
2. Section 02523-200: Caliper Survey

C. Measurement and Payment

1. Measurement:

- a. The unit for this work is linear (vertical) feet of final borehole drilled. The value for payment shall be measured to the nearest foot. Measurement shall be taken from the bottom of the conductor casing to the bottom of the borehole as specified and verified by the caliper survey and shall include all incidentals.

2. Payment:

- a. Unit price for payment shall be as set forth in the BID FORM for Bid Item No. 13 - Borehole Reaming.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Drilling Fluid

1. The Contractor shall maintain controlled drilling fluid characteristics during the entire drilling operation as specified in Section 02523-160.

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Sequences of Operations

1. Reaming Borehole

- a. Upon completion of the interpretation of geophysical surveys and aquifer zone sample results, delivery of all well construction materials and written authorization by the Engineer, the Contractor shall proceed with reaming the pilot borehole. The final reamed borehole shall be 18 inches in diameter from the bottom of the conductor casing to a depth of approximately 500 feet below the ground surface or as directed by the Engineer.
- b. A record shall be kept showing any variation in the addition, and amount of drilling fluid or water required during the drilling operation. The depths at which such changes are required shall be shown in the daily reports.
- c. Upon completion of the reaming operations, a caliper survey shall be run per Section 02523-200.

END OF SECTION

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**SECTION 02523-260
PLUMBNESS AND ALIGNMENT TESTS**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. Products, materials, and procedures/services associated with plumbness and alignment tests, reporting, and evaluation for the constructed well. The Contractor shall secure the services of a firm approved by the Owner to conduct the survey(s).

B. Purpose

1. The general purpose for the plumbness and alignment tests is to ensure that the well will permit the proper installation and long-term operation of permanent pumping equipment installed in the well.

C. Measurement and Payment

1. Measurement

- a. The unit for this work/service is lump sum and measurement includes completion and acceptance of test.
- b. The Engineer shall be present to witness the plumbness and alignment tests of the well.
- c. There will be no payment for rig time or idle time while tests are being run.

2. Payment

- a. Lump sum price for payment shall be as set forth in the BID FORM for Bid Item No. 14 - Plumbness and Alignment Tests, for entire depth of the well.

1.02 REFERENCES

- A. ANSI/AWWA A100-06, Standard for Water Wells; Section 4.7 Well Construction

1.03 SUBMITTALS

- A. The Contractor shall provide three (3) copies of the plumbness and alignment survey results upon completion of the survey.

1.04 QUALITY ASSURANCE

- A. The completed well shall be constructed round, plumb, and true to line as defined in AWWA A100-97 Standard for Water Wells and/or as specified herein.

B. Testing Tolerances

1. Plumbness Tolerance:

- a. The maximum allowable horizontal deviation (drift) from the well from the vertical shall not exceed two thirds (2/3) of the smallest inside diameter of that part of the well being tested per 100 ft of the depth.
- b. $\frac{2}{3} \times 10$ -inches per 100 feet for this well = $6 \frac{2}{3}$ " per 100 ft tolerance for plumbness.
- c. Determination of drift shall be as specified in ANSI/AWWA A100-97, Standard for Water Wells, Appendix D, Section D4.

2. Alignment Tolerances:

- a. The maximum misalignment, or "dogleg," permissible is one that will allow a 40-ft long section of pipe or a dummy, to pass freely through it. The outside diameter of the pipe

or dummy shall be no smaller than 1/2-inch less than the inside diameter of the casing or borehole being tested.

3. Depth of Applied Tolerances:
 - a. The depth for plumbness and alignment test shall be the total length of the well pump chamber.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Digital Gyroscopic Deviation Probe for Plumbness Testing:
 1. The Contractor shall provide a digital gyroscopic deviation probe to measure casing inclination and direction of drift. The equipment, service, and subsequent calculation shall be provided by a licensed geophysical firm experienced with performing gyroscopic deviation surveys.
- B. Pipe or Dummy for Alignment Testing:
 1. Pipe section when used for testing shall have an outside diameter of 8 3/8-inches and a length no less than 40 ft.
 2. If a dummy is used, it shall consist of a rigid spindle with a minimum of three cylindrical rings; each ring shall have a minimum width of 1/2-inch less than the inside diameter of the well casing. The rings shall be located one at each end and one in the center of the dummy.
 3. The Dummy shall be made of a rigid spindle of 4-inch diameter extra heavy pipe with three rings rigidly fixed to the pipe so that they cannot move longitudinally along the pipe. The rings shall be truly cylindrical. The rings shall consist of suitable material, which will not harm the interior of the casing while being lowered or raised.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Sequences of Operations
 1. Prior to Tests:
 - a. The Contractor is encouraged to conduct preliminary drift surveys and or other plumbness and/or alignment test prior to gravel pack installation, however any preliminary surveys are to be conducted at no additional cost to the Owner.
 - b. The final plumbness and alignment tests shall be performed after well development and pump testing and before the final disinfection of the well.
 - c. All tests shall be conducted in the presence of the Engineer.
 - d. The Contractor shall notify the Engineer at least 24 hours prior to performing the plumbness and alignment tests.
 2. Alignment Test:
 - a. The Contractor shall lower a pipe or dummy section down the entire length of the 10-inch blank casing. Should the dummy fail to move freely throughout the entire length of the 10-inch blank casing; the Contractor shall undertake corrective measures at his own expense.
 3. Plumbness:
 - a. The test for plumbness shall be made with a digital gyroscopic deviation probe,
 - 1) The logging firm shall provide station depth, inclination, azimuth, true vertical depth, departures, and plane of closure (displacement) calculations per methods approved by API.

- 2) Reports of the logging shall include plan, vertical, and three-dimensional views of the casing in color and be provided in electronic format for viewing in Drift-Pac® Viewer Module or equal. The report shall be included as “as-built” information.
- 3) The plumbness of the well shall be determined in 10-foot intervals from the top of the casing to the top of the well screen and every 50 feet from the top of the well screen to the bottom of the well.
4. The Contractor shall guarantee that the well, when completed, shall be sufficiently aligned and plumb for the free installation and operation of a submersible turbine pump with 8-inch bowls throughout the full length of the 10-inch diameter pump chamber.

END OF SECTION

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**SECTION 02523-280
WELL CASING AND SCREEN**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to furnish and install well casing as specified for a gravel packed well concentric within the drilled and accepted borehole.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is Linear (vertical) feet of blank or screen casing installed. The value for payment shall be as measured to the nearest foot. Measurement shall be as taken of each type of casing installed from the top to bottom.

2. Payment

- a. Unit prices for payment of blank and screen sections shall be as set forth in the BID FORM for Items:
- b. Bid Item No. 15 - 10" Inside Diameter (ID) ASTM F480 PVC Blank Casing
- c. Bid Item No. 16 - 10" ID ASTM F480 PVC Well Screen with 0.060" Milled Slots

1.02 REFERENCES

- A. ASTM - American Society of Testing and Materials
- B. AWS - American Welding Society Standards

1.03 SUBMITTALS

- A. Submit cut sheets from the well casing manufacturer for the well casing and screen as specified in this specification and as shown on the Contract Drawings for the Approval by the Engineer.
- B. Provide documentation that the screen meets the material specification described below. As a minimum the mill test reports, certificate of compliance, calculations used to determine collapse strength and safe hanging weight, and a description of the cleaning process used on the screen shall be submitted for the Approval by the Owner.
- C. Submit the welding certifications for shielded arc electrodes in accordance with an approved American Welding Society (AWS) Standards for the types and positions of welding proposed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Blank Casing (PVC)

1. All PVC casing, plate, and caps shall be new.
2. The well casing and cover plate shall be manufactured in accordance with ASTM F480 applicable parts with the following additions:
 - a. Requirements for hydrostatic testing shall be waived.
3. All PVC shall be as dimensioned as shown on the contract drawings.
4. A sump with end cap shall be provided on the bottom of the well. The end cap shall be of the same thickness and material as the well casing.

B. Centralizers

1. Arrangement/Alignment: three (3) centralizers shall be firmly affixed to casing sections, 120 degrees apart and each guide shall lie within the same horizontal plane and vertical alignment.
2. Intervals: Centralizers shall be spaced at intervals of not more than 80 feet.
3. Fabrication: centralizers shall be 2" wide x 3/8" thick x 12" long (bearing surface against borehole wall) firmly affixed to blank wall casing.
4. Materials: The centralizers shall be fabricated from material compatible with the adjoining casing.
5. Placement: Centralizers shall typically be placed as follows along the casing string:
 - a. Above and below each well screen section and every 80 feet.
 - b. Centralizers shall not be placed onto the well screen. Centralizers shall be placed above and below each well screen section.
 - c. Centralizers landing within screen sections shall be moved to casing ends and installed across the blank end portions.

C. Well Screen (PVC, Milled Slot)

1. All PVC screens and material shall be new and shall be approved in advance by the Engineer.
2. The screen shall:
 - a. be 10-inch ID ASTM F480 PVC
 - b. have a 0.060-inch slot size or as directed by the Engineer, and be constructed from ASTM F480 PVC.
3. It is the Contractor's sole responsibility to ensure the well screen has sufficient tensile and collapse strength to be assembled, landed, and installed without damage to casing, screen, or borehole.
4. For field assembly, the screen shall be furnished with solvent welding collars and sufficient non-screened area at the ends to fit centralizers.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install the well casing assembly as shown on the Plans or as directed by the Engineer. Each casing joint shall be watertight. A conceptual well design for bidding purposes only is provided as Exhibit 1.

3.02 SCHEDULE

- A. Within three working days of completion and acceptance of the geophysical and caliper surveys and lithologic log, the Engineer will provide the Contractor with a written schedule for the final positioning and depths of the screen, blank sections, gravel feed pipe, and centralizers.

3.03 SEQUENCES OF OPERATIONS

- A. Upon completion of the drilling, evaluation of the geophysical logs, and caliper surveys, and approval from the Engineer that the reamed borehole is acceptable, the Engineer will provide the Contractor with final design instructions in writing. On receiving authorization from the Owner, proceed with the construction of the well, within five working days.
- B. Prior to running casing, install a tremie pipe below the total depth of the casing assembly to be installed. Then establish circulation through the tremie pipe with a pump. Installation of the

casing and appurtenances proceed with circulation through the tremie pipe continuing during the installation. The installation shall be by methods that will ensure no damage to casing, screen, borehole, or other appurtenances will occur.

- C. The use of floatation plugs to land and set the well string will not be permitted.
- D. The well casing string shall be suspended in tension from the surface by means of an appropriate hanger or clamp. The bottom of the casing shall be at a sufficient distance above the bottom of the borehole as to ensure that none of the casing will be supported from the bottom of the hole.
- E. Verify that the total weight of the casing string is supported by the drill rig, and have the Owner or Engineer observe the dial weight indicator.
- F. The casing clamp shall remain as part of the well until the well casing is securely welded to the conductor casing.
- G. If, for any reason, the casing cannot be landed in the correct position or at a depth acceptable to the Owner, remove the casing and ream the borehole. In no event shall the Contractor attempt to drive or "spud" the well string.
- H. The well casing shall be completed to a height of 0.5-feet below ground surface and contained in a 24-inch by 24-inch water-tight vault.
- I. Upon completion of well testing activities fit the well casing with a removable PVC cap.
- J. If for any reason the casing cannot be placed in the correct position, or at a depth acceptable to the Owner, construct another well immediately adjacent to the original location and complete this well in accordance with the specifications and drawings at no additional cost to the Owner. Properly seal the abandoned hole in accordance with all local and State Standards at the Contractor's expense.
- K. If the casing should collapse prior to well completion, withdraw casing and replace at the Contractor's expense, or the Contractor shall replace the well.
- L. All work required to be repeated, and all additional materials, labor, and equipment required, shall be furnished at the expense of the Contractor and no claim for additional compensation shall be made or be allowed therefore, except as specifically provided herein.

END OF SECTION

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**SECTION 02523-290
MONITORING WELL - INSTALLATION**

PART 1 - GENERAL

1.01 SUMMARY

- A. This section will be implemented if deemed by the Engineer or Owner and will substitute the installation of a production well with a monitoring well at this location. If directed, a monitoring well will be completed in the 8-inch minimum diameter pilot hole, to the total depth explored. Sections 02523-220; 02523-241; 02523-280, 02523-300, 02523-360 and 02523-400 will be omitted.
- B. Section Includes:
1. All materials, labor, tools, and equipment to furnish and install well casing as specified for a gravel packed well concentric within the drilled and accepted borehole.
- C. Referenced Sections
1. Section 02523-220: Conductor Casing and Sanitary Seal
 2. Section 02523-241: Reaming Final Borehole
 3. Section 02523-280: Well Casing and Screen
 4. Section 02523-300: Gravel Fill and Sounding Pipes
 5. Section 02523-360: Well and Aquifer Testing
 6. Section 02523-400: Video Camera Survey
- D. Measurement and Payment
1. Measurement
 - a. The unit for this work is Linear (vertical) feet of blank or screen casing installed. The value for payment shall be as measured to the nearest foot. Measurement shall be as taken of each type of casing installed from the top to bottom.
 2. Payment
 - a. Bid Item No. 17 - Unit price for payment of a monitoring well installation including well casing, gravel pack, pollution seal, sanitary seal and surface completion shall be as set forth in the BID FORM:
 - b. 3-Inch Inside Diameter (ID) Schedule 80 PVC Blank Casing: Schedule 80 PVC blank well casing with flush-joints in accordance with ASTM F480. A total of 130-feet of blank casing: 120-feet from surface to screen section; and 10-foot bottom sump.
 - c. 3-Inch ID Schedule 80 Well Screen: Schedule 80 well screen with 0.050-inch slot openings and flush-joint threads in accordance with ASTM F480. Up to 370-feet of well screen (proposed 500-foot pilot hole).
 - d. 3-Inch-Nominal-Diameter Schedule 80 PVC End Cap: Schedule 80 PVC end cap in accordance with ASTM standard F480.
 - 1) Stainless Steel centralizers shall be spaced as required to maintain a minimum 2-inch clearance between the borehole wall and the well casing and screen.
 - 2) Centralizers shall be placed at the top and bottom of the screen interval and every 25-feet within the screen section at a minimum.
 - e. Gravel Pack
 - 1) Gravel pack material shall meet AWWA-B100-89 standards. An 8x16 gradation is anticipated.

- 2) Gravel pack placement via tremie pipe from the bottom of the borehole to 10-feet above the top of the screened interval and a top depth of 110-feet bgs.
- f. Pollution Seal
- 1) A 5-foot-thick bentonite pollution seal consisting of ¼-inch size high yielding compressed bentonite pellets will be placed from the surface to the top of the gravel pack and measured to confirm placement. No chips or powder will be accepted.
- g. Sanitary Seal
- 1) The sanitary seal shall consist of a 10-sack Portland cement sand slurry mix when ordered from a batching plant. Mixing on-site shall consist of 3 cubic feet of sand and 1 cubic foot (one sack) of Portland cement to 5-7 gallons of clean water. Grout seal will extend to the 105-feet bgs.
 - 2) The cement grout shall be placed via tremie pipe from the top of the pollution seal to 2-feet below ground surface in one continuous operation utilizing a positive displacement pumping method. The grout pipe may be slowly raised as the grout is placed, but the discharge end of the tremie pipe must be submerged at all times until grouting is completed. The tremie pipe must remain full during the grouting process. The fluid level in the casing shall be maintained at the ground surface during cementing operations. After cementing, no work will be undertaken for a period of 24-hours.
 - 3) Fluids displaced from the well casing and annulus during sealing operations shall be controlled and legally disposed of.
- h. Well Development
- 1) The Contractor shall provide the air compressor, air pipe or hose, and other necessary equipment to develop the well screen by air lifting. Air lifting and swabbing operations shall be conducted alternatively until the gravel pack adjacent to the screens is cleaned. The gravel pack shall be considered clean when there is no circulation of sand, silt or mud at the surface.
 - 2) After completion of the airlift development, well development will continue with the use of a submersible pump. The pump should be capable of pumping 20-gpm, depending on the depth of the water at the site.
 - 3) Well development will continue until water quality parameters measured by the Engineer have stabilized. Stabilization shall be defined as agreement between the last two sets of readings within plus or minus 0.1 pH units, plus or minus 1.0 degree C, and plus or minus 10 percent of full scale reading for specific conductivity.
- i. Monitoring Well Surface Completion
- 1) The monitoring well shall be completed above grade and protected using an 8-inch minimum diameter lockable steel or aluminum security casing extending 3-feet above the ground surface. The protective casing shall be secured with a concrete mix. A ¼-inch diameter weep hole shall be drilled in the security casing immediately above the concrete to allow for water drainage. The surface completion shall conform to the standards listed in the DWR Bulletin 74-90, Monitoring Well Standard Section 10.E.
 - 2) The inner PVC casing shall be fitted with a locking interior watertight plug.
 - 3) A 4-foot by 4-foot by 6-inch sloping concrete pad, equipped with four 42-inch-tall concrete filled traffic bollards, situated at the corners of the slab.
 - 4) The concrete pad and traffic bollards shall use Type II Portland cement per ASTM C150. Concrete aggregate shall be mixed of fine and coarse sizes, all less than 0.75-inches.

1.02 REFERENCES

- A. ASTM - American Society of Testing and Materials
- B. AWWA-B100-89 Standards
- C. DWR – Bulletin 74-90, Monitoring Well Standard

1.03 SUBMITTALS

- A. Submit cut sheets from the well casing manufacturer for the well casing and screen as specified in this specification and as shown on the Contract Drawings for the Approval by the Engineer.
- B. Provide documentation that the screen meets the material specification described below. As a minimum the mill test reports, certificate of compliance, calculations used to determine collapse strength and safe hanging weight, and a description of the cleaning process used on the screen shall be submitted for the Approval by the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Blank Casing (PVC)
 - 1. All PVC casing, plate, and caps shall be new.
 - 2. The well casing and cover plate shall be manufactured in accordance with ASTM F480 applicable parts with the following additions:
 - a. Requirements for hydrostatic testing shall be waived.
 - 3. All PVC shall be of flush threaded manufacturing.
 - 4. A sump with end cap shall be provided on the bottom of the well. The end cap shall be of the same thickness and material as the well casing.
- B. Centralizers
 - 1. Arrangement/Alignment: three (3) centralizers shall be firmly affixed to casing sections, 120 degrees apart and each guide shall lie within the same horizontal plane and vertical alignment.
 - 2. Intervals: Centralizers shall be spaced at intervals of not more than 80 feet.
 - 3. Centralizers shall be 1" wide x 12" long (bearing surface against borehole wall) firmly affixed to blank wall casing.
 - 4. Materials: The centralizers shall be fabricated from material compatible with the adjoining casing.
 - 5. Placement: Centralizers shall typically be placed as follows along the casing string:
 - a. Above and below each well screen section and every 80 feet.
 - b. Centralizers shall not be placed onto the well screen. Centralizers shall be placed above and below each well screen section.
 - c. Centralizers landing within screen sections shall be moved to casing ends and installed across the blank end portions.
- C. Well Screen (PVC, Milled Slot)
 - 1. All PVC screens and material shall be new and shall be approved in advance by the Engineer.
 - 2. The screen shall:
 - a. be 3-inch ID Schedule 80 PVC in accordance with ASTM F480 PVC

- b. have a 0.050-inch slot size or as directed by the Engineer, and be constructed from Schedule 80 PVC in accordance with ASTM F480 PVC.
 3. It is the Contractor's sole responsibility to ensure the well screen has sufficient tensile and collapse strength to be assembled, landed, and installed without damage to casing, screen, or borehole.
 4. For field assembly, the screen shall be of flush threaded design.
- D. Gravel Pack
 1. Gravel pack materials shall be rounded to well-rounded with moderate to high sphericity and graded. Not more than 3 percent, by weight, of the gravel shall be flat or elongated. Gravel shall be of type provided by Premiere Silica/Colorado Silica Sand, Inc. or equivalent and subject to the approval of the Engineer prior to delivery.
 2. Gravel Pack materials shall meet AWWA-B100-89 standards and following specifications. The final gradation will be determined based on sieve samples collected from the borehole. An 8x16 gradation is anticipated.
 3. The gravel pack materials shall have a uniformity coefficient of less than 2 as determined in accordance with AWWA-B100-89 Section 1.2.4, and a specific gravity greater than 2.5. The gravel pack material shall have less than 2 percent acid solubility in accordance with test method AWWA-B100-89 Section 3.3.1.
- E. Pollution Seal
 1. Bentonite Pellets: The pollution seal material shall be manufactured high yielding compressed bentonite pellets of ¼-inch size and free of foreign matter (or approved equal).
- F. Sanitary Seal
 1. Cement grout shall be composed of not more than 3 cubic feet of sand and 1 cubic foot (one sack) of Portland Type II cement to 5 to 7 gallons (0.67 to 0.90 cubic feet) of clean water. This is typically considered to be a 10-sack Portland cement sand slurry mix when ordered from batching plants.
- G. Monitoring Well Surface Completion
 1. The security casing shall comply with the standards listed in DWR Bulletin 74-90, Monitoring Well Standards Section 10.E.
 2. Concrete for the pad, security casing anchoring and traffic bollards shall use Type II Portland cement per ASTM C150. Concrete aggregate shall be a mix of fine and coarse sizes, all less than 0.75 inches. Concrete shall have a minimum compressive strength of 3,000 psi at 28 days per ASTM C31 and C39, and a maximum water-content ratio of 0.48 by weight.
 3. The inner PVC casing shall be fitted with a locking interior watertight plug.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install the well casing assembly as directed by the Engineer. Each casing joint shall be watertight.

3.02 SCHEDULE

- A. Within three working days of completion and acceptance of the geophysical and caliper surveys and lithologic log, the Engineer will provide the Contractor with a written schedule for the final positioning and depths of the screen, blank sections, and centralizers.

3.03 SEQUENCES OF OPERATIONS

- A. Upon completion of the drilling, evaluation of the geophysical logs, and caliper surveys, and approval from the Engineer that the reamed borehole is acceptable, the Engineer will provide the Contractor with final design instructions in writing. On receiving authorization from the Owner, proceed with the construction of the well, within five working days.
- B. Prior to running casing, install a tremie pipe below the total depth of the casing assembly to be installed. Then establish circulation through the tremie pipe with a pump. Installation of the casing and appurtenances proceed with circulation through the tremie pipe continuing during the installation. The installation shall be by methods that will ensure no damage to casing, screen, borehole, or other appurtenances will occur.
- C. The use of floatation plugs to land and set the well string will not be permitted.
- D. The well casing string shall be suspended in tension from the surface by means of an appropriate hanger or clamp. The bottom of the casing shall be at a sufficient distance above the bottom of the borehole as to ensure that none of the casing will be supported from the bottom of the hole.
- E. Verify that the total weight of the casing string is supported by the drill rig, and have the Owner or Engineer observe the dial weight indicator.
- F. The casing clamp shall remain as part of the well until the well casing is secured.
- G. If, for any reason, the casing cannot be landed in the correct position or at a depth acceptable to the Owner, remove the casing and ream the borehole. In no event shall the Contractor attempt to drive or "spud" the well string.
- H. The well casing shall be completed to a height of 0.5 -feet below ground surface and contained in a 24-inch by 24-inch water-tight vault.
- I. Upon completion of well testing activities fit the well casing with a removable PVC cap.
- J. If for any reason the casing cannot be placed in the correct position, or at a depth acceptable to the Owner, construct another well immediately adjacent to the original location and complete this well in accordance with the specifications and drawings at no additional cost to the Owner. Properly seal the abandoned hole in accordance with all local and State Standards at the Contractor's expense.
- K. If the casing should collapse prior to well completion, withdraw casing and replace at the Contractor's expense, or the Contractor shall replace the well.
- L. All work required to be repeated, and all additional materials, labor, and equipment required, shall be furnished at the expense of the Contractor and no claim for additional compensation shall be made or be allowed therefore, except as specifically provided herein.

END OF SECTION

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**SECTION 02523-300
GRAVEL FILL AND SOUNDING PIPES**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to install the gravel fill as specified. Based on final well design, gravel fill and sounding pipes may be omitted.

B. Referenced Sections:

1. Section 02523-280: Well Casing And Screen

C. Measurement and Payment

1. Measurement

- a. The unit for this work is Linear (vertical) Feet of gravel fill and sounding pipes installed. The value for payment shall be as separately measured, (sounding & gravel fill), to the nearest foot. Measurement shall be as taken on installed pipe from the top to bottom.
- b. Measurement for the sounding port shall be lump sum for the installed sounding port.

2. Payment

- a. Unit prices for payment of gravel fill and sounding pipe shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 18 – 3” Gravel Fill Pipe, Schedule 80 PVC
 - 2) Bid Item No. 19– 2” Sounding Pipe, Schedule 80 PVC

1.02 REFERENCES

- A. AWS - American Welding Society Standards
- B. ASTM - American Society of Testing and Materials

1.03 SUBMITTALS

- A. The Contractor shall provide manufacturer's data showing compliance to both the physical and chemical properties specified for the new gravel fill and sounding pipes for approval by the Engineer. The Contractor shall submit the proposed design of the prefabricated sounding port to the Engineer for approval.
- B. The Contractor shall submit the welding certifications for shielded arc electrodes in accordance with approved American Welding Society (AWS) Standards for the types and positions of welding proposed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Gravel Fill Pipe

1. The gravel fill pipe shall be three (3) inches in diameter (nominal) Schedule 80 PVC.
2. The gravel fill pipe sections may be fitted with threaded or glued. A collar shall be glued or tightened to the top of each section prior to beginning the installation of the casing.
3. All joints shall be free of burrs inside and out and be watertight.

B. Sounding Pipe

1. The sounding pipe shall be two (2) inches in diameter (nominal) Schedule 80 PVC.
2. The sounding pipe sections shall be fitted with threaded or glued collars. A collar shall be glued or tightened to the top of each section prior to beginning the installation of the casing.
3. All joints shall be free of burrs inside and out and be watertight.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The gravel fill pipe shall be installed per Section 02523-280 and shall be kept clear and open at all times.
- B. Sounding Pipe
 1. All edges and welds of the sounding pipe casing port shall be smooth and shall not hinder the passage of instruments through the port.
- C. The sounding pipe shall not be restrained against the casing in any manner that will cause improper placement as shown on Exhibit 3. A spacer bar shall be placed between the sounding pipe and well casing at ground level to offset the pipe from the casing, avoiding interference with the well pump base plate.
- D. The gravel fill and sounding pipes shall be positioned (orientated) as directed by the Engineer, with two feet of above-ground stickup.

3.02 CONSTRUCTION

- A. All pipes shall be continuous and watertight from top to bottom.
- B. If included in the final design, the gravel fill pipes can be installed prior to the well casing installation or in conjunction with the well casings. The sounding pipes shall be installed in conjunction with the well casings per Section 02523-280. Sounding pipe to be slotted to allow groundwater communication. Bottom 18-feet of sounding pipe machined with 0.04-inch slots.

3.03 SCHEDULE

- A. Within approximately 24 hours of receipt of the sieve analysis results, the Engineer will provide the Contractor with a written schedule for the final position and depths of the gravel fill and sounding pipes in conjunction with the screen and blank sections.

END OF SECTION

**SECTION 02523-320
GRAVEL ENVELOPE**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to install and maintain the gravel envelope (pack) as specified until the well is acceptable by the Owner.

B. Referenced Sections:

1. Section 02523-160: Drilling Fluid

C. Measurement and Payment

1. Measurement

- a. The unit for this work is Linear (vertical) Feet of gravel envelope installed and shall be based on measurement from the bottom of the borehole up and shall include payment for consolidating and maintaining the gravel envelope through development and final acceptance of the well. Measurement for payment shall be rounded to the nearest foot.

2. Payment

- a. Unit prices for payment of the gravel envelope shall be as set forth in the BID FORM for item:
 - 1) Bid Item No. 20 - Gravel Envelope

1.02 SUBMITTALS

A. Prior to gravel packing operation:

1. A sample and recent (less than 1-month) certified sieve analysis of gravel to be used must be submitted to the Engineer at the preconstruction conference.
2. The Contractor shall submit a written estimate of the volume of gravel to be installed in the well annulus based on and at the completion of the caliper survey.
3. The Contractor shall provide a schematic drawing of the gravel installation system for approval by the Engineer at the preconstruction conference.

1.03 DELIVERY, STORAGE, AND HANDLING

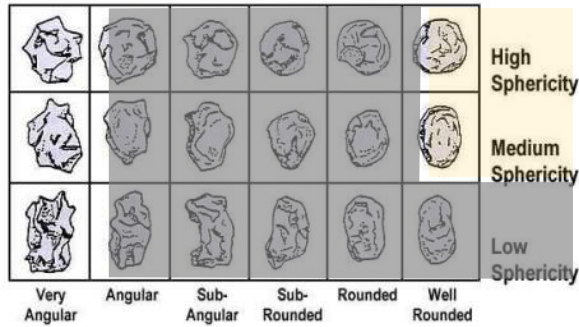
- A. The gravel, if stockpiled on site, shall be separated from the adjacent ground, and always kept free of all foreign matter.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Gravel Pack

1. All gravel shall be hard, water worn gravels, washed clean of shale, mica, clay, dirt, loam, and organic impurities of any kind (crushed gravel will not be accepted). The materials shall be at a minimum 90-percent by weight siliceous material with a limit of five-percent by weight of calcareous material. The gravel pack shall be well graded, and shall be well rounded with medium or high sphericity similar to the examples in the diagram below.



- 2.
3. All gravel is subject to approval by the Engineer prior to use in the packing process. For bidding purposes:
 - a. The gravel pack material shall be: CEMEX Lapis Luster graded sand #8 Mesh (8 x 16) or approved equal.
4. A production sample of gravel pack material must be delivered to the Engineer for inspection and verification of grading. Upon delivery to the well site, the Engineer shall inspect and verify the gravel before it is installed in the well.

2.02 EQUIPMENT

- A. A gravel pump or gravity feed system will be required to install the gravel. A gravel hopper as part of an approved gravel installation system shall be employed to measure the gravel placed downhole.
- B. The Contractor shall submit a schematic drawing of the gravel installation system.
- C. A device approved by the Engineer shall be used to sound the level of the gravel throughout the placement of the envelope.
- D. Swab.

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Gravel Envelope Placement
 1. The Contractor shall submit his estimate of the volume of gravel to be installed based on his review of the caliper log.
 2. The Contractor shall supply the devices required to measure the volume of gravel placed in the well as submitted and approved in the gravel installation system.
 3. Prior to placement of the gravel envelope, the drilling fluid shall be thinned with clean water. Initial circulation of fluid will be accomplished through the tremie pipe. The drilling fluid viscosity must be at a maximum 26 to 31 sec./qt. Per Marsh funnel measurement and the drilling fluid density must be below 8.9 lbs./gal. before gravel packing commences. Refer to Section 02523-160.
 4. Gravel Sterilization:
 - a. The gravel shall be sterilized by continuously mixing at least one (1) gallon of liquid five and one-half percent (5.5%) sodium hypochlorite per 100 cubic feet of gravel as it is placed in the well.
 5. The gravel envelope shall be installed in the annular space between the borehole wall and the casing through a tremie pipe from the bottom of the borehole.

- a. At no time shall the bottom of the tremie pipe be greater than 40 feet above the top of the gravel during gravel installation.
6. The gravel placement shall continue uninterrupted until the height of the envelope reaches the depth of the annular cement, bentonite, or transition seals.
7. After the gravel envelope has been placed to the depth specified, a swab shall be carefully worked opposite all screened sections. As the gravel settles, more shall be added to bring the top of the gravel to the specified elevation. This operation shall continue until there is no further measurable settlement of the gravel.
8. The quantities of gravel initially placed around the casing and screen assembly shall not be less than the computed volume of the annular space as determined by the Engineer from the caliper survey.
 - a. A quantity less than the computed value may be judged as an indication of voids and corrective measures may be required by the Contractor.
 - b. If a difference between the estimated and actual volume of gravel envelope installed is found to exist, the discrepancy may be grounds for rejection of the well by the Owner.
9. After consolidating the gravel envelope by swabbing, and upon permission from the Engineer, the Contractor may continue with the placement of the transition and annular seals as specified.

END OF SECTION

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**SECTION 02523-330
ANNULAR SEALS**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to install annual seals as specified.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is Linear (vertical) Feet of annual seal installed and shall be based on measurement from the bottom of the seal to the top of the seal, respectively for any given annular seal. Measurements for payment shall be rounded to the nearest foot.
- b. No standby time will be paid for the 24-hour period following placement of the annular seal.

2. Payment

- a. Unit prices for payment for the annular seals shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 21 - Bentonite Seals
 - 2) Bid Item No. 22 - Gravel Backfill Material
 - 3) Bid Item No. 23 - Bentonite Transition Seal
 - 4) Bid Item No. 24 - Annular Seal

1.02 DEFINITIONS

- A. Annular Seal—Seals the annular space between the well casing and the borehole and the space between the well casing and the surface casing.
- B. Transition Seal—Seals used to prevent intrusion of sealing material into the gravel envelope.
- C. Gravel Backfill Material—Material used to fill the annular space between the well casing and borehole wall where specialized filter pack or sealing material is not required.
- D. Bentonite Seal—Seals used to separate aquifer zones within the gravel pack.

1.03 SUBMITTALS

- A. The Contractor shall submit the positive placement technique which will be employed to place the annual seal for approval. The submittal shall include the equipment, appurtenances, and techniques proposed for placement of the seal under positive pressure.
- B. Delivery receipts for commercially prepared and supplied sealing material shall be provided to the Engineer for approval by the Engineer prior to installation by the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Annular Seal Material

1. Sand-Cement Sealing Material: A sand-cement sealing material shall be used for the annular seal.

- a. Sand-Cement “grout”: “Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) to 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a “10.3 sack mix.”
 - b. Cement: Cement used shall meet the requirements of American Society for Testing and Materials C150, Standard Specification for Portland Cement, including the latest revisions thereof.
 - c. Water: Water used to prepare sealing mixtures or added on site should generally be of drinking water quality, shall be compatible with the type of sealing material used, be free of petroleum and petroleum products, and be free of suspended matter. The quality of water to be used for sealing mixtures shall be determined where unknown.
 - d. Mixing: Cement-based sealing materials shall be mixed thoroughly to provide uniformity and ensure that no lumps exist.
2. Variations: Special cement setting accelerators and retardants and other additives may be used in some cases. Additives for Portland cement mixtures shall meet the requirements of ASTM C494, Standard Specification for Chemical Admixtures for Concrete, including the latest revisions thereof. ASTM C150 Type I cement is equal to API Class A cement. Owner and Environmental Management Department approval of variations must be received prior to Mobilization.
- B. Bentonite Transition Seal**
- 1. Bentonite transition seal shall be created with highly compressed granular pellets of 1/2-inch size, containing a minimum montmorillonite content of 90% or approved equal. Bentonite chips are not acceptable. Seals will be placed via tremie with the end of the tremie pipe located no more than 15’ from the top of the gravel pack. Gravel pack depth will be tagged and noted prior to bentonite seal placement. The location of the bentonite seal, once in place, will be verified by tagging the top of the seal before gravel envelope installation is resumed. A record of all tagged depths will be kept and made available upon the request of the Engineer.
- C. Gravel Backfill Material**
- 1. All gravel backfill material shall be hard, water worn gravels, washed clean of shale, mica, clay, dirt, loam and organic impurities of any kind (crushed gravel will not be accepted). The materials shall be mostly siliceous with a limit of five-percent by weight of calcareous material. It shall be well rounded and graded.
- D. Bentonite Seal**
- 1. Bentonite seals shall be created with highly compressed granular pellets of 1/2 inch size, containing a minimum montmorillonite content of 90% or approved equal. Bentonite chips are not acceptable. Seals will be placed via tremie with the end of the tremie pipe located no more than 15’ from the top of the gravel pack. Gravel pack depth will be tagged and noted prior to bentonite seal placement. The location of the bentonite seal, once in place, will be verified by tagging the top of the seal before gravel envelope installation is resumed. A record of all tagged depths will be kept and made available upon the request of the Engineer.

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Transition Seal

- 1. Transition Seal shall be composed of a five (5) foot thick sand pack transition seal and shall be placed from the top of the gravel envelope as shown on the contract drawings.

2. Bentonite Seals shall be composed of sections of bentonite pellets placed in between gravel pack sections as shown on the contract drawings and instructed by the Engineer.

3.02 PROCEDURES

- A. After approval from the Engineer to proceed from the gravel envelope placement, the Contractor shall construct a transition seal prior to placement of the annular seal.
- B. Placement of the Bentonite Seals, Sand Transition Seal, or Gravel Backfill Material:
 1. Bentonite seals, bentonite transition seals, and gravel backfill material shall be installed using a tremie pipe.
 2. The top of the interval shall be sounded to ensure that no bridging occurred during placement. Sounding shall occur after placement of sand pack.
- C. Annular Seal Placement
 1. The Contractor shall request inspection of the annular seal from the Sonoma County Environmental Health Department inspector at least 24 hours in advance of setting the annular seal.
 2. After placement of the transition seal, sounding of the seal's top, and approval by the Engineer, the Contractor shall place the annular seal from the top of the transition seal to the existing ground surface. The tremie pipe must be within 5 feet of the transition seal at the beginning of the annular seal placement.
 3. If directed by the Engineer, the annular seals will be placed in lifts. After each lift, the Contractor shall pull the tremie above the cement and circulate drilling fluid for 8 hours. After 8 hours the Contractor shall tag the cement and lower the end of the tremie pipe to within 5 feet of the previous lift.
 4. The Contractor shall employ a positive placement technique as submitted to the Engineer for approval.
 5. The tremie pipe shall be gradually withdrawn as the sealing material is placed to prevent excessive pressures against the well casing. The end of the tremie pipe must remain submerged in sealing material during placement.
 6. After the sealing material is placement, no work shall be conducted on the well for 24 hours.

END OF SECTION

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**SECTION 02523-340
WELL DEVELOPMENT**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to conduct well development on the production well.

B. Purpose

1. The purpose of well development is to remove drilling fluids and residues and to develop the gravel pack and aquifer to maximize the yield and efficiency of the well.
2. The process shall consist of airlift pumping, swabbing, and high velocity jetting of each well following gravel packing; bailing the well of materials introduced into the casing during swabbing; the installation of an engine driven deep well turbine test pump; and pumping and surging of the well until the well is fully developed and meets the requirements of minimum sand production and maximum hydraulic efficiency.

C. Measurement and Payment

1. Measurement

- a. The unit for unit price work is based per hour of time as recorded by the Engineer in intervals not less than 1/2 hour intervals.
- b. The time recorded for payment of unit price work shall commence when the equipment installed in the well is placed in operation and shall end when the operation is stopped at the direction of the Engineer.
- c. The unit for Lump Sum work is all work associated with well development and measurement shall be acceptance by the Engineer.

2. Payment

- a. Unit prices for Well Development shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 25 – Initial Well Development by Swabbing and Air Lifting
 - 2) Bid Item No. 26 – Final Pumping Development
- b. Lump Sum price for Well Development shall be as set forth in the BID FORM for item:
 - 1) Bid Item No. 27 – Installation and Removal of Test Pump
- c. No payment will be made for delays resulting from:
 - 1) Equipment stuck in the hole;
 - 2) Equipment breakdown;
 - 3) Arranging pumping or testing apparatus; or
 - 4) Failure to conduct the operations in a diligent and workmanlike manner by which the desired results could ordinarily be expected.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Drill Pipe and Mechanical Swabbing

1. The Contractor shall provide sufficient drill pipe and a mechanical swabbing tool with a double rubber packer assembly designed to be operated in the screened intervals of the well.

2. The equipment will be assembled in a manner that will allow simultaneous pumping and swabbing processes to occur.
 3. The pumping and swabbing will be done between a double rubber disk packer assembly with the closest packers no more than 10 feet apart.
 4. The eductor pipe on the swab assembly and the air pipe shall be sufficient to pump the specified capacity.
 5. The air compressor and other necessary equipment used for pumping shall be capable of pumping 500 gallons per minute during initial development.
- B. Discharge Line and Meter
1. The Contractor shall provide all the necessary valves, flow meters, sand testing equipment, and other incidental equipment required to accurately measure the flow rate, water levels in the well, sand production and time of pumping during well development including.
 - a. Furnish and install an in-line meter with a 6-digit straight reading totalizer, register in units of 1,000 gallons together with a rate of flow indicator dial, which reads in gallons per minute (gpm), and is suitable for a flow range of 0 to 1,000 gpm. A valving device shall be provided downstream of the flow meter to throttle the discharge to ensure an adequate water level for meter accuracy at low flow rates.
 - b. The installation of the flow meter and other appurtenance shall be per the manufacturer's recommendations; the meter shall be set at recommended minimum distances from elbows and valves.
 - c. The discharge line shall also include a tap with a valve for taking water samples not more than 20 feet from the well.
 - d. The Contractor shall provide a Rossum-type tester for measuring sand content.
 - e. An acceptable discharge piping arrangement has been provided in the contract drawings.
 - f. Water level measurements shall be made with an electric water sounder and be marked on the cable to the nearest 0.01 foot.
 2. Contractor shall provide the temporary discharge piping, temporary settling tanks, and discharge point required to convey well development water to nearby facilities located on the site. All facilities and piping shall be sized to accommodate flow requirements during development operation.
 - a. It is anticipated that the use of approximately 150 lineal feet of discharge piping shall be used to convey the development water overland at the site.
- C. Test Pump
1. The Contractor shall furnish a deep-well turbine type pump capable of pumping in excess of 200 gpm against estimated 380 feet of head not including friction and other losses. The bowl setting shall be at 325 feet below the ground surface. A satisfactory throttling device shall be provided so that the discharge can be reduced to 50 gpm.
- D. Polymer Dispersant
1. Nu-Well 220 (NW-220, manufactured by Johnson Screens), or AquaClear PFD (manufactured by Baroid Industrial Drilling Products), or approved equal, shall be used in a concentration of one gallon per 500 gallons of water in the screen sections (including the water in the gravel pack).

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Upon Approval of the Engineer of the annular seal, the Contractor shall perform well development after the specific set time for the annular seal.
- B. General Development Methods
 - 1. Development is required to clean all drilling fluids, mud wall cake, and other substances from the envelope area to prevent any impairment of flow into the well.
 - a. Initial Development: The Contractor shall remove the drilling fluid from the well by initially installing open ended drill pipe into the casing and airlift pumping. The drill pipe shall be lowered to the well sump to remove sediment. This will be followed by line swabbing.
 - b. Swab/Airlift Development: Cleaning shall be accomplished by airlift pumping and swabbing opposite the entire screen sections of the well until the gravel has been cleaned and consolidated and/or as directed by the Engineer.
 - c. Final Development: final development will be performed with a deep well turbine pump with pump and surge techniques.
- C. Procedures for Well Development
 - 1. Airlift methods with open-ended drill pipe shall be performed within 36 hours after placement of annular seal.
 - 2. The water produced during the initial well development must be settled in the temporary storage tank(s). Before initial development fluid is discharged, Approval from the Owner or Engineer shall be obtained.
 - 3. Initial development shall be considered completed when the water is clear and free of sand and suspended solids and there is no appreciable movement of the gravel envelope.
 - 4. Immediately upon completion of the initial development, swabbing, and pumping using the combination tool shall commence.
 - 5. If installed, the Contractor shall run clean water continuously down the gravel feed tube during the operation. The Contractor shall prove to the Engineer that the gravel feed tube is open and clear.
- D. Well Development
 - 1. Initial Development
 - a. Install open-ended drilling pipe.
 - b. Gradually start airlift pumping to remove the drilling fluid from the well casing.
 - c. Continue airlift pumping for a minimum of three (3) hours.
 - d. Initial development work shall be continued by line swabbing to stabilize and settle the gravel pack and provide for initial wall cake removal. The swab shall be no less than 8 inches in diameter. Equipment utilized during swabbing operations shall be of a horsepower necessary to raise the bailer at a velocity of at least three feet per second. Each 20-foot screen section shall be swabbed for a period of up to 20 minutes. Swabbing shall proceed from the bottom of the well to the top and the well shall be cleaned to the bottom upon completion. During swabbing operations, gravel pack will be topped off as necessary.
 - 2. Swab/Airlift Development
 - a. After initial swabbing, the well will be developed by air-lift pumping while swabbing. This procedure will be conducted utilizing a swabbing tool similar to the one shown in Figure 15.16 of Groundwater and Wells (Driscoll, 2nd Edition, page 515). The tool will

consist of a 10-foot length of perforated pipe with minimum 10-inch diameter flexible rubber wipers on both ends. The tool will be placed to the required depth on an eductor string of 6- to 8-inch-diameter eductor pipe. Into the eductor string a minimum 1.5-inch-diameter air pipe will be placed to a depth necessary to achieve required submergence to perform air-lift pumping. Alternatively, a submersible pump can be used for pumping in place of the airline. The air compressor (or pump) and necessary equipment used for dual-swab pumping shall be capable of intermittently pumping 200 gallons per minute (gpm) during development (depending on submergence). At the top of the string, a discharge head shall be configured to divert air/water mixture through a flexible hose to a discharge tank. Air supply to the airline shall also be connected through a flexible hose. The entire assembly shall be suspended in the derrick in such a manner that allows the assembly to swab a minimum of 20 feet of screen while simultaneously air-lift pumping.

- b. The above-described equipment shall be installed into the well to the bottom of the lowermost screen section. The screen will be swabbed in 10- to 20-foot sections while simultaneously air-lift pumping. Each screen section will be worked until successive swabbing produces little change in color and discharge is relatively clear. Development will continue for approximately 2 hours for each 20-foot interval of screen. This period may be extended or shortened by the Engineer based on condition of discharge water. Upon completion of a screen section, additional pipe will be added to both the eductor and airline, and the procedure repeated until all screen sections have been completed. On completion of development of all sections of the screen, the well shall be cleaned to bottom.
- c. After reaching bottom, the development tools shall be utilized to inject polymer dispersant (NW-220, or approved equal), incrementally into the screen sections. The total amount of NW-220 introduced to the well shall be equal to the quantity necessary to achieve a NW-220 concentration of one gallon per 500 gallons of water in the screened sections (includes water in gravel pack). The NW-220 solution shall be prepared in the proper concentration in a tank or other vessel, subject to the approval of the Engineer, prior to introduction into the well. Following each incremental introduction, the NW-220 solution shall be 'chased' with clear water in order to displace the solution into the screen and gravel pack. The NW-220 solution shall be swabbed into each progressively shallower screen section as piping is removed. Each 20-foot screen section shall be swabbed for a period of up to 20 minutes to assure distribution. Upon reaching the uppermost screen section, the solution shall be left in the well for a minimum period of 12 hours. During this 12 hour period, the screen shall be 'dry swabbed' in two additional passes, with each 20-foot screen section swabbed for a period of up to 20 minutes per pass to provide additional agitation of the dispersant solution. After this period, the development procedure described in Paragraph 3.01-D.2.b of this Section shall be repeated to bottom (second pass or airlift/swabbing). On completion of the second pass development the well shall be cleaned to bottom. Development tools shall then be removed from well.
- d. Development fluids from the well will be directed to temporary holding tanks (e.g., Baker tanks) onsite to allow settlement of all solids prior to discharge of decanted water to the designated discharge location. It is recommended that the tanks be connected in series and internally baffled to maximize the settling of solids. The initial fluids displaced from the well during the first stages of development shall be legally disposed offsite, and the tanks shall be cleaned prior to initiating air-lifting. It is the Contractor's sole responsibility to ensure that the sizing and configuration of settling tanks is fully adequate to achieve water quality conditions suitable for discharge.

3. Final Development

- a. After the completion of swab/airlift development, the deep well turbine pump and piping assembly shall be installed. Development by pumping shall commence on a fulltime basis within two (2) days of completing swab/airlift development.
 - 1) No foot valve shall be installed on the column pipe.
 - 2) No non-reverse ratchet shall be installed on the pump driver.
 - 3) The quantity of water being pumped from the well at commencement of development pumping shall be approximately 30% of the design capacity of the well and gradually increased as the water clears. The design capacity of the well is 200 gpm.
- b. Throughout development pumping, the well shall be frequently surged to achieve maximum consolidation of the gravel envelope.
- c. Gravel Envelope Level
 - 1) The Contractor shall run clean water continuously down the gravel feed tube during the operation and check the level every four (4) hours during pumping.
 - 2) The Contractor shall prove to the Engineer that the gravel feed tube is open and clear.
 - 3) If there is any indication of settlement of the gravel envelope, gravel shall be added to bring the gravel level back to the bottom of the gravel fill pipe. The quantity of gravel added shall be recorded and reported to the Engineer.
- d. A centrifugal sand sampler shall be furnished by the Contractor
 - 1) During the pump development, the rate of sand production shall be measured by the Contractor using a Rossum Centrifugal Sand Sampler as specified Section E.2.3 of the AWWA A100-97 Standard for Water Well and in the article "Control of Sand in Water Systems, Journal of American Water Works Association, Volume 46, No. 2, February 1954.
 - 2) The final sand production test shall be conducted in the Engineer's presence.
- e. Development pumping shall be continued until the specific capacity has been maximized, there is no appreciable settlement of the gravel envelope, and the well meets the sand production requirements of the Specifications.
- f. In no case shall development pumping-time be less than 20 hours.
- g. Development pumping shall commence at a low rate and increase in increments until flow of 175% of the well's design capacity is reached unless otherwise directed by the Engineer.
- h. Development records shall be maintained at a minimum frequency of 30 minutes showing:
 - 1) Production rate
 - 2) Pumping water level
 - 3) Water surface drawdown to the nearest 0.01 foot
 - 4) Calculated specific capacity
 - 5) Sand production
 - 6) All other pertinent information concerning well development, quality of water, presence of gases, color or other information

E. Final Development Criteria

1. Development pumping shall continue until the following criteria have been met:
 - a. The specific capacity (gallons per minute per foot of drawdown) no longer increases in value.

- b. The sand content testing shall be conducted before the well and aquifer testing and during a short constant rate discharge test at the design capacity of the well. The sand content shall be determined from the inception of the discharge test and continuing over a 30 minute period during which the average sand content over any 5 minute period shall not exceed 5 parts per million. Sand tests will be repeated during each of the well and aquifer tests.
- c. If the sand content during the testing described above exceeds 5 parts per million at the design capacity, the Contractor, at his expense, shall do the necessary redevelopment work and repumping of the well until the sand content satisfies this requirement.

3.02 FIELD QUALITY CONTROL

A. Well Performance Criteria

- 1. After completion of development pumping and for purposes of conducting well performance and aquifer tests, the Contractor shall measure the depth of the well to determine the amount of sediment deposited in the bottom. If the amount of sediment is greater than five feet, the Contractor shall pull the pump and clean the well of all accumulated sediment and foreign material and reinstall the pump prior to running the production testing.
- 2. It is the responsibility of the Contractor to meet the criteria in this Section at the conclusion of the well development.
- 3. If the Contractor fails to meet any of the requirements of this Section after the development pumping and testing, he/she shall continue to develop the well at their own expense until the well satisfies the performance criteria.

END OF SECTION

**SECTION 02523-360
WELL AND AQUIFER TESTING**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Products, materials, and procedures associated with the well and aquifer testing and includes but is not limited to:
 - a. Step test at increasing discharge rates
 - b. Downhole Velocity Survey
 - c. Constant rate pumping test
 - d. Recovery test
 - e. Sand production test

B. Referenced Sections

1. Section 02523-340: Well Development.

C. Purpose

1. The purpose of this section is to verify that well is sand-free and hydraulically efficient.

D. Measurement and Payment

1. Measurement

- a. The unit for this work per hour of time in as recorded by the Engineer in intervals not less than 1/2 hour intervals.
- b. The time recorded for payment shall commence when the equipment installed in the well is placed in operation and shall end when the operation is stopped at the direction of the Engineer.

2. Payment

- a. Unit prices for Well and Aquifer Testing shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 28 – Well and Aquifer Testing.
- b. No payment will be made for running equipment into or out of the well. No additional payment shall be made for gravel added to the annulus if the gravel envelope settles and requires placement of more gravel prior to final acceptance of well.
- c. No payment will be made for delays resulting from:
 - 1) Equipment stuck in the hole;
 - 2) Equipment breakdown;
 - 3) Arranging major drilling, pumping, or testing apparatus; or
 - 4) Failure to conduct the operations in a diligent and workmanlike manner by which the desired results could ordinarily be expected.

1.02 QUALITY ASSURANCE

A. Sand Content Performance Criteria: sand testing and content criteria is given below:

1. Sand production shall average less than or equal to 5 parts per million (ppm) when measured over any 5 minute interval over a 30 minute test period from the commencement of pumping at the design capacity of the well.
 - a. The design capacity of the well is 200 gpm.
2. Sand production shall be measured using a Rossum Centrifugal Sand Sampler as specified Section E.2.3 of the AWWA A100-06 Standard for Water Well and in the article

"Control of Sand in Water Systems, Journal of American Water Works Association, Volume 46, No. 2, February 1954.

B. Failure of Pump Operation

1. In the case of failure of the pump operation for a period greater than one (1) percent of the elapsed pumping time from $t=0$, the test shall be suspended until the static water level has been attained. Should the test be aborted as a result of a deficiency on the part of the Contractor's equipment or personnel, all time consumed in waiting for complete water level recovery and in resuming the pump test to the point where it was aborted shall be at no cost to the owner.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. The equipment shall be the same as provided in Section 02523-340 with the addition of a backflow check valve fitted in the drop pipe.
 1. Water Level Probe and Sounding Tube (if installed).
- B. The Contractor shall furnish an electrical water level sounder capable of indicating changes in the well water level to the nearest 0.01-foot. The Contractor shall provide whatever assistance may be required by the Engineer to conduct the tests.
- C. Contractor shall provide enough temporary discharge piping to convey aquifer testing water to nearby facilities located on and near the sites. All facilities and piping shall be sized to accommodate flow requirements during the testing operation.
 1. It is anticipated that the use of approximately 150 lineal feet of discharge piping shall be used to convey aquifer test water to the discharge inlet at the current storage tank location.
- D. Appropriate measures such as but not limited to diffusers, rip-rap, and berms shall be installed to prevent the erosion.

PART 3 - EXECUTION

3.01 PROCEDURES

- A. At least 12 hours after, but within 60 hours after, the completion of well development with a test pump, the Contractor shall commence the well production and aquifer tests.
- B. The Contractor shall schedule all tests a minimum of 24 hours in advance so that the Engineer can be on site during each testing period.
- C. Step Test
 1. The well shall be tested in four consecutive intervals of four hours each at rates of approximately 1/2, 3/4, 1, and 1-1/2 times the design capacity of the well, unless otherwise specified by the Engineer.
 2. The complete test for the well is estimated to require approximately 16 hours.
 3. The Contractor shall operate the pump and change the pumping rate as specified by the Engineer.
 4. Discharge rate from the pump shall be controlled by both a gate valve and engine throttle. The discharge shall be controlled and maintained at the desired discharge for each step with an accuracy of plus or minus five (5%) percent.
 5. The rate of sand production will be measured by the Contractor using a centrifugal sand separating meter as described in the Journal of American Water Works Association, Volume 46, No. 2, February 1954.
 - a. The centrifugal sand-separating meter shall be furnished and installed by the Contractor.

- b. Sand production will be measured as stated in Section 02523-340.
- 6. During the test, the Contractor shall record the time, pumping level, discharge rate, and rate of sand production.

D. Constant Rate Test

1. A constant rate, time-draw-down test shall commence not less than 12 hours and not more than 60 hours after completion of the step draw-down test.
2. The rate of pumping shall be between design capacity of the well or as specified by the Engineer.
 - a. The Contractor shall ensure that the pumping rate selected remains constant throughout the test not varying greater than 5% of the designated pumping rate.
 - b. The test duration is anticipated to be 24 hours.
 - c. When the test is completed and the pump stopped, the Contractor shall measure recovery of the water level for a duration of 8 hours as directed by the Engineer.
3. During the draw-down and recovery tests, the Contractor shall record the time, pumping rate, and measure the water level in the pumped well on the following schedule:

Pump Test Schedule								
First 10 minutes				---	once each	1	minute	
10	-	30	minutes	---	once each	2	minutes	
30	-	60	minutes (1 hr)	---	once each	5	minutes	
60	-	240	minutes (4 hrs)	---	once each	30	minutes	
240	-	720	minutes (4-24 hrs)	---	once each	60	minutes (each hour)	

4. The Contractor shall record the totalizer reading from the flow meter once every hour with the exact time of the reading. Any adjustments to the discharge rate shall also be recorded.
5. The Engineer will collect a water sample near the end of the drawdown test for water quality analyses.
6. The Contractor shall not operate or remove the pump for a period of 24-hours after completion of the constant rate test to allow for recovery water level measurements. No standby time will be paid during this time.
7. The Contractor shall furnish copies of all test data to the Engineer.
8. The Contractor shall provide qualified personnel on a full-time basis during both the step test and constant rate test to assure proper operation of the pumping test equipment and to measure water levels. The Engineer will be present during start-up of each test.
9. No payment will be made to the Contractor for an aborted pumping test interrupted by the malfunctioning or failure of pumping equipment. If a test is interrupted, the water levels will be allowed to fully recover, after which the test will be restarted.
10. When the production tests are complete, the Contractor shall remove the pump and clean the well, of all accumulated sediment and foreign material, including test pump lubricating oil. The Contractor shall demonstrate that the well has been properly cleaned by measuring the depth of the well in the Engineer's presence prior to final well disinfection.

END OF SECTION

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**SECTION 02523-380
WELL DISINFECTION**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment required to disinfect the well. All bacteriological contamination that may cause the well-water supply to be unsafe for human consumption shall be removed from the well.
2. The Contractor shall provide for disinfection as soon as construction, development, and test pumping work has been completed.
3. The Contractor is responsible for removing or mitigating the effects of all materials introduced into the well during drilling, construction, development, and testing.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is Lump Sum for all work associated with well disinfection. Measurement shall be completion of disinfection.

2. Payment

- a. Lump sum price for well development shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 29 – Well Disinfection

1.02 REFERENCES

- A. ANSI/AWWA C654
- B. ANSI/AWWA A100-06

1.03 DELIVERY, STORAGE, AND HANDLING

A. Disinfectant

1. Disinfectant shall be delivered to the site of the work in original closed containers bearing the original label indicating the percentage of available chlorine.
2. The disinfectant shall be recently purchased.
3. Liquid sodium hypochlorite shall not be stored for more than 60 days prior to use. During storage, disinfectants shall not be exposed to the atmosphere or to direct sunlight.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Disinfectant

1. Sodium hypochlorite shall be used to disinfect the well or other if approved by the Engineer.
2. The quantity of chlorine based compounds used to make the chlorine solution for disinfecting the well shall be of such a volume and strength and shall be so applied that a concentration of at least 100 mg/l (parts per million) of available chlorine shall remain in the well for a period of at least 24 hours.

3. The Contractor shall note that a calculated concentration of chlorine in solution is different than the available chlorine concentration due to chlorine consuming constituents present in the well water.

PART 3 - EXECUTION

3.01 PREPARATION

A. Cleaning

1. The Contractor shall carry out adequate cleaning procedures immediately preceding disinfection where evidence indicates that normal well construction and development work have not adequately cleaned the well.
2. All oil, grease, soil, and other materials, which could harbor and protect bacteria from disinfectants, shall be removed from the well.

3.02 PROCEDURES

A. Initial Well Disinfection

1. Chlorination of the well shall be performed after the test pump is removed.
2. A doubly capped, perforated pipe container filled with the granular chlorine compound shall be moved up and down the entire water-filled casing and screen section until all the chlorine has dissolved or other method as approved by the Engineer.

B. Interim Disinfection

1. Should the constructed well be left idle for three or more days, an interim disinfection shall be conducted by the Contractor.
2. The Contractor shall install an approved disinfecting agent in an amount equal to approximately 10 percent of the amount required for final disinfection but not less than required to maintain the necessary residual.
3. The disinfecting agent shall be furnished or prepared in liquid form and placed in the well through a hose or tremie of sufficient length to extend to the bottom of the well.
4. The disinfecting agent shall be applied through the hose, which is to be raised and lowered to achieve uniform distribution of the solution throughout the well.

C. Final Disinfection

1. At the conclusion of all work to be conducted in the well structure, the Contractor shall perform a final disinfection.
2. As directed by the Engineer, the Contractor shall provide the following:
 - a. The disinfecting agent shall be furnished or prepared in liquid form and placed in the well through a hose or tremie of sufficient length to extend to the bottom of the well.
 - b. The disinfecting agent shall be applied through the hose, which is to be raised and lowered to achieve uniform distribution of the solution throughout the well.
 - c. Provide potable water additions to the well.

D. The chlorinated water shall remain in the well.

- E. A residual chlorine level of not less than 2 parts per million should remain in the well and shall be verified by the Contractor to the satisfaction of the Engineer.

END OF SECTION

**SECTION 02523-400
VIDEO CAMERA SURVEY**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment required a color video camera survey over the full depth of the well.

B. Measurement and Payment

1. Measurement

- a. The unit for this work is lump sum for all work associated with Video Camera Survey and measurement shall be completion of the survey and delivery of the tapes.

2. Payment

- a. Lump sum price for the Video Camera Survey shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 30 – Video Camera Survey
- b. There will be no additional payment for rig time or idle time while the survey is being run.

1.02 SUBMITTALS

A. The Contractor shall list a firm in the Subcontractor's list provided as part of the Bid Package:

1. Submit the name and qualifications of the firm retained to perform the camera survey. The tapes and CD's shall be provided to the Engineer within 48 hours after the survey is complete.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Video Camera

1. The camera used for the survey shall be equipped with centralizers. The equipment used by the firm for the video survey shall produce a tape with an automatic depth indication.
2. Survey shall be in color and provide for the use of a focusing side scan lens.

B. Tapes

1. The Contractor shall provide the Engineer with two Compact Discs (CD) of the camera survey at the time of completion of the survey.
2. Upon review of the CD, if the Engineer determines that any portion of the video record is incomplete or of inadequate quality, i.e., clarity, to allow visual inspection of the inside of the well, the Contractor shall rerun the survey at his expense. Clarity should be of sufficient quality to evaluate the integrity of all joints, screen openings, the sounding port and the entire inside surface of the casing assembly.

PART 3 - EXECUTION

3.01 PROCEDURES

A. Survey

1. Prior to running the survey, the Contractor shall add sufficient potable water to the well to allow for clear viewing.
2. During the downward pass, the entire depth of the well shall be surveyed using the down view mode. The maximum speed of this survey shall not exceed 30 feet per minute. The depth of the sounding port inlet and any anomalies shall thoroughly be viewed in the downward position and be noted for detailed inspection on the upward side scan pass.
3. On the upward pass, the entire depth of well shall be surveyed using the side scan mode. For the well screen the camera must be rotated while the survey continues upward in order to allow for complete viewing of all perforated sections. At each casing joint, upward motion of the camera shall be stopped, and a 360-degree inspection of the joint shall be conducted. At the depth of any anomalies noted in the downward pass, upward motion of the camera shall be stopped, and the anomaly shall be completely inspected. The sounding port inlet shall also be completely inspected with the side scan.
4. The ground surface shall be the reference point zero (0) feet.

END OF SECTION

**SECTION 02523-430
REJECTION OF WELL**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. The work includes all materials, labor, tools, and equipment required to properly abandon borehole(s), well(s), or portions thereof, as directed by the Owner in writing after such work completed under this Contract has been deemed unacceptable in the judgment of the Engineer.

B. Measurement and Payment

1. Measurement—no measurement shall be made for abandonment work unless otherwise agreed upon in writing by the Owner.
2. Payment—no payment for abandonment work shall be made unless otherwise agreed upon in writing by the Owner.

1.02 DEFINITIONS

A. Unacceptable Borehole, Well or Portion Thereof:

1. Any borehole, well, or portion thereof which after review by the Engineer has not met the intent of these specifications, such work may be declared unacceptable for purposes of construction a municipal supply well.
2. A written notice will be issued to the Contractor by the Engineer upon determination of any such work or portion thereof, if deemed unacceptable.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CONSTRUCTION

A. Abandonment

1. Abandonment Due To Actions Of The Contractor

- a. If abandonment of the drilled hole is by reason of any actions of the Contractor, including but not limited to such causes as losing tools, damaging the well, misalignment, or any other cause attributed to careless or poor workmanship, the hole shall be completely filled with sand/cement grout in accordance with applicable State and County Standards. No payment will be made for drilling and filling the hole for abandoned, or for mobilization and demobilization, and the Contractor shall drill a new hole within 50 feet of the same location.
- b. Abandonment at Request of Owner and/or Engineer
 - 1) If abandonment of the drilled hole is specifically requested by the Engineer, including, but not limited to such causes as total lack of potential aquifers, insufficient number of potential aquifers, or unacceptable water quality, the hole shall be completely filled as directed by the Engineer.
 - 2) Payment for such work stemming from a request by the Owner will be by agreement with the Contractor prior to any completion of work for of such abandonment In this event, the Contractor will be paid for mobilization and demobilization at this site, as well as for the footage of drilling completed.

2. Abandonment During or After Installation of Casing and/or Well Screen
 - a. Abandonment Due to Actions of The Contractor
 - 1) Abandonment of the reamed hole can be caused by reason of any action of the Contractor or negligence. In such event, the Contractor shall pull or leave the casing(s) in place, at his discretion. If the casing is pulled, the hole shall be abandoned in accordance with applicable state and county standards. No payment will be granted for lost or damaged casings and/or their installation in a well abandoned by reason of any action of the Contractor. The Contractor shall be required to drill a new well within 50 feet of the original site.
 - b. Abandonment at Request of Owner and/or Engineer
 - 1) If abandonment of the well or any portion thereof is specifically requested by the Engineer and is not from actions caused by the Engineer including, but not limited to such causes as total lack of potential aquifers, insufficient number of potential aquifers, unacceptable water quality, or other reasons as determined by the Owner such work shall be properly abandoned as directed by the Owner.
 - 2) The Contractor may salvage as much casing and screen from the well as possible and may use it in the new well, subject to acceptance by the Owner Engineer. Salvaged material, if not used in another well, will remain the property of the Contractor.
 - 3) Payment for such work stemming from a request by the Owner will be by agreement with the Contractor prior to any completion of work for of such abandonment In this event, the Contractor will be paid for mobilization and demobilization at this site, as well as for the footage of drilling completed.

END OF SECTION

**SECTION 02523-440
SITE CLEANUP**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. This work includes all materials, labor, tools, and equipment to perform all site cleanup and any incidentals, therefore.

B. Referenced Sections

1. Section 01506 –Mobilization/Demobilization

C. Measurement and Payment

1. Measurement - no measurement shall be made for Site Cleanup.
2. Payment - no separate payment for Site Cleanup will be made in this contract. Payments and final payment for all Site Cleanup shall be included under Section 01506.
3. There will be no additional payment for rig time or idle time while site cleanup is being conducted.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 CLEANING

- A. The Contractor shall keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the work, and at completion of the work, he shall remove all waste materials, rubbish, and debris from and about the well site as well as all tools, construction equipment, fuel tanks, machinery, and surplus materials.

1. The Contractor shall leave the site clean and ready for use by the Owner.
2. The Contractor shall restore, to its approximate original condition, all temporary work areas.
3. Any grading at the site for the purpose of drilling this well will be returned to original conditions. Apply BMP for erosion protection on all exposed soil and areas after grading activities are conducted.
4. The Contractor is responsible for any damages to properties adjacent to the well caused by drilling, construction, or well testing activities associated with the work described in the contract documents.

END OF SECTION

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**SECTION 11000
GENERAL REQUIREMENTS FOR EQUIPMENT**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. General requirements applicable to mechanical equipment and systems.
- B. Ensure mechanical equipment meets the requirements of this Section in addition to the specific requirements of the individual equipment specification Sections.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section.
 - 1. Section 01782 – Operation and Maintenance Information
 - 2. Section 01825 – Equipment and System Testing

1.03 GENERAL REQUIREMENTS

- A. Equipment shall be of new construction and comply with the following requirements:
 - 1. Installed for proper operation and installation in a neat and workmanlike manner.
 - 2. Tested by factory trained service mechanics or engineers.

1.04 UNIT RESPONSIBILITY

- A. Equipment systems shall be assembled as a unit by a single manufacturer responsible for the entire unit.
 - 1. Unit responsibility does not relieve Contractor of responsibility to Owner for performance of the Work.

1.05 QUALITY ASSURANCE

- A. Arrangement
 - 1. The arrangement of equipment shown on the Drawings is based upon information available at the time of design and is not intended to show exact dimensions peculiar to a specific manufacturer.
 - 2. Some features of the illustrated equipment installation may require revision to meet actual equipment installation requirements.
 - 3. Structural supports, foundations, connected piping, and valves shown may have to be altered to accommodate the equipment provided. Additional payment will not be made for such revisions and alterations.
- B. Balance: Fully assemble rotating elements in motors and pumps before performing static and dynamic balance. Where specified, submit balancing reports.

1.06 SUBMITTALS

- A. General: Provide separate submittals for each equipment item or group of related equipment items.

1.07 OPERATION AND MAINTENANCE MANUALS

- A. Furnish operation and maintenance manuals for each equipment system in accordance with the Section 01782 requirements.

1.08 PROTECTION DURING SHIPMENT

- A. Shipping: Ship equipment in sealed, weather-tight, enclosed conveyances, and protected against damaging stresses during transport and handling.
- B. Repair any damaged materials to conform to the requirements of the Contract before the assembly is incorporated into the Work. The Contractor shall bear the costs arising out of dismantling, inspection, repair, and reassembly.

PART 2 - PRODUCTS

2.01 NAMEPLATES

- A. Nameplates
 - 1. Provide on each item of equipment with the specified equipment name or abbreviation and equipment number.
 - 2. Engrave or stamp (not painted) on stainless steel and fastened to the equipment in an accessible location with stainless steel screws or drive pins.

2.02 SPARE PARTS

- A. Spare Parts: Provide for each item of mechanical, and electrical equipment a supply of spare parts and special tools required for the starting, testing, adjustments, and initial operation. Pack spare parts required by individual equipment specifications:
 - 1. Pack spare parts with individual weights less than 50 pounds in a heavily constructed painted wood box with hinged cover and a locking clasp.
 - 2. Provide a typed inventory of spare parts stapled to the underside of the cover.
 - 3. Tag and wrap each part in a waterproof container.
 - 4. Limit the various types of lubricants by consolidating them, with the equipment manufacturer's approval, into the least number of different types.

2.03 FASTENERS AND DIELECTRIC ISOLATION

- A. Isolate steel surfaces, other than stainless steel, from aluminum with stainless steel, neoprene, non-metallic washers or other acceptable material.
- B. Dissimilar Metals: Protect from galvanic corrosion by means of pressure tapes, coatings, or isolators.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install, align and test each item of equipment within the tolerances recommended by the equipment manufacturer.
- B. When specified in individual Sections, install and test equipment under the direction of installation engineers who have been factory trained by the equipment manufacturer.
- C. Perform all work in accordance with manufacturer's recommendations.

3.02 QUALITY CONTROL

- A. Test equipment in accordance with Section 01825 and the individual equipment Section.
- B. Furnish written certification from the equipment manufacturers that each item has been installed, aligned, and tested correctly and that the installation meets the manufacturer's requirements for efficient, trouble-free operation.

- C. Equipment manufacturer's certification shall not be construed as relieving the Contractor of his overall responsibility for this portion of the work.

END OF SECTION

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**SECTION 11353
SUBMERSIBLE VERTICAL TURBINE PUMPS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submersible well pump for water supply. The Contractor shall furnish all materials, equipment, labor, and incidentals necessary to install and place in operation one (1) stainless steel submersible vertical turbine pump, including all auxiliary equipment and accessories as shown on the Drawings and as specified herein.
- B. Measurement and Payment
 - 1. Measurement
 - a. The unit for this work is lump sum for all work associated with Submersible Turbine Pump and measurement shall be completion of installation and startup.
 - 2. Payment
 - a. Lump sum price for the Submersible Turbine Pump shall be as set forth in the BID FORM for items:
 - 1) Bid Item No. 31 – Furnish and Install Submersible Turbine Pump

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 - 1. Section 01600 – Equipment and Materials
 - 2. Section 01782 – Operation and Maintenance Information
 - 3. Section 01825 – Equipment and System Testing
 - 4. Section 11000 – General Requirements for Equipment

1.03 SUBMITTALS

- A. Submittals shall include the following information:
- B. Certificate of Unit Responsibility attesting that the Contractor has assigned unit responsibility in accordance with the requirements of this Section and Section 11000. No other submittal material will be reviewed until the certificate has been received and found to be in conformance with these requirements.
- C. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.
 - 1. Check marks (✓) shall denote full compliance with a paragraph as a whole.
 - 2. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph.
 - 3. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.
 - 4. The submittal shall be accompanied by a detailed, written justification for each deviation.

- 5. Failure to include a copy of the marked-up specification sections with the submittal, along with justification for any requested deviations, shall be sufficient cause for rejection of the entire submittal with no further consideration.
- D. Performance data curves showing head, capacity, horsepower demand, NPSH required, recommended NPSH margin, and pump efficiency over the entire operating range of the pump.
- E. Assembly and installation drawings including shaft size, seal, coupling, bearings, anchor bolt plan, part nomenclature, material list, outline dimensions, and shipping weights.
- F. Anchor bolt calculations, stamped and signed by a California-registered Professional Civil or Structural Engineer.
- G. Operation and Maintenance Manuals per Section 01782, submitted before shipment of equipment.
- H. Shop Test Data: Signed, dated and certified shop test data for the pump, submitted a minimum of ten (10) working days before shipment of equipment.

1.04 QUALITY ASSURANCE

- A. The equipment furnished under this section shall be the product of a single manufacturer who has been regularly engaged in the design and manufacture of the equipment, and demonstrated to the satisfaction of the Engineer that the quality is equal to equipment made by those manufacturers specifically named herein.
- B. The pump manufacturer shall have supplied complete units that have been in successful operation, at similar installations, for at least ten (10) years.
- C. Each pump shall be tested at the factory for head, capacity and power requirement at minimum head and rated head, and at as many other points as necessary for accurate performance curve plotting.
 - 1. All tests and test reports shall be made in conformity with the requirements and recommendations of the Hydraulic Institute (HI) Standards.
- D. Certified copies of a report covering each test shall be prepared by the pump manufacturer and delivered to the Engineer not less than ten days prior to the shipment of the equipment from the factory.
 - 1. The report shall include data and test information as stipulated in the Hydraulic Institute Standards; copies of the testing log originals; and calculated field performance curves, based on shop tests, and corrected for head losses in the pump column.
- E. The Contractor shall assign unit responsibility as specified in Section 11000 to the pump manufacturer for the combined equipment as stated above and as further specified in this section. Provide a certificate of unit responsibility.

PART 2 - PRODUCTS

2.01 OPERATING CONDITIONS

- A. The pump will pump groundwater from a well. The pump shall be suitable for long-term continuous operation under the following conditions:

Ambient Environment	Outdoors
Ambient Temperature	20-110°F
Ambient Relative Humidity	20-80%
Fluid Service	Well Water
Fluid Temperature	60-80°F

Fluid pH range:	6 to 9
Fluid Specific Gravity	1.0
Project site elevation, ft:	40
Minimum available NPSH, ft:	75
Pump installation:	10" I.D. well casing

2.02 PERFORMANCE AND DESIGN REQUIREMENTS

A. The pump shall meet the following performance and design requirements:

Design Flow Capacity and Head	400 gpm @ 380 ft. TDH
Pump operating speed	3600 RPM
Drive	Electric Motor
Duty	Continuous
Maximum Nominal Bowl Diameter	8 in.
Minimum Nominal Size of Pump Column	3 in.
Discharge	3 in. F NPT
Intake Setting Depth	300 ft

- B. Pump shall have a continuously rising head/flow curve with no flat areas or reversals.
- C. Performance of the pump shall be stable and free from damaging cavitation, vibration, and noise in the operating head range.
- D. The pump shall have integrated protection against upthrust.
- E. The pumping downthrust shall be absorbed by the motor thrust bearing.

2.03 ACCEPTABLE PRODUCTS

- A. Grundfos SP
- B. Goulds
- C. Or equal

2.04 MATERIALS OF CONSTRUCTION

- A. Pump Chambers: 304 Stainless Steel
- B. Impellers: 304 Stainless Steel
- C. Impeller Seal Rings: Buna-N
- D. Pump Shaft: 304 Stainless Steel
- E. Intermediate Bearings: Buna-N
- F. Fasteners: 316 Stainless Steel
- G. Pump Column: ASTM A53, Grade B, Schedule 40 steel pipe

2.05 EQUIPMENT FEATURES

- A. Pump Chambers
 - 1. Each chamber shall be fitted with a seal ring around its eye or skirt to prevent hydraulic losses

- B. Shaft, provide
 - 1. Splined shaft: secure impellers to shaft by means of a splined hub design; or
 - 2. Smooth shaft: attach impellers to shaft using a split cone approach; or
 - 3. Hexagonal shaft.
- C. Check Valve
 - 1. Provide a check valve at the pump discharge, either integral with the pump discharge or for separate installation immediately above the pump.
 - 2. Materials
 - a. Body: Stainless steel
 - b. Fasteners: 316 stainless steel
 - c. Disc: Buna-N
 - d. Spring: stainless steel
 - e. Pump Shroud (optional)
- D. Discharge Column Assembly
 - 1. The total length of the discharge column shall be as shown on the drawings.
 - 2. The column pipe shall be furnished in interchangeable sections not more than 20 feet in length and connected with threaded sleeve type couplings.
 - 3. Top and bottom sections shall not exceed 5 feet in length.
- E. Discharge Head
 - 1. Discharge head shall be fabricated from steel and shall consist of a flat base flange welded to a 90° long-radius steel elbow, as shown on the drawings.
 - 2. The elbow shall terminate above ground in a 150 psi steel discharge flange. A nipple shall extend 12 inches below the base flange for connection to the drop pipe.
 - 3. A lifting ring shall be welded to the elbow, centered on the drop pipe, and sufficient to carry the weight of the pump and motor, the filled drop pipe, and the discharge head.
- F. Pump Construction
 - 1. All rotating parts shall be accurately machined and shall be in as nearly perfect rotational balance as practicable.
 - 2. Provide type 316 stainless steel fasteners on entire pumping unit.
- G. Cable Guard
 - 1. Provide a 304 SS cable guard running the length of the pump.
- H. Motor
 - 1. Type: water-filled squirrel-cage induction-type submersible motor
 - 2. Size: 6" nominal diameter, not to exceed 40 horsepower.
 - 3. Nominal maximum speed: 3600 rpm.
 - 4. Power: 480 volts, 3-phase, 60 Hz.
 - 5. Conform to latest applicable requirements of NEMA, IEEE, ANSI, and NEC standards for submersible motors. Design motors for continuous submerged duty in water, at the specified conditions.
 - 6. Design to withstand 200 psi water pressure at all seal locations.

7. Provide motor capable of operating in pumped fluid with temperature up to 110 °F. If necessary, provide shroud to increase fluid velocity past motor.
 8. The motor shall have a Kingsbury-type or Michell-type thrust bearing capable of carrying the maximum pump thrust loads.
 9. Size motor cable such that voltage drop will not exceed 5% at the motor's rated full load current and voltage. Cables shall be designed specifically for submersible pump service and shall consist of three individual conductors individually insulated and the whole covered with an outer jacket.
 10. All fastenings exposed to well water shall be Type 316 stainless steel.
 11. Manufacturer: Franklin Electric or approved equal.
- I. Control Box
 1. Provide a pump control box, if required by the pump manufacturer.
 - J. Data Plate
 1. Mount a stainless steel data plate on the discharge head.
 2. Data plate shall contain the manufacture's name, the pump size and type, serial number, speed, capacity and head rating, motor horsepower, and other pertinent data.

PART 3 - EXECUTION

3.01 SHIPMENT, PROTECTION, AND STORAGE

- A. Comply with Section 01600.

3.02 INSTALLATION

- A. Install equipment in strict conformance with manufacturer's installation instructions.
- B. Anchor Bolts: Accurately place prior to pouring concrete, using equipment templates.
- C. Leveling: Level sole plate by means consistent with the well head and all sanitary sealing as required.

3.03 FIELD SERVICE

- A. The equipment manufacturer shall supply a competent field service representative (not a sales representative) to be present at the site for a minimum of four (4) hours to witness the following and to certify in writing that the equipment and controls have been properly installed, aligned, lubricated, adjusted, and readied for operation and to perform field adjustments to ensure that the equipment installation and operation comply with the specified requirements.
 1. Installation of the equipment.
 2. Inspection, checking and adjusting the equipment.
 3. Startup and field testing for proper operation.

3.04 TESTING

- A. Comply with Section 01825

3.05 TRAINING

- A. The equipment manufacturer shall supply a competent training representative to be present at the site for a minimum of four (4) hours to instruct the Owner's staff in the operation and maintenance of the equipment, including step-by-step troubleshooting with necessary test equipment. Instruction shall be specific to the models of equipment provided.

- B. The representative shall have at least two years' experience in training. Training shall be scheduled a minimum of three weeks in advance.
- C. The training representative may be the same individual as the manufacturer's field service representative. A combined total of eight (8) hours are required for startup and training.

END OF SECTION

SECTION V
CONSTRUCTION AGREEMENT

CONSTRUCTION AGREEMENT

FY _____ Fund _____ Cost Center _____ Object Code _____ Project # _____ 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 _____.

ARTICLE 2. COMPLETION OF WORK

The WORK shall be completed to the satisfaction of CITY within _____ (_____) 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 _____ Dollars (\$_____) 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 than 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 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 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

CONTRACTOR _____

City Manager

By _____
(CORPORATE SEAL)

ATTEST:

Attest: _____

City Clerk

Address for giving notices:

APPROVED AS TO FORM:

City Attorney

Agent for service of process:

License Number

Taxpayer I.D. Number

Petaluma Business Tax Certificate Number

file name:

END OF AGREEMENT

EXHIBIT B
INSURANCE REQUIREMENTS
FOR ALL AGREEMENTS

Contractor's performance of the Services under this Agreement shall not commence 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 the Risk Manager as to carrier and sufficiency. 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 now and in the future for injuries to persons or damages to property which may arise from or in connection with the performance of the Services by the Contractor, the Contractor's agents, representatives, employees and subcontractors.

A. Required Minimum Scope of Insurance

- Coverage shall be at least as broad as:
Insurance Services Office Commercial General Liability coverage:
 - a. Personal injury;
 - b. Contractual liability.
- Insurance Services Office form covering Automobile Liability (any auto), if no company owned autos, non-owned and hired auto applies.
- Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.
- Professional Liability/Errors and Omissions
- Crime/Employee Blanket Fidelity Bond
- Property Insurance against all risks of loss to any tenant improvements or betterments.
- Pollution Liability Insurance
- Garage Liability
- Garagekeepers Insurance
- Technology Professional Liability Errors and Omissions Insurance (IT Consultant)/Cyber Liability
- Abuse or Molestation Liability Coverage

A.1 Required for All Contracts

- Policy Endorsements or Excerpts from the Policy Pursuant to Section D
- Copy of the Declarations and Policy Endorsements Page for the CGL Policy

B. Minimum Limits of Insurance

Consultant shall maintain limits no less than:

- General Liability: \$1,000,000 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 Agreement or the general aggregate limit shall be twice the required occurrence limit.
- Products/Completed Operations: \$1,000,000 per occurrence/aggregate.
- Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
- 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.

- Professional Liability/Errors and Omissions: \$1,000,000 per occurrence or claim. If the policy provides coverage on a claims-made basis, the retroactive date must be shown and must be before the date of the Agreement or the beginning of the contract work.
 - Crime/Employee Blanket Fidelity Bond - \$1,000,000: Contractor, at its own cost and expense, must maintain a Crime/Employee Blanket Fidelity Bond in the amount of \$1,000,000 per employee covering dishonesty, forgery, alteration, theft, disappearance, destruction (inside or outside).
 - All Risk Property Insurance: Full replacement cost.
 - Pollution legal liability with limits no less than \$1,000,000 per occurrence or claim and \$2,000,000 policy aggregate. If the policy provides coverage on a claims-made basis, the retroactive date must be shown and must be before the date of the Agreement or the beginning of the contract work.
 - Garage Liability: \$1,000,000 per occurrence.
 - Garagekeepers Insurance: \$1,000,000 per occurrence.
 - Technology Professional Liability Errors and Omissions Insurance appropriate to the Consultant's profession and work hereunder, with limits not less than \$1,000,000 per occurrence. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by the Vendor in this agreement and shall include, but not be limited to, claims involving infringement of intellectual property, copyright, trademark, invasion of privacy violations, information theft, release of private information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.
1. The Policy shall include, or be endorsed to include, **property damage liability coverage** for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the City in the care, custody, or control of the Consultant. If not covered under the Consultant's liability policy, such "property" coverage of the City may be endorsed onto the Consultant's Cyber Liability as covered property as follows:
 2. **Cyber Liability coverage** in an amount sufficient to cover the full replacement value of damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the City that will be in the care, custody, or control of the Consultant.
 3. The Insurance obligations under this agreement shall be the greater of 1) all the Insurance coverage and limits carried by or available to the Consultant; or 2) the minimum Insurance requirements shown in this Agreement. Any insurance proceeds in excess of the specified limits and coverage required, which are applicable to a given loss, shall be available to the City. No representation is made that the minimum Insurance requirements of this Agreement are sufficient to cover the indemnity or other obligations of the Consultant under this agreement.
- Abuse or Molestation Liability Coverage: \$1,000,000 per occurrence; \$2,000,000 aggregate.

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 Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses. Policies containing any self-insured retention (SIR) provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named insured (Contractor) or the City.

City reserves the right to review any and all of the required insurance policies, declaration pages, and/or endorsements, but has no obligation to do so. City's failure to demand evidence of full compliance with the insurance requirements set forth in this Agreement or City's failure to identify any insurance deficiency shall not relieve Contractor from, nor be construed or deemed a waiver of, its obligation to maintain the required insurance at all times during the performance of this Agreement.

D. Other Insurance Provisions

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

1. **Additional Insured:** The City, its officers, officials, employees, agents and volunteers are to be covered as Additional Insureds as respects: liability arising out of activities performed by or on behalf of the Consultant; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; or automobiles owned, leased, hired or borrowed by the Consultant. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees, agents or volunteers.
2. **Primary and Non-Contributory:** For any claims related to this project, the Consultant'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 Consultant'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 Consultant'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.
6. **Waiver of Subrogation:** Consultant agrees to waive subrogation rights for commercial general liability, automobile liability and worker's compensation against City regardless of the applicability of any insurance proceeds, and to require all contractors, subcontractors or others involved in any way with the Services to do likewise.
7. It shall be a requirement under this Agreement that any available insurance proceeds broader than or in excess of the specified minimum insurance coverage requirement and/or limits shall be available to the additional insured. Furthermore, the requirement for coverage and limits shall be (1) the minimum coverage and limits specified in this

Agreement, or (2) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the named insured; whichever is greater.

8. The limits of insurance required in this Agreement may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of the City of Petaluma before the City of Petaluma's own insurance or self-insurance shall be called upon to protect it as a named insured.

E. Acceptability of Insurers

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

F. Verification of Coverage

NOTE: The City of Petaluma is now using an online insurance program, PINS Advantage. Once you have been awarded a contract with the City of Petaluma, you will receive an e-mail from PINS Advantage/City of Petaluma requesting that you forward the e-mail to your insurance agent(s). Consultant shall furnish the City with Certificate of Insurance along with Declarations and 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. All endorsements are to be received and approved by the City before the Services commence.

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

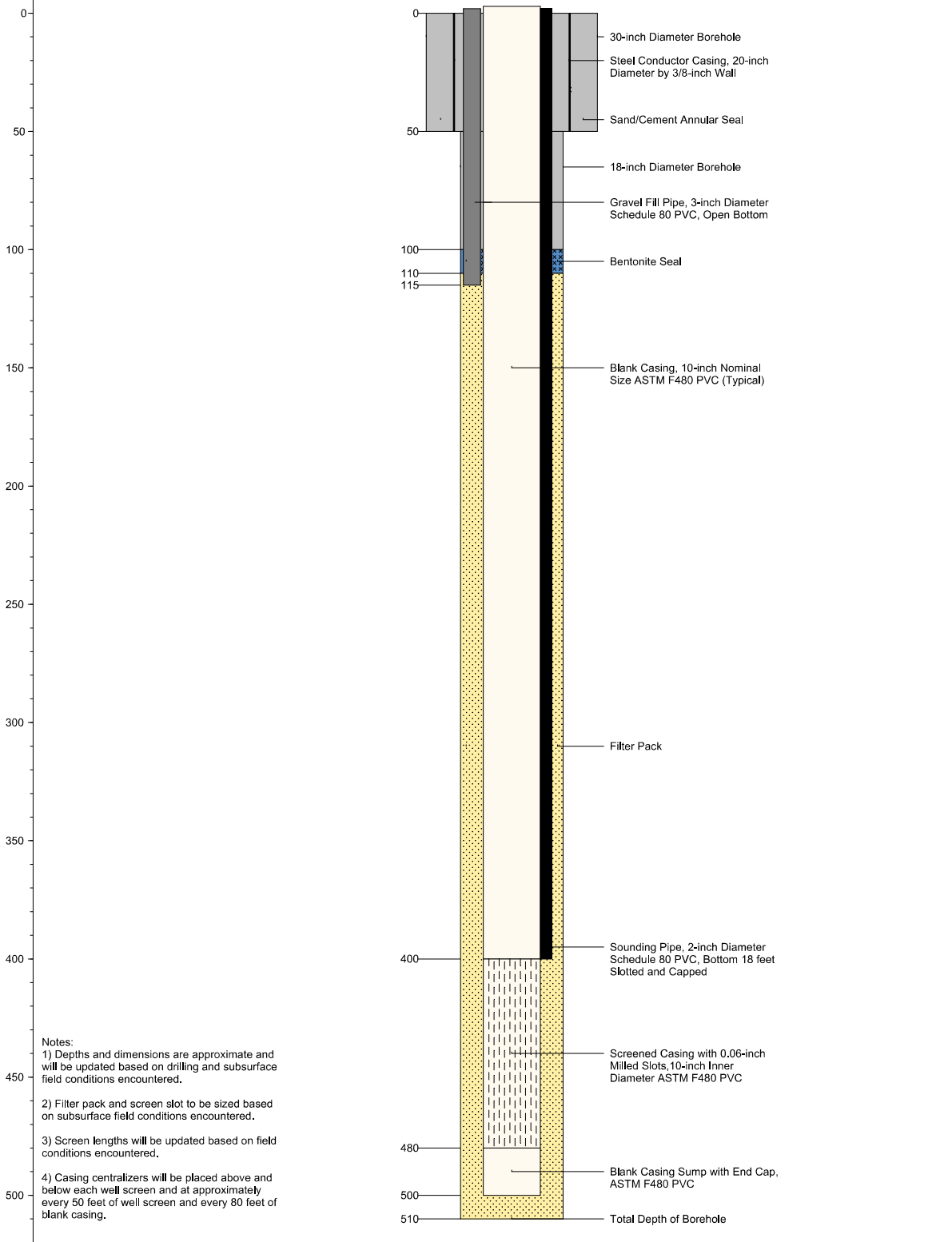
END OF MAINTENANCE BOND

SECTION VI

PLANS AND FIGURES

Depth (ft)

Well Design for Bidding - Not for Construction



Location: Oak Hill Park at Park Avenue, Petaluma, CA
Owner: City of Petaluma

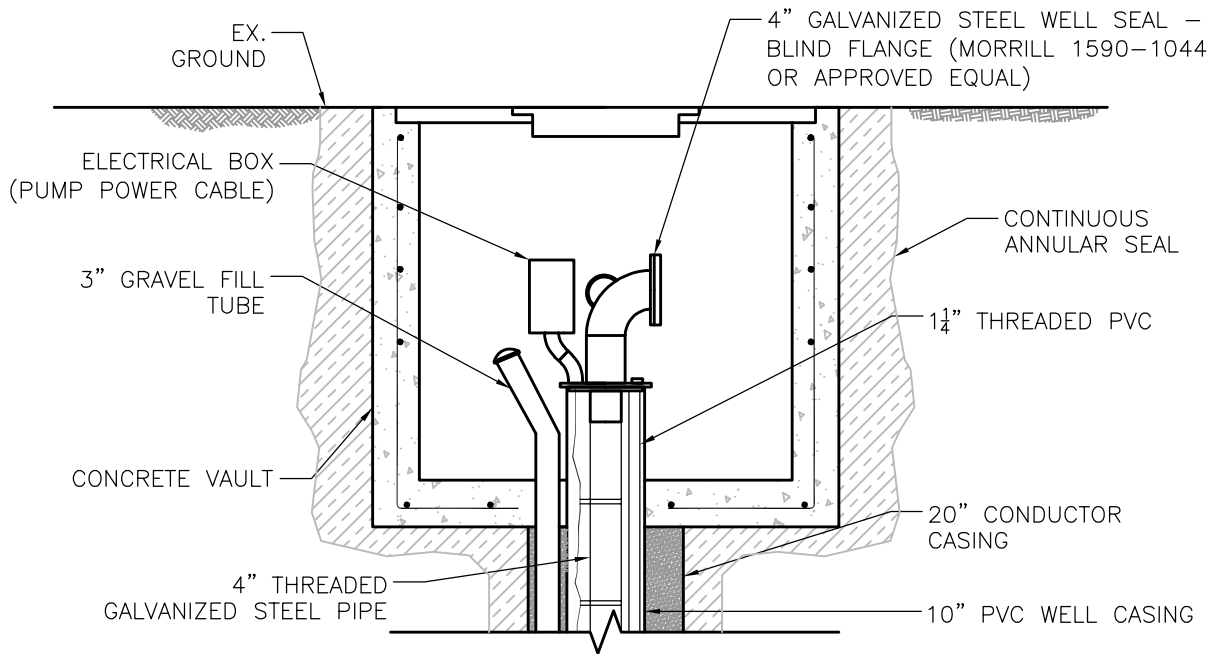
EXHIBIT 1

**City of Petaluma
Oak Hill Well**

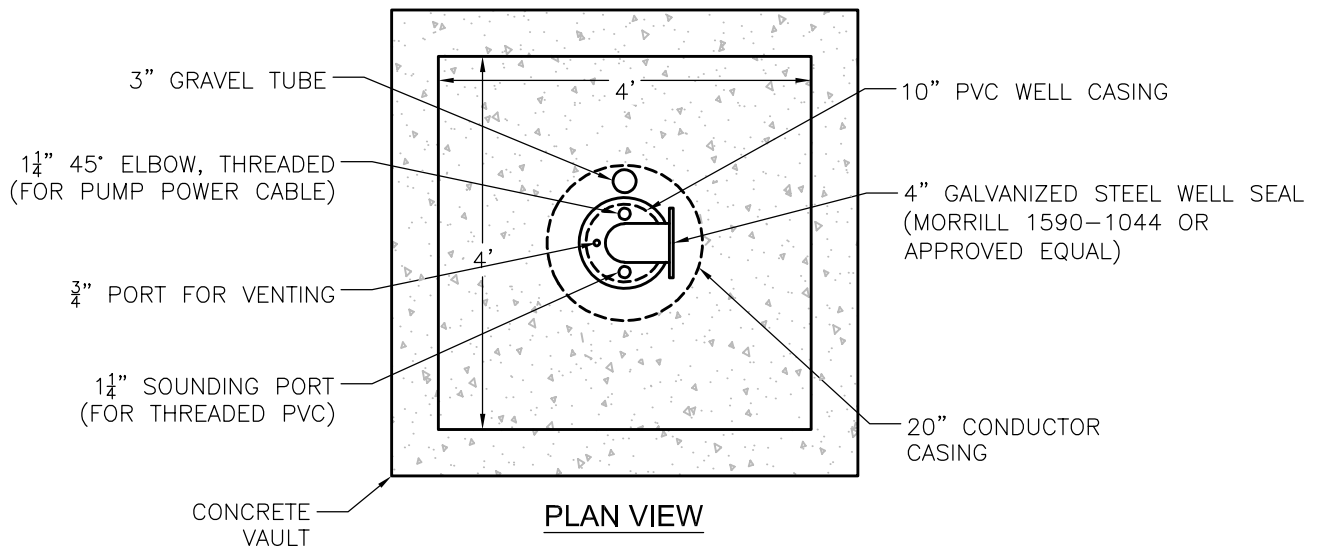
WELL CONSTRUCTION DIAGRAM
FOR BIDDING

Project No.: 702-80-21-37

NIC:702/702-80-21-37'E



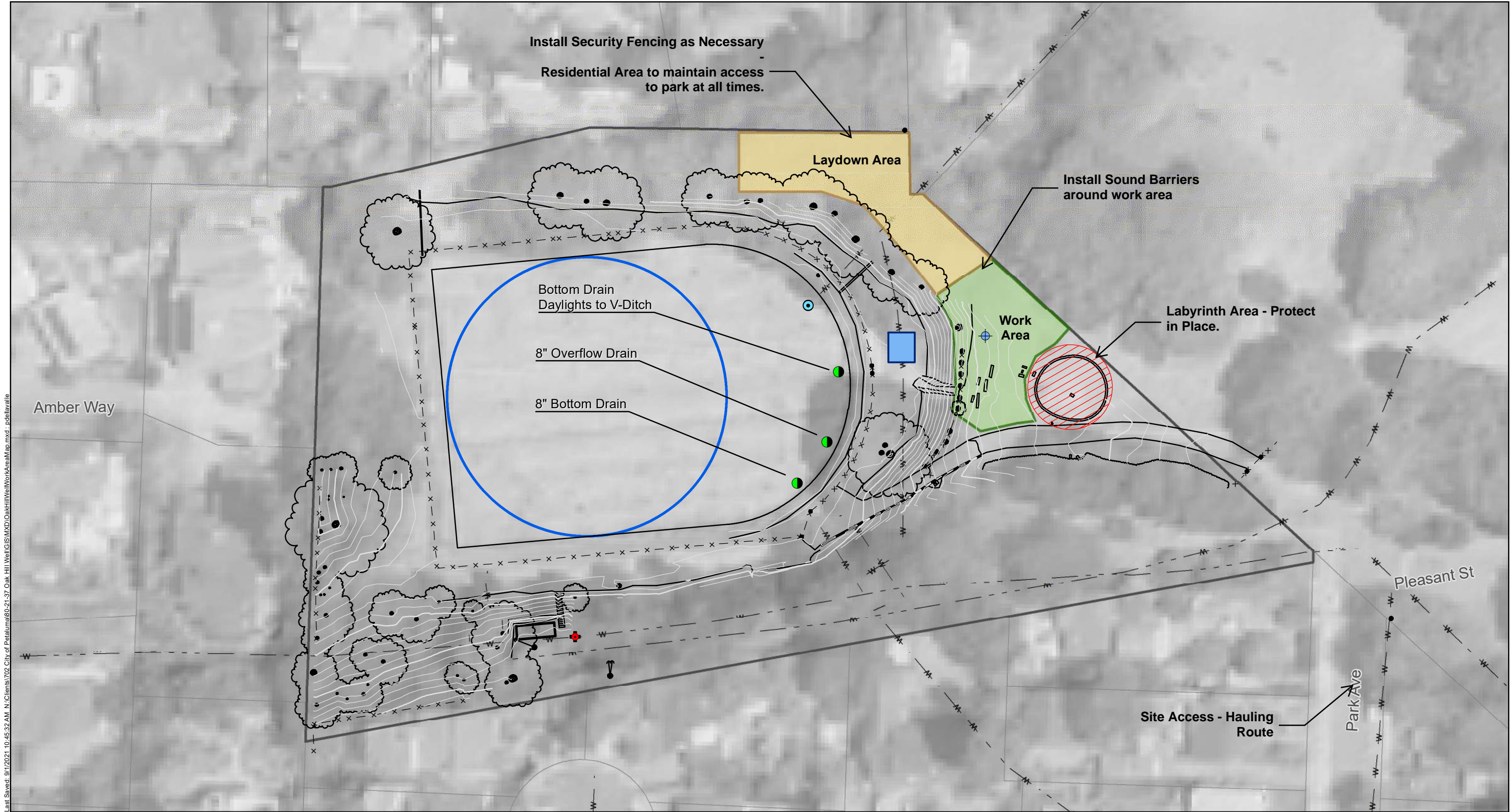
PROFILE VIEW



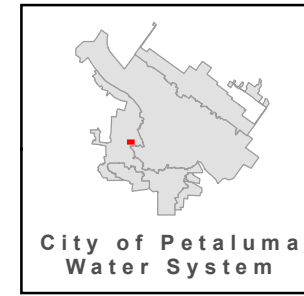
PLAN VIEW

City of Petaluma
OAK HILL MUNICIPAL WELL
EXHIBIT 2
WELL HEAD DETAILS





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Symbology

	Proposed Well Location		Equipment Building
	Reservoir Top Inlet		Future Tank
	Hydrant		Temporary Laydown Area
	Discharge Location		Well Construction Work Area
	Work Exclusion Area		Oak Hill Parcel
			Parcels

Note:
1. Topographic contours from Cinquini & Passarino, Inc. 2020, Topographic Map, Oak Hill Well Site - Petaluma, April 13. One-foot contour interval.

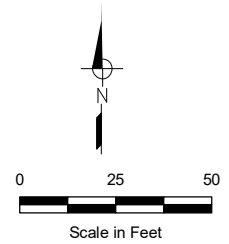


Figure 1
Work Areas
Oak Hill Park
City of Petaluma
Well Project



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Symbology

-  Proposed Well Location
-  Reservoir Top Inlet
-  Hydrant
-  Discharge Location
-  Work Exclusion Area
-  Equipment Building
-  Future Tank
-  Temporary Laydown Area
-  Well Construction Work Area
-  Oak Hill Parcel
-  Parcels

Note:
 1. Topographic contours from Cinquini & Passarino, Inc. 2020, Topographic Map, Oak Hill Well Site - Petaluma, April 13. One-foot contour interval.

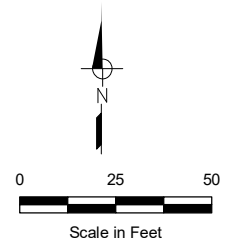


Figure 2
Site Plan
Oak Hill Park
 City of Petaluma
 Well Project

APENDICE I

CEQA MITIGATION MEASURES

CEQA MITIGATION MEASURES

Mitigation Measure AES-1: Avoid Glare and Light Trespass

To the extent feasible, construction activities shall be limited to 12-hour shifts between 7:00 a.m. and 7:00 p.m. Continuous 24-hour operations shall only be allowed during the drilling, construction, gravel packing, and sealing of the production well, if necessary to ensure the integrity of the well. The Contractor shall arrange with the City for any 24-hour operations intended and/or required for the successful completion of the Project. Together, the Contractor and the City shall practice good neighbor relations at all times. Night-time drilling operations, if required, shall be conducted in a manner to avoid glare and light trespass that would be a nuisance to adjacent residential and recreational land uses.

The City and its Contractor shall prepare and implement a Nighttime Construction Lighting Plan for any nighttime construction work so as to avoid glare and light trespass that would be a nuisance to adjacent residential and recreational land uses. The lighting plan shall be developed to guide the use of lighting during project construction in such a way as to effectively light the work area while limiting light spill onto adjoining properties. This lighting plan shall include the layout of lighting equipment necessary for any work to be completed at night and descriptions of hardware, including hoods, louvers, shields or other means to be used to control glare and light trespass onto adjoining property. Additional elements of the lighting plan would include suggested corrective actions in the event lighting problems are reported by the public during well drilling operations. The recommendations contained in the Nighttime Construction Lighting Plan shall be incorporated into the final plans and specifications for the Project and implemented during construction.

Mitigation Measure BIO-1: Prevent Disturbance to Nesting Birds

To the extent practical, construction activities should be performed between September 1 and February 1, which is outside the avian nesting season. If work must be performed during the avian nesting season (February 1 – September 1), the City shall ensure that a pre-construction nesting bird survey is performed in areas within 250 feet of project-related activities no more than 7 days prior to ground disturbance. If active nests are found, an appropriately sized no-disturbance buffer shall be placed around the nest at the direction of a qualified biologist conducting the survey. Active nests shall be monitored at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified biologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified biologist shall implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors. Buffers shall remain in place until all young have fledged, or the biologist has confirmed that the nest has been naturally predated. If ground disturbance work lapses for seven days or longer during the nesting season, a qualified biologist shall conduct a supplemental avian pre-construction survey before Project work is reinitiated.

Mitigation Measure BIO-2: Prevent Disturbance to Bat Species

To the extent possible, tree limbing shall be performed between September 1 and April 30, which is outside the bat maternity season. If tree limbing must be performed during the bat maternity season (May 1 – August 30), the City shall ensure that a qualified biologist shall conduct a bat habitat assessment of trees to be removed or limbed. The assessment shall evaluate the trees for suitable entry points and roost features and shall provide focused daytime surveys for day-roosting bats. If present, the roost shall be avoided until after September 1 to ensure no adverse effects to maternity bat roosts. Tree removal outside the maternity season shall be performed using a two-step tree removal process which includes allowing any felled trees or tree limbs to be left overnight prior to removal from the site or on-site chipping to allow any bats to exit the roost.

Mitigation Measure GEO-1: Protect Paleontological Resources if Encountered during Construction

If a paleontological resource is discovered during construction, all ground disturbing activities within 50 feet of the find shall be temporarily halted but may be diverted to areas beyond 50 feet from the discovery to continue working. An appointed representative of the City shall notify a qualified paleontologist, who will document the discovery as needed, evaluate the potential resource, and assess the nature and significance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if the City determines that the find cannot be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.

Mitigation Measure HAZ-1: Reduce Wildland Fire Hazards during Construction

Prior to construction, the City and its contractor(s) shall remove and/or clear away dry, combustible vegetation from the construction site. Grass and other vegetation less than 18 inches in height above the ground shall be maintained where necessary to stabilize the soil and prevent erosion. Vehicles shall not be parked in areas where exhaust systems contact combustible materials. Fire extinguishers shall be available on the construction site to assist in quickly extinguishing any small fires, and the contractors shall have on site the phone number for the local fire department.

Mitigation Measure HYD-1: Implement Storm Water Control Measures During Construction

The City and its contractor shall implement Best Management Practices to prevent the discharge of construction waste, debris or contaminants during construction activities. Best Management Practices may include, but would not be limited to, the following:

- Existing vegetation on the construction site shall be maintained to the maximum extent feasible.
- Areas of disturbed soil shall be reseeded and covered with vegetation as soon as possible after disturbance.
- Erosion control devices shall be installed in coordination with clearing, grubbing, and grading. Such devices shall include perimeter sediment controls (perimeter silt fence, fiber rolls), stabilized construction exits, stockpile management, and wind erosion control.
- BMPs shall be implemented to prevent the release of hazardous construction chemicals during construction. Such BMPs shall include material handling and waste management, material stockpile management, management of any washout areas, control of vehicle/equipment fueling to contractor's staging area, vehicle and equipment cleaning performed off site, and spill prevention and control.

- If more than one acre of land would be disturbed, the City and/or contractor shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. The City shall comply with all provisions of the permit, including development and implementation of a Storm Water Pollution Prevention Plan.

Mitigation Measure NOI-1: Reduce Construction Noise Levels

The City and its contractor shall implement appropriate Best Management Practices to reduce construction noise levels emanating from construction activities and minimize disruption and annoyance at existing noise-sensitive receptors in the project vicinity. A detailed construction plan shall be developed identifying the schedule for major noise-generating construction activities and procedures for coordination with the owner/occupants of nearby noise sensitive residential and recreational land uses so that construction activities can be scheduled to minimize noise disturbance. Best Management Practices may include, but would not be limited to, the following:

- To the extent feasible, construction activities shall be limited to 12-hour shifts between 7:00 a.m. and 7:00 p.m. Continuous 24-hour construction activities shall only be allowed during the drilling, construction, gravel packing, and sealing of the production well, if necessary to ensure the integrity of the well. The Contractor shall arrange with the Engineer for any 24-hour operations intended and/or required for the successful completion of the Project. Together, the Contractor and the Engineer shall practice good neighbor relations at all times.

- Night-time drilling operations, if required, shall be conducted in a manner to reduce noise peaks and avoid rapid changes in noise levels. Drilling personnel shall be advised to avoid noise generation wherever possible. In particular, the changing of drill pipe and the throttling of the drill rig shall be done in such a manner that appreciably lessens the noise produced by these activities as compared to the daytime.

- Construction noise levels measured by the Contractor at the nearest sensitive receptor shall not exceed 60 dBA without prior written approval of the City. Should noise levels exceed the above levels, appropriate noise attenuation measures shall be implemented prior to resuming work, to reduce the offensive noise levels at the sensitive receptors.

- Portable generators shall have enclosures, exhaust silencers, and rated at no more than 75 dBA at 25 feet and 60 dBA at the nearest receptor.

- A "disturbance coordinator" shall be designated who will be responsible for responding to any complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., bad muffler, etc.) and will require that reasonable measures be implemented to correct the problem. A publicly visible sign shall be posted with the telephone number and person to contact at the City regarding noise complaints. This person shall respond and take corrective action within 48 hours.

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Idling times shall be minimized by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations).

- Locate stationary noise generating equipment (e.g., compressors) as far as possible from adjacent residential receivers.
- Acoustically shield stationary equipment located near residential receivers with temporary noise barriers.
- Utilize "quiet" air compressors and other stationary noise sources where technology exists.

Mitigation Measure NOI-1: Minimize Traffic and Parking Disruption

The City and its contractor shall implement traffic controls to reduce traffic conflicts within Oak Hill Park and Park Avenue during construction to minimize disruption. A traffic control plan shall be prepared for City review and approval prior to construction. During construction, at least one lane in each direction of the Oak Hill Park parking lot and Park Avenue shall be kept open at all times. Through traffic shall be maintained at all times (e.g. through temporary signals, flaggers or other means). Bicycle and pedestrian access shall be maintained at all times, using short signed detours around the construction zone if necessary. Advance notification of construction work to the community and stakeholders shall be conducted to provide notice of work within Oak Hill Park and Park Avenue. All road and parking configurations shall be restored to pre-project conditions.

Mitigation Measure TCR-1: Protect Tribal Cultural Resources during Construction Activities

In the event that any subsurface features or deposits are discovered during construction, ground-disturbing activity in the vicinity of the resource shall be halted. The appropriate tribal representative(s) from Lytton Rancheria and Federated Indians of Graton Rancheria shall be notified, and a Native American monitor and a qualified professional archaeologist shall be retained to evaluate the find. If the find qualifies as a tribal cultural resource as defined by CEQA, the City shall ensure that appropriate actions to protect the resource are taken and that no additional resources are affected.

APENDICE II

NOISE ORDINANCE

21.040 Dangerous and Objectionable Elements.

A. *Noise Regulations.*

1. *Purpose.* It is declared to be the policy of the City, in the exercise of its police power, to protect properties and the general health, safety and welfare of persons from unnecessary, excessive and annoying noise disturbances. In accordance with this policy, the City of Petaluma is hereby designated a quiet city. At certain levels, noises are detrimental to the health and welfare of the citizenry and, in the public interest, shall be prohibited. It is the purpose of this chapter to implement the goals of the Health and Safety Element of the General Plan by prescribing standards prohibiting detrimental levels of noise and by providing an effective and readily available remedy for violations. The provisions of this chapter and the remedies contained herein shall be cumulative and are not intended to replace any otherwise available remedies for public, private or mixed nuisances, nor any other civil or criminal remedies otherwise available. In addition, the regulations contained herein are not intended to substitute for any noise analysis conducted as a part of the City's environmental review process for discretionary permit approvals, nor is it intended to limit more strict noise control requirements for discretionary permit approvals should more strict measures be found to be necessary in order to maintain noise levels that are not detrimental to the health and welfare of the citizenry.

2. *Definitions.*

- a. *Ambient noise.* The composite of noise from all sources within a given area. Ambient noise constitutes the existing level of environmental noise at a given location.
- b. *Noise disturbance.* Any sound which, because of its loudness (amplitude), duration, or character, disturbs, injures or endangers the public comfort, health, peace or safety within the limits of the City of Petaluma.
- c. *Decibel (dB).* The measurement unit used for loudness of sound/noise.
- d. *A-Weighted Sound Level (dBA).* A decibel scale that approximates the way the human ear responds to frequency levels.
- e. *Equivalent Sound Level (Leq).* A term used to assign a single value A-weighted decibel level to the measured average sound exposure over a period of time.
- f. *Noise Control Officer.* The City of Petaluma Community Development Director and the City of Petaluma Police Chief or his/her designee.
- g. *Quiet City.* A City that strives to minimize the amount of noise to which the community, particularly a residential area, is exposed through the implementation of enforceable noise standards.

3. *Noise Regulations Generally.*

- a. The following specific acts, subject to the exemptions provided in Section [21.040\(A\)\(5\)](#), are declared to be public nuisances and are prohibited:
- 1) The operation or use of any of the following before 7:00 a.m. or after 10:00 p.m. daily (except Saturday, Sunday and State, Federal or Local Holidays, when the prohibited time shall be before 9:00 a.m. and after 10:00 p.m.):
 - 2) A hammer or any other device or implement used to repeatedly pound or strike an object.
 - 3) An impact wrench, or other tool or equipment powered by compressed air.
 - 4) Any tool or piece of equipment powered by an internal-combustion engine such as, but not limited to, chain saw, backpack blower, and lawn mower. Except as specifically included in this Ordinance, motor vehicles, powered by an internal-combustion engine and subject to the State of [California vehicle code](#), are excluded from this prohibition.
 - 5) Any electrically or battery powered tool or piece of equipment used for cutting, drilling, or shaping wood, plastic, metal, or other materials or objects, such as but not limited to a saw, drill, lathe or router.
 - 6) Any of the following: the operation and/or loading or unloading of heavy equipment (such as but not limited to bulldozer, road grader, back hoe), ground drilling and boring equipment, hydraulic crane and boom equipment, portable power generator or pump, pavement equipment (such as but not limited to pneumatic hammer, pavement breaker, tamper, compacting equipment), pile-driving equipment, vibrating roller, sand blaster, gunite machine, trencher, concrete truck, and hot kettle pump and the like.
 - 7) Construction, demolition, excavation, erection, alteration or repair activity.
 - 8) Operating or permitting the operation of powered model vehicles including but not limited to cars, aircraft and boats.
 - 9) Using or operating for any purpose any loudspeaker, loudspeaker system or similar device in such a manner as to create a noise disturbance. Any permit issued pursuant to PMC Section 13.28.050 (amplified sound permit within a public park) is exempt from this section.
 - 10) The use of truck/tractor trailer "Jake Brakes" on any public street under the jurisdiction of the City of Petaluma Police Department.
- b. In the case of urgent necessity and in the interest of public health and safety, the Noise Control Officer may issue a permit for exemption from the requirements with subsection [21.040\(A\)\(3\)](#). Such period shall not exceed ten (10) working days in length but may be renewed for successive periods of thirty (30) days or less, not to exceed a total of 90 days while the emergency continues. Requests for exemptions beyond 90 days shall require public hearing approval. The Noise Control Officer may limit such permit as to time of use and/or permitted action, depending upon the nature of the emergency and the type of action requested.

c. The operation of any licensed motor vehicle in violation of the State [Vehicle Code](#) or the operation of stereo, public address or other such amplified equipment on or within a motor vehicle in violation of the State [Vehicle Code](#).

d. Continued or repeated operation of a Public Address System between the hours of 10:00 a.m. and 7:00 p.m. daily shall not exceed a decibel level of 5 dBA above the measured ambient of the area in which this activity is occurring. Unless specifically approved by the City of Petaluma (i.e. Use Permit, Parks Director, Exception or Exemption from this Code Sec.) no Public Address System shall be permitted during the hours of 7:00 p.m. to 10:00 a.m.

4. *Noise Measurement.* Utilizing the “A” weighting scale of a sound level meter and the “slow” meter response (use “fast” response for impulsive type sounds), the ambient noise level shall first be measured at a position or positions at any point on the receiver’s property which can include private and public property. In general, the microphone shall be located four to five feet above the ground; ten feet or more from the nearest reflective surface where possible. If possible, the ambient noise shall be measured with the alleged offending noise source inoperative. If for any reason the alleged offending noise source cannot be shut down, the ambient noise must be estimated by performing a measurement in the same general area of the source but at a sufficient distance such that the noise from the source is at least 10dB below the ambient in order that only the ambient level be measured.

a. If the measured ambient level is greater than 60dB, the Maximum Noise Exposure standard shall be adjusted in 5dB increments for each time period as appropriate to encompass or reflect the measured ambient noise level. In no case shall the maximum allowed threshold exceed 75dB after adjustments are made.

b. In the event the measured ambient noise level is 70dB or greater, the maximum allowable noise level shall be increased to reflect the maximum ambient noise level. In this case, adjustments for loudness and time as contained in Table I shall not be permitted.

c. No person shall cause or allow to cause, any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which when measured on the property where the noise disturbance is being experienced within public or private open/outdoor spaces, exceeds the noise level of Table 21.1.

TABLE 21.1: Maximum Exterior Noise Exposure (Leq, dBA)

	Time: 10 p.m. to 7 a.m. M-F	Time: 7 a.m. to 10 p.m. M-F
	10 p.m. to 8 a.m. S, S and Holidays	8 a.m. to 10 p.m. S, S and Holidays
General Plan Ambient	60	60
cumulative period of 15 minutes or more in one hour	65	70

TABLE 21.1: Maximum Exterior Noise Exposure (Leq, dBA)

	Time: 10 p.m. to 7 a.m. M-F	Time: 7 a.m. to 10 p.m. M-F
	10 p.m. to 8 a.m. S, S and Holidays	8 a.m. to 10 p.m. S, S and Holidays
cumulative period of 5 minutes or more in one hour	70	75
cumulative period of 1 minute or more in one hour	75	80

5. *Exemptions.*

- a. Aerial warning devices which are required by law to protect the health, safety and welfare of the community shall be exempt from the provisions of this chapter.
- b. Emergency vehicle responses and all necessary equipment utilized for the purpose of responding to a declared state of emergency are exempt from this chapter.
- c. Airport, river operations that significantly contribute to commercial and industrial tonnage figures on the Petaluma River, and railroad operations.
- d. The operation of garbage collection and other municipal or utility vehicles.
- e. Uses established through the discretionary review process containing specific noise conditions of approval and/or mitigation measures.

6. *Exceptions.*

- a. *Authorities.* The Noise Control Officer is authorized to grant exceptions from any provision of this chapter, subject to limitations of proximity to noise sensitive uses, noise levels, time limits and other terms and conditions as the Noise Control Officer determines are appropriate to protect the public health, safety and welfare from the noise emanating therefrom. This section shall in no way affect the duty to obtain any permit or license required by law for such activities.
- b. *Application.* Any person seeking an exception pursuant to this section shall file an application with the Noise Control Officer consistent with the provisions and requirements of Section [24.060\(K\)](#) (Minor Conditional Permits). The application shall contain information which demonstrates that bringing the source of sound or activity for which the exception is sought into compliance with this chapter would constitute an unreasonable hardship on the applicant, on the community, or on other persons. The application shall be accompanied by a fee as established by Council Resolution. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Any individual who claims to be adversely affected by allowance of the exception may file a statement with

the Noise Control Officer containing any information to support his/her claim. If at any time the Noise Control Officer finds that a sufficient controversy exists regarding an application, a public hearing before the Planning Commission may be held.

c. *Decision Criteria.* In determining whether to grant or deny the exception application, the Noise Control Officer shall balance denial as a hardship on the applicant against:

- 1) The adverse impact on the health, safety and welfare of other persons affected;
- 2) The reasonableness of compliance with this code given the existing conditions and scope of the necessary improvements to comply;
- 3) The adverse impact on property affected;
- 4) Any other adverse impacts of granting the exception; and,
- 5) Consistency with the General Plan.

Applicants for exceptions and persons contesting exceptions shall be required to submit such information as the Noise Control Officer may reasonably require to adequately address the above five areas of consideration.

d. *Approval/Findings.* Exceptions shall be granted by notice to the applicant containing all necessary conditions. The exception shall not become effective until all conditions (if any) are agreed to in writing by the applicant. Noncompliance with any condition of the exception shall terminate the exception and subject the person holding it to those provisions of this chapter for which the exception was granted.

e. *Term of Exception.* The term of the exception shall run continuously with the associated use and shall terminate upon cessation of the use for a period of six (6) months or more. An exception shall only be transferred to a similar use at the same location upon the Noise Control Officer receiving sufficient information to find that: the new use is of the same or lesser intensity; and, the new use will not substantially alter the pattern of noise generation established by the previous use (i.e., increase evening or morning noise over the previous use).

7. *Noise Control Officer.* The Community Development Director and the Chief of Police are hereby appointed the Noise Control Officers of the City. It shall be the responsibility of the Noise Control Officers or his/her designated representative to enforce the provisions of this section and to perform all other functions required of the Noise Control Officer by this section. Such duties shall include, but not be limited to, investigating potential violations of this section and referring evidence of such violations either to the Police Department or City Attorney for initiation of legal action.

8. *Interrelationship Of Provisions.* It is the purpose of this chapter to provide maximum noise level limitations for otherwise lawful activities. Nothing contained in this section shall be deemed to authorize any otherwise prohibited activity nor to supersede existing land use/zoning limitations. In the event of a conflict between the standards contained in this chapter and any other provision of law, the more restrictive shall govern.

B. *Vibration.* No vibration shall be produced which is transmitted through the ground and is discernible without the aid of instruments at the points of measurement specified in Section 21.120(B) nor shall any vibration produced exceed 0.002g peak at up to fifty (50) cps frequency, measured at the point of measurement specified in Section 21.120(B) using either seismic or electronic vibration measuring equipment. Vibrations occurring at higher than fifty (50) cps frequency or a periodic vibration shall not induce accelerations exceeding .001g. Single impulse periodic vibrations occurring at an average interval greater than five (5) minutes shall not induce accelerations exceeding .01g.

C. *Odors.* No emission shall be permitted of odorous gases or other odorous matter in such quantities as to be readily detectable when diluted in the ratio of one volume of odorous air to four volumes of clean air at the points of measurement specified in Section 21.120(B) or at the point of greatest concentration. Any process which may involve the creation or emission of any odors shall be provided with a secondary safeguard system, so that control will be maintained if the primary safeguard system should fail. There is hereby established as a guide in determining such quantities of offensive odors Table III, "Odor Thresholds", in Chapter 5, "Air Pollution Abatement Manual", copyright 1959, by Manufacturing Chemists' Association, Inc., Washington, D.C., and said manual, and/or table as subsequently amended.

D. *Glare.*

1. *Direct Glare.* Direct glare is defined for the purpose of this Ordinance as illumination visible at the points of measurement specified in Section 21.120(B) caused by direct or specularly reflected rays from incandescent, fluorescent, or arc lighting, or from such high temperature processes as welding, or petroleum or metallurgical refining.

No such direct glare shall be permitted with the exception that parking areas and walkways may be illuminated by luminaries so hooded or shielded that the maximum angle of the cone of direct illumination shall be sixty (60) degrees if the luminary is not less than six (6) feet above the ground. Such luminary shall be placed no higher than the principal structure on the site if attached to said structure and, if not attached to the principal structure, no higher than twenty (20) feet unless the Zoning Administrator determines that special operational circumstances of the subject property require higher light standards. The maximum illumination at ground level shall not be in excess of three (3) foot candles.

2. *Indirect Glare.* Indirect glare is defined for the purpose of this ordinance as illumination visible at the points of measurement specified in Section 21.120(B) caused by diffuse reflection from a surface such as a wall or roof of a structure. Indirect glare shall not exceed that value which is produced by an illumination of the reflecting surface not to exceed:

.3 foot candles (maximum)

.1 foot candle (average)

Deliberately induced sky-reflected glare, as by casting a beam upward for advertising purposes, is specifically prohibited without the issuance of a temporary sign permit.

- E. *Fire and Explosion Hazards.* All activities involving and all storage of inflammable and explosive materials shall be provided at any point with adequate safety devices against the hazard of fire and explosion and adequate firefighting and fire suppression equipment and devices standard in the industry. Burning of waste materials in open fires is prohibited at any point. The relevant provisions of State and local laws and regulations shall also apply.
- F. *Heat.* For the purpose of this ordinance, heat is defined as thermal energy of a radioactive, conductive or convective nature. Heat emitted at any or all points shall not at any time cause a temperature increase on any adjacent property in excess of ten (10) degrees F., whether such change be in the air or on the ground, in a natural stream or lake, or in any structure on such adjacent property.
- G. *Radioactivity or Electric Disturbance.* No activities shall be permitted which emit dangerous radioactivity at any point, or electrical disturbance adversely affecting the operation of any equipment other than that of the creator of such disturbance.
- H. *Smoke, Fumes, Gases, Dust, Particulate Matter.* No emission shall be permitted at any point which would violate the current regulation for such emission as established by the Bay Area Air Quality Management District.
- I. *Liquid or Solid Wastes.* No discharge shall be permitted at any point into any public sewer, private sewage system, or stream or into the ground, except in accord with standards approved by the State and County Departments of Health and local ordinances, of any materials of such nature or temperature as can contaminate any water supply, interfere with bacterial processes in sewage treatment, or otherwise cause the emission of dangerous or offensive elements. There shall be no accumulation outdoors of solid wastes conducive to the breeding of rodents or insects, unless stored in closed containers. (Ord. 2811 § 4, 2022.)

The Petaluma Implementing Zoning Ordinance is current through Ordinance 2830, passed December 19, 2022.

Disclaimer: The city clerk's office has the official version of the Petaluma Implementing Zoning Ordinance. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

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